

**Aston Hall -
Excavation of the Service
Range of the Stable Court:**

**Post-excavation
assessment and updated
research design**

Project No. 1177

Aston Hall – Excavation of the Service Range of the Stable Court:

Post-excavation assessment and updated research design

by

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1.0 SUMMARY

An archaeological excavation was carried out at the Grade 1 listed Aston Hall, Birmingham, on the site of the former service range situated on the north side of the Stable Court (NGR SP 07975 89920; Fig. 1). Birmingham Archaeology undertook the work on behalf of Birmingham City Council in order to inform the renovation on the hall and gardens which is also partly funded by the Heritage Lottery Fund and Birmingham Museum and Art Galleries. The service range was built around 1635 and demolished in 1869. The excavations revealed the foundations of a brick structure, measuring approximately 32m in length and between 6 and 8m in width, with floors, internal features, and a cellar surviving in places, together with the well-preserved remains of an 18th-century icehouse. Comparison of the physical evidence with historical maps and documents showed that the service range originally comprised (from west to east), a separate tower over a water channel, then a large wash house with piped drainage, a brewhouse, a bakehouse and what was probably some sort of food processing or storage area. These components were two-storied, with the exception of the wash house. The laundry facilities were upgraded in the 18th century when a laundry and drying room were added to the wash house, and the icehouse and a cellar under the eastern part of the range constructed, probably by Lister Holte. The tower may also have been converted at this time into the Keeper's Lodge noted in an inventory of 1794.

Great changes occurred after 1817, following the subdivision of the now partially redundant service range between James Watt junior, who retained the western part of the service range and James Chattaway. Chattaway was a tenant farmer who took over the eastern part of the range as accommodation and incorporated it into his farm by enlarging the cellar, making a connection to the undercroft of the surviving stable range, and adding various outhouses to the back of the building. After Watt's death in 1848 Aston Hall became a public attraction rather than a private residence, and the service range was further subdivided into accommodation, including a cottage for the gardener. However, the buildings became increasingly dilapidated and were pulled down in 1869 and turned into a walkway and gardens following advice from J.J. Bateman, an architect appointed by the Parks and Gardens Committee of the Municipal Council, who had taken over ownership of Aston Hall a few years previously.

The preserved remains of the service range are arguably of national importance as they form an important 'lost component' of the overall estate at Aston. Their development, which was fortuitously captured in stasis in 1869, is different from, and yet complimentary to the other standing components of the Stable Court, such as the stables and the kitchen service range. The importance of the physical remains is further enhanced by the rarity of largely unaltered service ranges across the country, and a corresponding dearth of documentary evidence concerning their evolution, in comparison to the more widely studied houses, parks and gardens of a great estate.

2.0 INTRODUCTION (Fig. 1)

2.1 Archaeological, historical and planning background

This report describes the results of an archaeological excavation at the Grade 1 listed Aston Hall, Birmingham on the site of the former service range situated on north side of the Stable Court (NGR SP 07975 89920; Fig. 1). Birmingham Archaeology were commissioned to undertake the archaeological excavations by Birmingham City Council in order to inform the detailed planning of a major scheme of renovation at Aston Hall. The archaeological fieldwork was carried out in accordance with a Design Brief prepared by the Council (Hodder 2004), and a Written Scheme of Investigation prepared by Birmingham Archaeology (BArch 2004), and approved by Dr Mike Hodder, the Birmingham City Council Planning Archaeologist. This assessment report has been prepared in accordance with English Heritage Guidelines laid out in the Management of Archaeological Projects (MAP 2).

The site of the former north service range was previously investigated by trial trenching in 1999 as part of a broader programme of archaeological evaluation of Aston Hall. This work demonstrated that survival of remains of the service range was extensive. External walls were generally located at a depth of between 0.4 and 0.7m beneath the modern ground surface and were in a good state of preservation. A further set of trial pits dug in 2002 confirmed the survival of internal structural remains, including walls and floors, all found at a depth of between 0.6m and 1.8m.

As may be expected of a site of this status, there are a great deal of documentary and written historical sources concerning the development of the Aston Hall itself together with the park and gardens (see bibliography, below). In contrast, there is a relative dearth of evidence concerning the service ranges the most complete historical outline of which is contained in the conservation plan compiled by Rodney Melville & Partners in 2002. Prior to the 19th century, when national sources such as the census, rate books and Ordnance Survey mapping become available, the evidence is largely confined to three inventories of the entire estate compiled in 1654, 1771, and 1794, and a sale document dated 1817, together with some cartographic and illustrative material (e.g. Tomlinson's map of the Aston Estate dated 1758 and Dugdale's view of 1656 and J. Fusell's view of the west side of house drawn in 1803). Possibly the most useful record of the service range was the condition survey drawn up by the architect J.J. Bateman in 1864/5, which included measured sketches of the ground and first floors, while Allen Everitt's bird's-eye view of around 1860 appears to be less a record of the actual appearance of the service range and more a suggestion as to its historic form.

It would appear that the north service range and the east stable range formed an L-shaped service block situated around a courtyard laid out to the north of the hall around the same time that it was built (i.e. between 1618 and the Civil War). The two ranges were subsequently directly linked through the construction of a water-closet annex onto the eastern end of the service range in the mid-19th century. Access between the two ranges was probably via a doorway leading from the undercroft of the stable range that would have opened into a newly constructed cellar at the eastern end of the service range. The

east range housed the stables, coach house and saddle house on the ground floor, with several chambers above. This range underwent much alteration during the 18th century and again during the mid-19th century when it was converted into refreshment rooms by the Aston Hall and Park Company. It is not inconceivable that the north service range may also have undergone similar campaigns of alteration and refurbishment during the 18th century, however, by the mid-19th century it had fallen into a dilapidated state and was ordered to be demolished in 1869.

The north service range (Plate 1) was purpose built to provide domestic facilities for Aston Hall. Documentary evidence and excavation have enabled the function of the various rooms to be established. The north range can be divided into two main areas of activity. The first area included the bakehouse and brew-house both served by two large chimneys built into the back wall of the service range. There were first-floor chambers over, and later a sunken cellar or undercroft was added, probably for the storage of dairy produce. The second area comprised a laundry suite, the main room being a wash house with other more specialised laundry and drying rooms added later. Set slightly to the west of the main range was a free-standing, tower-like, structure straddling a substantial, arched, water culvert called the 'turret next the washhouse' in 1654.

Detailed documentary research has been carried out on the inventories, census returns for 1841 to 1891 and other sources relating to the service range in the Birmingham Archives. The results of these studies together with the archaeological evidence has then been used to interrogate the original sketch drawings made by Bateman in 1864 to further elucidate the structural development of the service range. This analysis will be presented in full in the final publication report. In outline the service range was divided between James Watt junior, who probably retained the use of the 'turret' over the culvert, and James Chattaway, a local farmer, who took over most of the buildings and converted part of them into a house. After Watt's death this house was called Ball's House after its tenant, although no Ball is mentioned in either the 1851 or 1861 census. The 1861 census lists a Hooper's Cottage which was no longer recorded in 1871. Hooper was a blind basket weaver who lived here with his wife and three daughters and this was probably same building. After the City Council took over the ownership of Aston Hall the cottage was occupied by Frederick Kirby, a gardener, who was employed between 1864 and 1869 on an initial wage of 21 shillings per week including the house and coal. However, in 1867 Kirby nearly lost his job when it was reported to the Baths and Parks Committee that he had unlawfully accepted a lodger. He survived this incident but had his wages capped and was finally made redundant in 1869 as a cost-cutting exercise. This was also the year that the committee finally approved Bateman's proposal to demolish the service range. The contract was awarded to Mr James Preece who undertook the work for £36, with another £36 apparently set aside for the removal of old salvaged materials which explains why the buildings were so comprehensively robbed. The 'turret over the culvert' may be equivalent to the Aston Water House occupied by James Taylor, a metal roller, his son and a housekeeper in 1851. This is next listed as the Pump House in the 1861 and 1871 census in the occupation of the Abraham Spencer, a grave digger, whose wife and daughter were laundresses. The Pump House is no longer listed in 1881, so it is possible

that the 'turret' survived a little longer than the rest of the service range, which may account for its better state of preservation.

2.2 Aims

The objective of the archaeological excavation was to reveal and record the below-ground remains of the north range of the Stable Court in order to inform the design of the renovation and refurbishment scheme.

The specific aims of the excavation were to:

- contribute to an understanding of the service range its relationship and function in relation to the main house.
- define the morphology of the archaeological remains and determine their character, development and chronology.
- identify, where possible, individual functions within specific rooms, and correlate these with the cartographic and documentary evidence concerning the Stable Court.

3.0 METHODOLOGY (Fig. 2)

The excavation comprised an original area approximately 380 metres square, designed to fully expose the complete footprint of the service range. The overburden was removed by a tracked 360 degree excavator using a toothless ditching bucket under direct archaeological supervision, to expose the top of the surviving walls and floors.

The excavation was subsequently extended both to the north, to fully expose the Ice House part of which had been exposed near to the edge of the original excavations, and also to the west beyond the footprint of the original building, to confirm the location of the western tower, and the garden wall. Three further slots were excavated through the redeposited sands and gravels under the floor of the Brewhouse and Bakehouse using a mini digger under archaeological supervision to examine the initial sequence of activity associated with the groundwork preparation before the service range was constructed.

Subsequent excavation was entirely by hand. Walls and floors were generally left in-situ, although discrete areas were removed where appropriate in order to understand the structural sequence. Samples of building materials were taken, and where the removal of walls and floors was necessary, the building materials were kept for later reinstatement.

The walls and floors were manually cleaned and planned using a total station and a Cyrax 3-D laser scanner. Wall elevations were recorded by means of Cyrax, and rectified photography referenced to points tied into the overall total station survey. Further recording of the walls and floors comprised sketch plans, photography and written notes in addition to pro-formas. Finds were washed, marked, bagged, and conserved, as appropriate. The overburden and excavated material was recorded by means of pre-printed pro-formas for contexts and features, supplemented by scale plans and monochrome print, colour print and colour slide photography. Where deposits with

potential for environmental analysis were identified, samples were taken for plant remains and industrial residues.

The archive from the excavations will be deposited with the Department of Human History, Birmingham Museums and Art Gallery, within a reasonable time of the completion of the fieldwork following consultation with the Planning Archaeologist.

A summary of this report will be submitted for inclusion in *West Midlands Archaeology* and appropriate national journals, and a monograph paper published in *Post-Medieval Archaeology* or the *Transactions of the Birmingham and Warwickshire Archaeological Society*.

4.0 RESULTS

The results from the excavation have been provisionally divided into six phases, defined according to the fabric of the north range, style of construction, documentary evidence and research into the development of the technology of the service range, as follows:

Phase 0: Pre 1618

Phase 1: 1618-1635

Phase 2: Mid 18th Century

Phase 3: Early 19th Century

Phase 4: 1848-1869

Phase 5: Post 1869

4.1 Phase 0: Pre 1618

With the exception of a residual worked flint the earliest activity consisted of the terracing of this area to the north of the hall to create a large flat platform that housed the service and stable ranges and the courtyard around which they were arranged. This probably involved some scouring away of the knoll upon which the main house was built, accompanied by dumping of the excavated material to level out the northern side of the terrace overlooking the park. Evidence of this levelling activity was seen in the excavation of the construction trench for the main east-west rear wall of the service range, which probably ran more or less continuously along the northern boundary of the service and stable court. Here, the construction trench had been cut down into the soft, fine-grained, planar laminated reddish sandstone of the Wildmoor Sandstone Formation, formerly called the Upper Mottled Sandstone (Plate 2). The junction between the natural and made-up ground is sharp and in most cases was marked by a thin dark horizon up to a few centimetres thick. Organic material was not seen in this band and its darker colour is likely to be the product of a red-brown pigment that cements the individual sand grains that is probably iron- rather than manganese-rich (Ixer 2004). Above this narrow band was the thick levelling deposit of dumped red sand used to level the terrace. No finds were recovered from this layer.

4.2 Phase 1: 1618-1635

The most significant phase of occupation on the site dates to the period during which the service range was constructed. The dimensions of the bricks used in this building are comparable with original bricks surviving in both the stable range and the Falconer's Lodge, both of which still stand today. Bateman also noted in his condition survey of the service range made in 1864/5 that the brickwork was similar to that in the Falconer's Lodge and the main house, so it is reasonable to assume that the service range was built at roughly the same time as Aston Hall itself.

The plan of the main body of the service range remained largely unaltered, apart from a few later extensions to the north and east sides of the building. This plan remained largely unaltered (Plate 1). The 1656 inventory lists a tower, laundry chambers, washhouse, dairy, day house, brewhouse, bakehouse and wool house.

From the archaeological deposits excavated across the site it is possible to further divide this phase into two sub-phases relating to the laying out of the foundations of the building and then the installation of facilities inside the structure.

Construction of the range

Excavations have shown the north service range to have been constructed predominantly of red brick, with only the very occasional use of sandstone as foundation or rubble core work for internal brick-built walls. The original ground plan of the building is defined by substantial external walls that were mainly two-bricks in width, forming a rectangle that was extended slightly on the northern side to accommodate two large chimney stacks. At the west end of the service range a tower-like structure was built into the continuation of the main rear east-west wall, but was otherwise separated from the rest of the service range by a cobble-floored yard. In plan this building resembled the Falconer's Lodge, although it probably did not share the latter's ornamentation.

The north wall of the service range was built upon the natural sandstone. Here, the soft bedrock had been cut away to find firmer bedding layers in a deep trench in order to provide a strong base for this retaining wall. Building work began with the digging of a construction trench (1, Fig. 3) for the rear wall of the range, with the foundation courses being built from the bedrock at the base of the cut (2, Fig. 3). The wall was then built up in stages from the sandstone base by brick-layers who stood in the construction cut initially. For here, the mortar bonding of the buried elements of the rear wall of the service range are properly finished off until a break which occurs at shoulder height. The construction trench was then backfilled and the wall continued to rise. There is also evidence of a change of plan, for an 11m length of the rear wall foundation was partially demolished and abandoned and the bases for the chimneys extended to the north (Plate 2). The north wall was thus dog-legged to accommodate the insertion of chimneys to heat the brewhouse and bakehouse (3, Fig. 3).

Ground work then continued with the construction of a northwest-southeast aligned brick-lined, stone-capped drain at the eastern end of the range (1, Fig. 4), and the construction of a north-south aligned culvert entirely in brick at the western end of the

range (2, Fig. 4). The precise sequence between the building of the culvert and the main rear wall could not be ascertained, but it is likely that they were roughly contemporary with one another.

Where relationships were visible, it was determined that the internal north-south walls of the range were constructed following the backfilling of the construction trench for the rear wall. Both the central (3, Fig. 4) and easternmost wall of the range (4, Fig. 4) had much shallower stone rubble foundations supporting brick walls above. The front wall of the service range (1, Fig. 5) was also constructed over the rubble foundations of the central and easternmost north-south walls, but the brickwork was bonded together. The foundations of the front wall were much shallower than its northern counterpart, instead this wall relied upon a wide corbelled-out brick foundation.

Along the frontage of the range were the remains of a probable walkway (2, Fig. 5), comprising a rubble core with a brick face defining the southern side. In one section a layer of bricks survived *in-situ*, revealing that the surface had once been brick. The rubble core may have aided the drainage of rainwater from the walkway, and where it was fully excavated, it had at least three drains underlying it that probably carried off water from downpipes off the roof. Similarly, during excavation to the rear of the service range a plaster surface also appeared to have been a path or walkway (3, Fig. 5). The pathway was cut by the construction of the Phase 2 ice house (see below), and it is likely that it went out of use at the time that the ice house was built.

Usage of the range

The archaeological evidence recovered also made possible the identification of individual rooms within the north range as a whole, and has contributed to our understanding of the usage of the building. The largest single room identified is likely to have been *the wash house* (Fig. 6, Plate 3), originally occupying the whole width of the range it also had later extensions added onto the rear. The walls of this range were thinner than those of the brewhouse and Bakehouse, being one-and-a-half bricks thick (0.35m). This may have been an economy as a wash house was generally open to roof and so the structure was not as heavy. However, it also probably indicates that the masons and brick layers employed on the service range knew a lot about building and were familiar with and confident at adjusting weight loading according to varying circumstances.

The remains of three linear sandstone structures, perpendicular to the rear wall of the room (1, Fig. 6), may have formed the supports for three large laundry vats. Excavation of one of these sandstone features revealed a length of early lead piping (Plate 4,; 2, Fig. 6) that appeared to extend from under the rear wall of the wash house and rise vertically to the base of the sandstone feature where it had been severed. This pipe may have functioned as a small drain for one of the laundry vats, draining waste water from the back of the vat away to the north of the range. Excavation further demonstrated that whilst the cut for the lead pipe was excavated through the backfill of the construction trench for the rear wall, the drain was part of the original design of the building; the hole through the wall being contemporary with its construction.

The remains of a plaster or mortar layer were identified in discrete pockets within this room, directly overlying the natural subsoil. In places they displayed evidence of brick indentation, suggesting it was the remains of a levelling layer for a brick floor. Discrete areas of brick floor also survived within the room, however the relationship between these areas and the drainage system suggested that they were not the original floor surface.

The position of the *brewhouse* and *bakehouse* were identified by the presence of two chimney bases on the north side of the range (Fig. 7, Plate 5). The two rooms were of similar size, divided by a substantial brick wall contemporary with the primary construction of the range. Each had its own large hearth, essential to the processes of both brewing and baking, located in the north western corner of the room. All the walls were 2 bricks, or approximately 0.5m thick, suggesting that they supported a first storey (this has also been confirmed by the documentary evidence). The salvaging of materials from these rooms prior to its demolition meant that no remains of flooring, or the structure of the hearths had survived *in-situ*.

At the western end of the range survived the base of 'the tower room', a small rectangular structure (Fig 8, Plate 6). A cobbled yard surface had been laid in the gap between it and the wash house and continued beyond the southern elevation of the range. The walls of this structure were also, like the wash house, only 1½ bricks thick. However, in this case the building encloses only a relatively small space and the thickness of wall would have been more than sufficient to support the weight of a two-storey building. The location of the structure corresponds to the 'turret next the wash house' mentioned in the 1654 Inventory and 18th and 19th century map evidence. The tower straddled a large north-south aligned water culvert, and the brick floor of the tower showed evidence of subsidence where it was laid over the backfill of the construction trench. The culvert originally ran from the main hall, under the tower, probably draining into the large pool at the base of the hill under what is now the Villa Park football stadium. Access to the culvert was possible from the floor of the tower (Plate 5). The remains of an early brick arch indicated that this entrance may originally been smaller, measuring only 0.85m x 0.66m. The opening was later enlarged probably so that more water could be drawn from the culvert for use in the service range. A 17m length of culvert survived *in-situ*, running from the entrance in the tower room northwards (Plate 7). The height of the culvert was 1.52m, from its base to the apex of the arched roof, and there was a drop of 2.3m from the tower floor to the base of the culvert. The roof of the culvert was arched along the whole of its length and its base was dished to allow water to drain more effectively. A slight south to north downward gradient was also noted.

At the eastern end of the range the original floor level and gable end of the service range had been removed by the insertion of a Phase 3 cellar (see below).

4.3 Phase 2: Mid-18th Century

The development of the service range was no exception to the changes in taste and material culture in the 18th century that found expression in a number of ways around Aston Hall. Although change was often constrained within the conservative framework

provided by the Jacobean architecture of the main hall, new technologies were incorporated into the service range.

The *wash house* was extended northwards (1, Fig. 9) and its floor was re-laid in red brick that incorporated a drainage gully that fed directly into the culvert (2, Fig. 9). This drain truncated the cobbled yard, and reused masonry was utilised as capping. It is also likely that the opening into the top of the culvert was enlarged during this period to provide more water. Two fixed coppers with their own furnaces, along with a staircase and platform from which they could be filled and emptied more easily were also probably fitted, and a large clay-lined pit (7, Fig. 9) was also dug, although its function is at present unclear.

The *laundry* was a relatively small room attached to the rear of the wash house (1, Fig. 9). A brick floor, covered with plaster, was overlain by levelling layers and another partially surviving brick floor with a plinth for what was probably an iron stove or drier (Plate 8). These changes in flooring undoubtedly attest to the incorporation of new technologies in laundry work. The coppers, illustrated on Bateman's plan, may also have been installed at this time. A brick and tile drain taking water away from the wash house was also located on the eastern side of the room, and is probably contemporary with the updating of facilities at this time.

Re-flooring within *the tower* probably also occurred during this phase, as an attempt to counteract earlier subsidence by the addition of another brick floor (3, Fig. 9). However, this later floor also subsided where it was lain over the construction cut for the culvert.

Excavation confirmed that *the cellar* at the eastern end of the range (4, Fig. 9) was not original, and was probably installed during this period of renovation. The service range is known to have had a dairy and cheese chamber during this period and the cellar was probably built to serve these, possibly being used for the storage of cheese, butter, milk and cream. The depth of foundations at the rear of the range (the north wall) meant that this wall could be reused in the cellar. However, the footings for the wall along the frontage were only 0.5m deep, and it was therefore necessary to insert a new retaining wall on the south side of the cellar. This cellar was probably accessed from a staircase in roughly the same position as the later, 19th century, one that survives *in situ*. The colder storage of food was no doubt related the construction of a large brick-built *ice house* situated to the rear of the service range (5, Fig 9, Plate 10). Its depiction on a map of Aston by J. Tomlinson (dated to 1758) suggests that it probably dated to the early/mid-18th century. The circular cut (measuring 4.5m in diameter at the top of the structure) was dug to a depth of 6m through the natural sandstone bedrock. The structure was almost conical in shape, sloping down to a straight-sided drain at its base that measures c.1m across. Slots in the brickwork around the drain suggest that it may have had a wooden cartwheel-type cover or sluice. The transition between the construction of the substructure and the above-ground dome was marked internally by a single course of headers and protruding brickwork around the outside. The construction trench fitted the build very closely, and was backfilled with red sand. The bricks used in the main structure measured 24cm x 11cm x 6.4cm (9 ¼" x 4 ¼" x 2 ½"). The overall

construction was of very high quality, with bricks laid mainly in stretcher bond with a very hard mortar that was well pointed, and the high quality of the workmanship may indicate that it was constructed by specialist ice house builders. The whole structure was then covered with a layer of clay and sand.

The entrance to the *ice house* faced northeast, and was also constructed of red brick. There was evidence to suggest that the entranceway originally had two doors, probably in order to maintain the internal temperature, and the inner door appears to have had quite a complex mechanism. Evidence for this survived in the form of grooves in the brick floor and imprints in the surrounding plasterwork. The entranceway, with its two doors, formed a corridor 2.2m long, 1.2m wide and 1.4m high that opened out onto the slope of the park to the rear of the service range. There was evidence for four supporting timbers to strengthen the entranceway, the need for which may have come from the heavy doors. Part of a long wrought iron ladder was also found that was originally fixed inside the *ice house* to provide access, or to pack to ice low down in the icehouse, or for the purpose of cleaning the ice house before it was restocked during the winter months.

4.4 Phase 3: Early 19th Century

When James Watt junior bought the hall in 1817 he leased most of the (eastern) part service range, and the north end of the stable range to James Chattaway, a local dairy farmer. It is also documented that Watt carried out repairs to the service range at this time that included re-tiling, and repairing and whitewashing the brew house. A significant build up of waste building material took place against the northern elevation of the building after the ice house was constructed, and it is tempting to associate this with the repair work and re-roofing carried out by Watt. Overlying this deposit were the remains of outhouses built against the rear of the range (1, Fig. 10). The outhouses were relatively insubstantial structures, their walls only measuring 0.25m wide with very shallow foundations. They were probably small single-storey rooms used for storage that were built around the ice house which was still in use at this time.

The entranceway to the ice house was opened out, during this period, with a brick floored yard with curving perimeter walls extending from the earlier straight walls of the entrance corridor. These walls, the yard, and a contemporary drain, were all characterised in parts by the use of heavily-fired brick and were all later than the original build of the ice house. The bricks in the entranceway measured 22cm x 10cm x 8cm (8 ½" x 4" x 3"). A drain near this entrance was covered using quarry tiles of a similar design to those utilised in the extension and improvement of the *dairy cellar* at the eastern end of the service range. Unfortunately, the yard was only partially revealed during the excavation. While it is not known how far it extended, it would appear to have been contemporary with the other changes wrought by Chattaway that included the provision of cowhouses on the northern end of the stable block, the extension of the *dairy cellar* mentioned above, and its connection to the undercroft under the northernmost end of the stable range. This extension of the *dairy cellar* included a new set of internal walls, the southern of which had a niche built into it (Plate 9) and was bonded with a new staircase giving access to the cellar (4, Fig. 10). The cellar was quarry tiled, brick plinths

were added for holding pails and jars and the walls were whitewashed in line with hygiene practice for dairy produce.

Further improvements made during this period included the probable re-use of the ground floor tower room as a toilet, conveniently it was positioned directly over the water culvert (3, Fig. 10). Later plaster floors identified within the structure as being contemporary, would also have facilitated keeping the area clean. This change may be related to the probable occupation of the Pump House by the Spencer family in the 1860s and the subsequent complaint of a Mr Evans to the council in 1867 that the stream '*that ran from the laundry*' had been stopped up for some time.

4.5 Phase 4: 1848-1869

Between 1848 and 1869 the service range was leased out by the Aston Hall and Park Company, and later by the Municipal Council. The buildings were in a bad state of disrepair and a early forerunner of a condition survey was undertaken by Bateman in 1864 on behalf of the council. Following his survey Bateman suggested that the north range be demolished in order to open up the view of Aston Hall from the north, but this was not carried out until 5 years later in 1869. The excavated evidence confirms that of the documentary record and shows that the building was systematically stripped of its fixtures and fittings prior to demolition. This included the majority of the floor coverings, with only broken tiles being left *in-situ*. This careful demolition process is also attested by the lack of roof tile recovered from the infill of the cellar and overburden over the remainder of the area that suggests that the roof was carefully dismantled rather than the building simply being razed. It must also have been at this point in time that the doorway leading from the undercroft of the stable range into the cellar was bricked up as it then led nowhere. Excavation of the ice house also showed that large parts of the dome were caved in and the icehouse deliberately backfilled using demolition material from the service range. Just prior to their demolition, the small (Phase 3) storage rooms, to the rear of the range, had been used to dump empty bottles, as a large amount of broken bottles were found in these areas.

4.6 Phase 5: Post 1869

Following the demolition of the north service range, the area underwent a period of re-landscaping and a walkway was created around the edge of the Victorian bowling green. The bowling green was subsequently enlarged in the 1930s. Evidence for this was displayed most clearly in a trench excavated immediately to the west of the service range. This revealed significant dumps of gravel that had been used as levelling deposits, and the remains of a degraded tarmac path that would have skirted the border of the original bowling green.

5.0 DISCUSSION

Five main phases of activity have been identified that chart the development of the service range from its initial construction to eventual demise. This must also arguably be one of the earliest examples of a dedicated service range separate from the main house in the region, if not nationally. Furthermore, it is a very early example of a lower status

building constructed entirely in brick, which marks it out even from the main hall where substantial parts of the cellars are built of sandstone. The excavation has demonstrated that buried remains of the north service range survived in this area with a sufficient degree of preservation to be able to:

- confirm and enhance the sketch plan of the building made by Bateman shortly before it was demolished

- correlate archaeological and documentary evidence to be able discuss issues such as the changing function of different parts of the service range, various responses to technological improvement, and the character, identity and occupation of various tenants who lived and worked there

- reconstruct the development of the building from its construction date in the early 17th century right through to its eventual demise in 1869

- compare and contrast the development of this structure with that of the surviving stable block, main hall and surrounding parkland and estate

Probably the most significant information from the excavations regards the form, methods and techniques of the original construction, closely followed by the responses to 18th century innovations and finally the 19th century change of use from a service range to more domestic and farm-based uses. The significance of this information is further enhanced by the body of contextual research about, and the historic importance of Aston Hall, stables and parkland. However, in this respect the new information garnered from the excavations concerning the development of the service range is particularly important for a number of other reasons. These include:

- the rare above-ground survival of separate service ranges in country houses in their original condition as they were usually subject to profound changes in the 20th century that often involved conversion to accommodation or demolition

- the relative paucity of documentation about the service range and the people who worked there in comparison to the main hall or owners

- the comparative dearth of general research on these important components of the overall working of a large country estate

In summary, for the above reasons a publication that is focussed primarily upon the method and character of the build of the service range, supplemented by a discussion of its subsequent alteration probably has the potential to make an important contribution to our understanding of this type of monument, certainly at a regional, and arguably at a national level, in addition to significantly enhancing our understanding of the working of the entire estate at Aston Hall.

6.0 ASSESSMENT

6.1 Stratigraphic data

As described above, the features and deposits recorded on site can be divided broadly into five phases, dating from the initial construction of the service range in the early 1600s through to the post-demolition consolidation of the site after 1869. The majority of these features and deposits have been dated, either through the presence of chronologically diagnostic features, or by their archaeological stratigraphic relationship, so that the chronological and functional development of the building is well understood. Further structural analysis and definition of this archaeological sequence in relation to the recommendations highlighted in italics below, together with the fullest possible integration of this archaeological evidence with the documentary record will achieve and further enhance the updated research aims as outlined in Section 7.0 of this report, below.

6.2: Quantification

Tables 1-3 quantify the evaluation and excavation archive.

Record	Quantity
Contexts	122
Features	156
Assemblage summaries	25
Colour prints	205
Colour slide	155
Black and white prints	160
Drawings	20
Env. Sample record files	17
Survey file	1

Table 1: Quantification of paper archive

Material type	Quantity
Ceramic: tile	42
Ceramic: brick	1
Mortar	11
Post-medieval pottery	550
Clay pipe	16
Iron: nails	56
Iron: other	21
Copper/alloy	2
Lead	4
Slag	4
Glass	4992
Glass: window	11
Glass: slag	3

Worked Bone	2
Bone: animal (g)	1274
Shell	67
Shell: worked (button waste)	1
Charcoal	1
Slate	1

Table 2: Quantification of excavation finds archive

6.3 Artefactual and ecofactual data and statement of potential

Both the artefactual and ecofactual data recovered from the excavation of the service range at Aston Hall present problems of analysis. This is due to a number of factors in the depositional character of the site which will be highlighted below, but it is also a reflection of the overall strategy of the excavation which was necessarily focussed upon understanding the development of the service range, together with the extraordinarily good preservation of the structures themselves.

The development of the service range began with the initial ground work, terracing and foundation construction of the main range. This was large scale work, the necessary materials such as sands and gravels were locally to hand and consequently very little artefactual evidence of this activity was found. The plan of main range then did not change significantly over the next two centuries (with the exception of the putative pump house to the west and the addition of a cellar or undercroft to east and the construction of the icehouse), although like the existing stable range the above-ground fabric may have been altered or replaced several times. The main changes in the overall plan of the service range occurred outside the main range and included the construction of additional lean-to accommodation and the icehouse. Throughout its life as a service range the building was kept scrupulously clean, the only rubbish being dumped being outside to the rear or north side of the range. While there is some structural evidence for internal changes taking place, particularly after the service range was sub-divided and underwent a change of use under the tenancy of James Watt, this did not involve any substantial earth movement, consequently the artefactual and ecofactual data is limited. Finally, the demolition work included the removal of most of the reusable flooring materials before the building was pulled down, consequently most of the archaeological deposits excavated from the site related to this phase of activity. Finally, after encapsulation of the remains of the range under landscaping trees and plants grew over the site and their roots invaded some of the archaeological deposits, particularly the drains in their search for water.

6.3.1 Pottery Assessment

The pottery recovered from the excavations was rapidly assessed, spot dated and recommendations for further work provided by Stephanie Ratkai. The assemblage comprised c.550 post-medieval sherds, the majority dating from the mid-to-late 19th century, and mostly being poorly-executed transfer wares. Interestingly, there is documentary evidence of a gardener living in the north service range in the mid-19th century and flower pots and a jardiniere were recovered from 19th-century contexts. It is likely that the bulk of this pottery was left behind when the last tenants of the service

range vacated the buildings shortly before they were demolished in 1869. However, two other periods are also represented. Later 18th-century (c.1770-80) pottery included lighter creamware plates, salt and tin-glazed wares, and Westerwald and English stoneware jars, and there were discrete deposits of earlier 19th-century pottery, including striped Mocha wares, in contexts that may date from the sub-division of the service range between James Watt and James Chattaway, a local farmer. While there does not appear to have been much handing down of old but higher status ceramics from the hall to the servants, (nearly all of the pottery being utilitarian in nature), this may be attributable to any items of value being removed when the servants left. The relative lack of earlier pottery was also probably caused by the fact that the service range was a working area that would have been kept scrupulously clean.

Spot dating	1020 - 1830/40s, including tea cups
1002 - 19 th century	1023 - mid 19 th century
1006 - mid 19 th century	1025 - 18 th century
1007 - mid 19 th century	1026 - mid 19 th century
1008 - early 19 th century (one cross-match with 1010)	1027 - 19 th century
1010 - early 19 th century	1028 - mid 19 th century
1011 - late 18 th century	1029 - 18 th century
1012 - early 19 th century	1039 - 18 th century
1013 - first half of the 19 th century	1040 - 1770/80
1014 - mid 19 th century	1048 - 19 th century
1016 - 18 th century	1049 - early 19 th century
1017 - late 18 th or early 19 th century	
1019 - mid 19 th century	

In general, while the pottery would not appear to significantly assist in the overall interpretation of the structural development of the service range, the 18th century and earlier 19th century material should be examined in relation to the function of the areas of the service range in which they were found. The mid-19th century assemblage may also shed further light upon the social history of the last set of tenants, particularly as most of this material was probably abandoned just before the range was demolished, and it is known that any items of potential value were stripped from the building by the demolition workers. Therefore, this assemblage has the potential to provide a 'snapshot in time' of what was not valued by these generally under-represented classes in the archaeological record. However, this potential will have to be carefully assessed (with further specialist advice from David Barker (of Stoke-on-Trent Museum) in relation to both the integrity of each deposit, and the quality of the documentary record.

6.3.2 Glass summary

A large assemblage of glass (4992 fragments of bottle glass and 11 fragments of window glass) was recovered from the excavations of the service range (Table 2 & Appendix D). The glass was weighed by context, quantified, and in the case of the bottle glass, divided into body, base and neck forms. Undiagnostic body sherds were discarded, but necks, bases and complete bottles were retained for further analysis, together with body fragments with stamps or embossing. The meagre amount of window glass is probably explicable in terms of the systematic stripping of any items of value from the service range when it was demolished.

The majority of the assemblage consisted of bottle glass that was mainly mid-19th century in date and was probably disposed of around the time that the service range was demolished in 1869. It is tempting to link the disposal of a number of the local Ansell's Brewery beer bottles, decorated with the distinctive squirrel motif stamp of the Holte family, with the short tenancy of Daniel Bayley who ran the Refreshment Rooms located in the Stable Block for 11 months between January and November 1865. These bottles (that collectively weighed nearly 150 kg) had been dumped (1040) in a small storeroom on the north side of the Stable Range close to the brewhouse that he also rented. Bayley was given notice to quit by the Municipal Council Baths and Parks Committee (who had taken over the management of Aston Hall from the Aston Park Company in 1864) for running 'a disorderly house', which was probably a reference to the (apparently prohibited) sale of intoxicating liquor (amongst other things). There were also a few much smaller deposits of mainly 18th-century wine bottles.

It is proposed that limited analysis be targeted towards the quantification of each type of glass vessel with a representative sample retained and considered for illustration, particularly where these forms can be firmly dated to pre-19th century contexts. Further research will also be carried out to establish the probable date and provenance of the Ansell's beer bottles.

6.3.3 Other finds by Erica Macey-Bracken

As well as the pottery, a range of other finds was recovered from the site. The assemblage included ceramic tile and brick, mortar, animal bone, worked bone, iron, copper alloy, lead, slag, shell, clay pie, charcoal, stone and other metal. The assemblage was quantified by count and weight, and was examined macroscopically for the purposes of this assessment. Whilst the assemblage was very fragmentary, individual pieces were not very abraded as may be anticipated of a demolition phase carried out in a single period on a site that was never subsequently substantially disturbed.

Tile, brick and mortar

The tile assemblage consisted of 200 sherds of tile. Most of the assemblage were roof tile fragments, that were probably discarded when the service range was demolished. Two contexts containing tile were dated to the late-18th century (1011, 1016) and are associated with the construction of the Laundry to the north of the wash house. Another dump of roof tile was situated to the north of the brew house, and may have been thrown there when the documented re-roofing of that building occurred that was paid for by James Watt.

Tile from the 18th and early 19th -century deposits noted above should be studied and compared with the tile from the demolition works and the tile still extant on the roof of the stable range. Several different types of tile fabric were noted in the later 19th-century assemblage. Again, further basic analysis may match these to known periods of re-roofing of the stable range.

In addition to 26 bricks sampled from each of the walls uncovered during the excavations, eleven fragments of brick were recovered from discrete 18th-century deposits and features on the site (1011, 1029 and 1039), as opposed to the general mid-19th century demolition layers, which contained too many bricks to meaningfully sample.

It is proposed that the brick samples from the walls be inspected and retained as a reference collection that may aid eventual reinstatement of the building. The brick fragments should be compared with the samples mentioned above, in order to determine whether they are from the same types of brick in use elsewhere on the site, but beyond this, no further work is recommended.

A total of 61 mortar samples were taken from the contexts listed below. In addition a total of 41 pieces of mortar were recovered from excavated contexts.

F102	F219 (x 2)
F103	F220
F104	F221
F105	F223
F107	F225
F108	F226
F111	F227
F112	F228
F113	F230
F114	1034
F115	1038
F119	Icehouse main build
F121	
F122	
F125	
F126	
F128	
F130	
F134	
F148	
F150	
F151	
F156	
F159	
F160	
F162	
F163	
F164	
F165	
F166	
F167	
F168	
F169	
F170	
F171	
F172	
F173	
F174	
F175	
F176	
F181	
F189	
F193	
F196	
F206	
F208	
F211	
F212	
F218	

Again, it is recommended that targeted analysis of the mortar samples be undertaken in order to clarify any questions concerning the structural development of the service range, but that otherwise, like the brick samples, they be retained as a reference collection and aid to eventual reinstatement work.

Shell

A total of 79 fragments of oyster shell were recovered from the site. Most of the assemblage consisted of whole or near-complete shells that are probably kitchen waste, although several contexts (1011, 1048, 1049, Icehouse backfill of entrance passage) also contained evidence of shell-working, in the form of button blanks (1048 x 4) and shell fragments that had semi-circular holes where buttons had been cut out. Evidence of shell working has been found on several other sites in Birmingham and was a very common craft activity carried out by large sections of the population. In the case of the service range there were no doubt running repairs both to the laundry and to the servants clothing. *No further work is recommended.*

Clay pipe

Twenty-five fragments of clay pipe were recovered from across the site. The assemblage consisted exclusively of pipe stems, although one stem had a small portion of bowl also attached (1007). This bowl appeared to have a fluted design on it, and, in common with the pottery from this context, is likely to be of mid-19th century date. The most interesting pipe in the assemblage was a stem (1014) with a stamped inscription on it. The stamp was indistinct in places, but appeared to read:

Dume[?un?]

Leurs

S'Omer

Deposex

Further investigation into this stamp may reveal its meaning. The small size of the overall clay pipe assemblage is probably explicable in terms of both the fact that this was a clean working area in which food and linen were processed and also by the fact that the service range was almost entirely the preserve of women. *No further work on this assemblage is recommended.*

Worked bone

Two fragments of worked bone were recovered from the site (1006, 1017). One piece, appears to come from a long, thin, straight bone, that has been polished to a smooth finish. This piece is 62mm long, and is broken at one end. The undamaged end appears to have been cut straight across during working of the bone, to form a deliberate terminal. The first 10mm of the bone from this end have been worked to be slightly thinner than the remainder of the shaft, as if this end was designed to fit into some kind of socket. *Further research may help to identify this item.*

The second piece of worked bone is an elaborately carved piece, 33mm long and 9mm wide at its widest point, tapering down to 5mm at its narrowest point. A hole has been bored through the top of the piece, suggesting that it may have hung from a cord of some kind. A split is visible at the bottom of the item, although it is not clear if this is deliberate or not. If it is a deliberate split, it may suggest that the item was the handle of a small implement, with the actual implement being inserted into the split. *Further research may help to determine the function of this item.*

Iron

Thirty-nine iron items and fifty-eight nails were recovered from the site. Most of the iron was very corroded, and many of the items could not be positively identified. The only recognisable items, beyond pieces of obvious scrap iron, were a shovel blade (1007), a horseshoe, a hook and what appears to be some kind of socket (U/S). A possible window fitment, made from iron, but probably coated with zinc alloy was also recovered (1012) together with a sash-window weight (U/S). *No further work is recommended on these items.*

Copper alloy

Two copper alloy items were recovered from the site. The most immediately identifiable item was a small pin (1025), with a globular head. The pin had broken in two, but was complete, and would have been 30mm in length before it was broken. It is likely that the pin was made of tinned brass, which was used for pinmaking in England from the 17th century onwards (Costello 2001). The other copper alloy item was very small, at 15mm in length, and could not be positively identified. *No further work is recommended for these items.*

Lead

The lead assemblage consisted of ten pieces of lead, and mostly consisted of mangled pieces of window tracery (1008 x 1, 1048 x 1, Icehouse backfill x 2, U/S x 3) that were probably discarded during the demolition work. Two flat lead weights/discs from the Icehouse. The function of these discs is unclear, but it is possible that they are a kind of weight. A larger piece of buckled lead sheet (1029) may have been a piece of roof or window flashing that was inadvertently missed by the demolition workers. *No further work is recommended for these items.*

Other items

Other small artefacts from the site included a piece of very light, thin sheet (1002) of an uncertain metal, and a marble from a lemonade bottle top (1048). *No further work is recommended for these items.*

Stone

Six coping stones similar to those still visible on the roof of the stable range had been used as the capping of a brick drain (F121). *No further work is recommended for these items.*

Slate

Twenty-seven fragments of slate were recovered. These slates were mainly recovered from 19th century contexts, and were probably discarded during demolition. *No further work is recommended for these items.*

Leather

Three pieces of waterlogged leather were recovered from the site (1010). These pieces appear to be offcuts from leather working, *but a closer study will determine this.*

Animal bone

A total of 2044 grammes of animal bone was recovered, mainly from demolition contexts. *Because this assemblage is so disturbed no further work is recommended.*

Other finds

Other finds from the site included seven fragments of charcoal (1006 x 2, 1011 x 2, 1014 x 1, and a flint flake (1048) with evidence of re-touch. *No further work is recommended for these items.*

Aston Hall, Birmingham – Table of other finds

Context	Tile	Brick	Mortar	Animal Bone	Worked Bone	Iron	Nails	Copper Alloy	Other Metal	Slag	Shell	Charcoal	Clay Pipe	Stone	Lead	Leather
1002	1	-	1	46g	-	2	-	-	1	-	-	-	-	-	-	-
1006	40	-	-	38g	1	7	1	-	-	-	1	2	-	-	-	-
1007	3	-	3	-	-	4	-	-	-	-	1	-	1	-	-	-
1008	1	-	-	34g	-	4	4	-	-	1	-	-	3	-	1	-
1009	-	-	-	21g	-	-	-	-	-	7	-	-	-	8 slate	-	-
1010	-	-	-	47g	-	-	8	1	-	4127g	-	-	-	18 slate	-	4
1011	37	1	5	313g	-	4	-	-	-	-	5	2	-	-	-	-
1012	-	-	-	5g	-	-	15	1	-	1	-	-	-	-	-	-
1013	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
1014	32	-	-	99g	-	8	20	-	-	-	6	1	3	-	-	-
1016	5	-	-	132g	-	-	1	-	-	-	4	-	3	-	-	-
1017	-	-	-	-	1	1	5	-	-	-	1	-	2	1 slate	-	-
1020	-	-	-	54g	-	1	-	-	-	-	-	-	3	-	-	-
1023	-	-	-	57g	-	-	-	-	-	2	-	-	-	-	-	-
1025	-	-	-	99g	-	-	-	1	-	-	42	-	-	-	-	-
1026	6	-	-	414g	-	-	-	-	-	-	14	-	3	-	-	-
1027	-	-	-	2g	-	-	-	-	-	-	-	-	-	-	-	-
1028	1	-	-	20g	-	2	-	-	-	-	-	-	-	-	-	-
1029	-	6	8	7g	-	-	-	-	-	-	-	-	-	-	1	-
1039	1	3	2	2g	-	-	-	-	-	-	-	-	-	-	-	-
1046	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1048	-	-	-	1g	-	-	1	-	1	-	2	-	-	1 flint	1	-
1049	-	-	2	3g	-	-	-	-	-	-	1	-	-	-	-	-
F244	-	-	-	10g	-	-	1	-	-	-	-	-	-	-	-	-
F245	-	-	-	31g	-	-	-	-	-	-	-	-	-	-	-	-
F247	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Icehou	-	-	2	76g	-	1	1	-	-	-	-	-	2	-	4	-

se																	
Icehouse backfill of entrance passage	1	1	2	73g	-	1	1	-	-	2	2	-	5	-	-	-	-
Cleaning of long trench	1	-	-	412g	-	-	-	-	-	-	-	-	-	-	-	-	-
DOM 5	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KH1	59	-	12	-	-	1	-	-	-	-	-	-	-	-	-	-	-
U/S	2	-	4	48g	-	2	-	-	-	-	2	-	-	-	-	3	-

6.3.4 Environmental statement

Environmental samples were taken from the following contexts. A 10 litre sample was then processed and rapidly assessed through visual inspection, but not examined further at this stage.

Context	Flotation	Residue	Other	Phase
1006	charcoal, plant matter	5% charcoal	tile, pot, glass	4
1010	coke, charcoal	30% charcoal	coke	4
1014	charcoal, plant remains	10% charcoal	pot, glass, iron	4
1028	charcoal	5% charcoal	brick, pot	4
1033	charcoal, lime		concrete	2
1036	charcoal, chalk?			2
1062	charcoal	2% charcoal	brick	3
1063	charcoal			3
1064	charcoal, organic matter	40% organic matter		3
1066	charcoal		50% brick	?
1068	charcoal, (roots, leaf)			3
1070	charcoal			2
1074	charcoal			1
1079	charcoal			1/2
1082	charcoal		bone	1
1083	charcoal		bone	1
1087	charcoal		80% brick	1

Because of the degree of contamination due to extensive demolition work and the widespread subsequent intrusion by tree roots into features like drains (e.g. 1087, drain F216; 1082 and 1083, drain F189; and 1068, drain F151) it is proposed that only demonstrably uncontaminated pre-demolition contexts be assessed in more detail. These deposits would then be fully examined and the results incorporated into the final report.

7.0: UPDATED PROJECT DESIGN

It is possible to restate, enhance and refocus the research aims as to being to:

- complete the archaeological analysis of the site
- discuss the development and morphology of the service range, and determine its original character
- identify, where possible, individual functions within different rooms and examine the positioning and 'flow' through these spaces inside the service range
- discuss the methods and techniques used within the range and analyse developments in the design, layout and technology used in the range
- contribute to an understanding of the development of service ranges and their relationship and function within the overall running of an estate
- explore the social history of the range, its employees, their roles and later tenants
- integrate the archaeological and historical evidence more fully
- further analyse the pottery and glass assemblages and the more significant small finds

8.0: PUBLICATION SYNOPSIS

There a number of potential publication journals in which the discussion of this site might appear. The most obvious is the *Transactions of the Birmingham and Warwickshire Archaeological Society*. However, the site is clearly potentially of national interest in which case consideration may be given to publication in *Post-Medieval Archaeology*, or alternatively *Vernacular Architecture*. The provisional lengths of the individual contributions are given below.

The North Service Range, Aston Hall, Birmingham: Archaeological Excavations 2004.

By Leonie Driver, Steve Litherland and Eleanor Ramsey

With contributions by Erica Macey, and Stephanie Ratkai.
Illustrations by Nigel Dodds and Bryony Ryder

Introduction by SL
500 words 1 figure

Aims and methodology by SL
200 words

The Site and its Context by LD and SL
1000 words 2 figures

Description of Results by LD and ER
2000 words 5 figures 10 plates

Interpretation of the Evidence by Phase by Phase LD, SL & ER
3000 words 5 figures 5 plates

Post-medieval Pottery and Glass by SR
1000 words, 2 tables, 5 plates

Small Finds by EM
500 words, 1 table, 2 plates

Discussion and Conclusion by LD, SL & ER
3000 words

Bibliography

TOTAL 11,200 words, 3 tables, 13 figures, 22 plates

9.0: TASK LIST

The task numbers below give the names of the individuals responsible for the completion of the task, and the number of days allocated.

	Person	Days
Overall project management	SL	1
Integrate archives/check phasing	ER	1
Phasing database	ER	1
Figure roughs for site narrative	SL	2
Draught figures for site narrative -plans	ND	4
Preparation of first draft of introduction and results	SL	5
Pottery and glass		
a) Record pottery	SR/DB	2
b) Data entry	SR	1
c) Manipulation of data	SR	0.5
d) Research - comparanda/parallels	SR	0.5
e) Report writing	SR	2
f) Sorting vessels for illustration	SR	0.5
g) Checking pottery drawings and final edit/emendations	SR	0.5
h) Illustration of pottery & glass	BR	2
Charred Plant Remains		
a) Plant identification	JG	0.5
d) Writing of report	JG	0.5
Shorter specialist reports		
a) Production of summary of all categories by context	EM	0.5
b) Further research on certain categories	EM	0.5
Editing/correction to specialist reports	SL	0.5
Preparation of first draft of discussion	SL	3
Editing of first draft (BUFAU)	SL	1
Corrections to first draft	SL	1
Corrections to illustrations	ND	0.5
Final proof reading	SL	1
Deposition of archive	EM	1
KEY:	EM Erica Macey-Bracken	SL Steve Litherland
BR Bryony Ryder	ER Ellie Ramsey	SR Stephanie Ratkai,
DB David Barker	JG James Greig	
	ND Nigel Dodds	

10.0 ACKNOWLEDGEMENTS

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11.0 REFERENCES

Primary sources

Primary source material was consulted in several archives, mainly held in the Central Reference Library, Birmingham in the Archives and Local Studies sections. These included material in the Holte, Watt and Bateman collections. A full listing of these sources will be provided in the final report.

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Fig.1

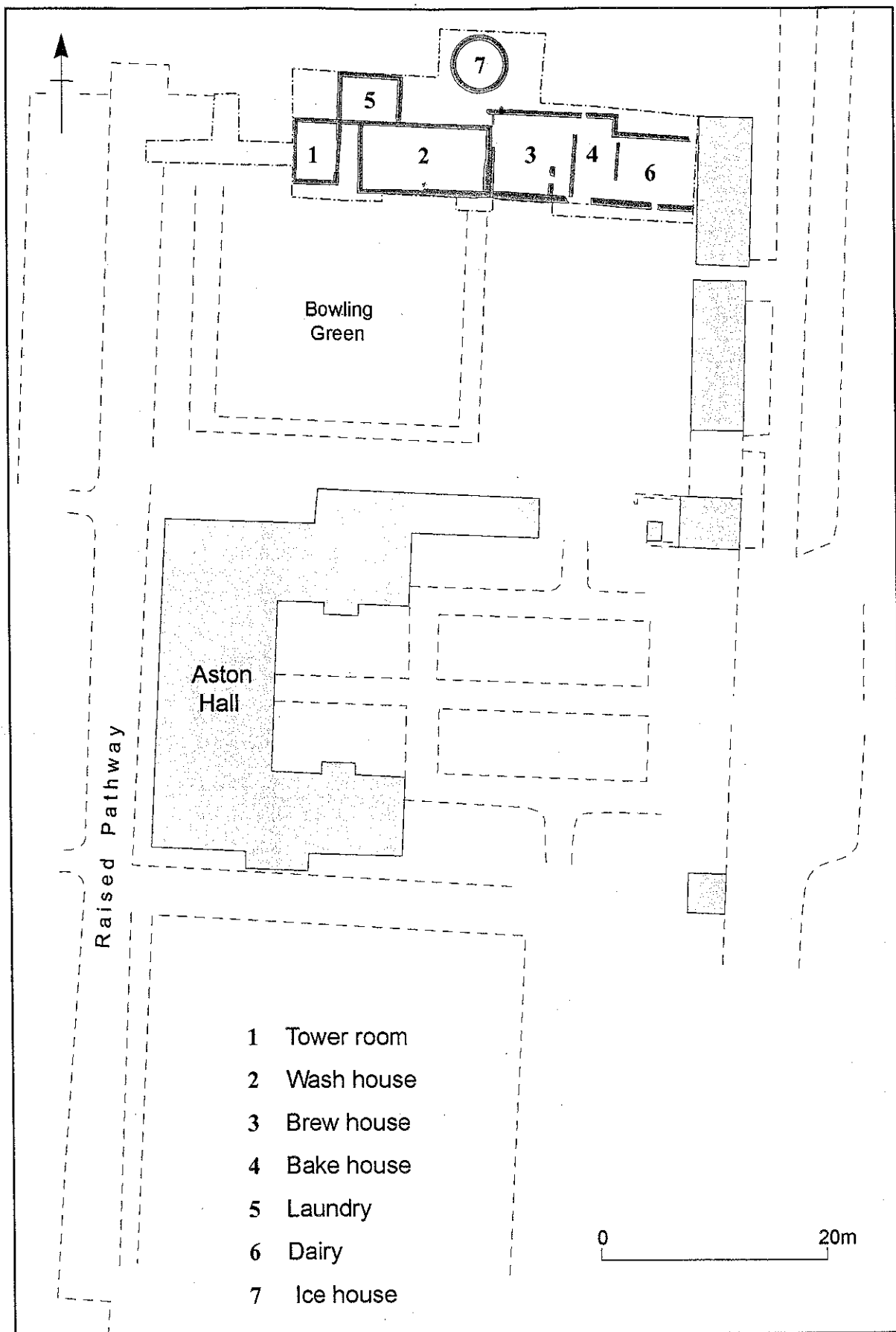


Fig.2

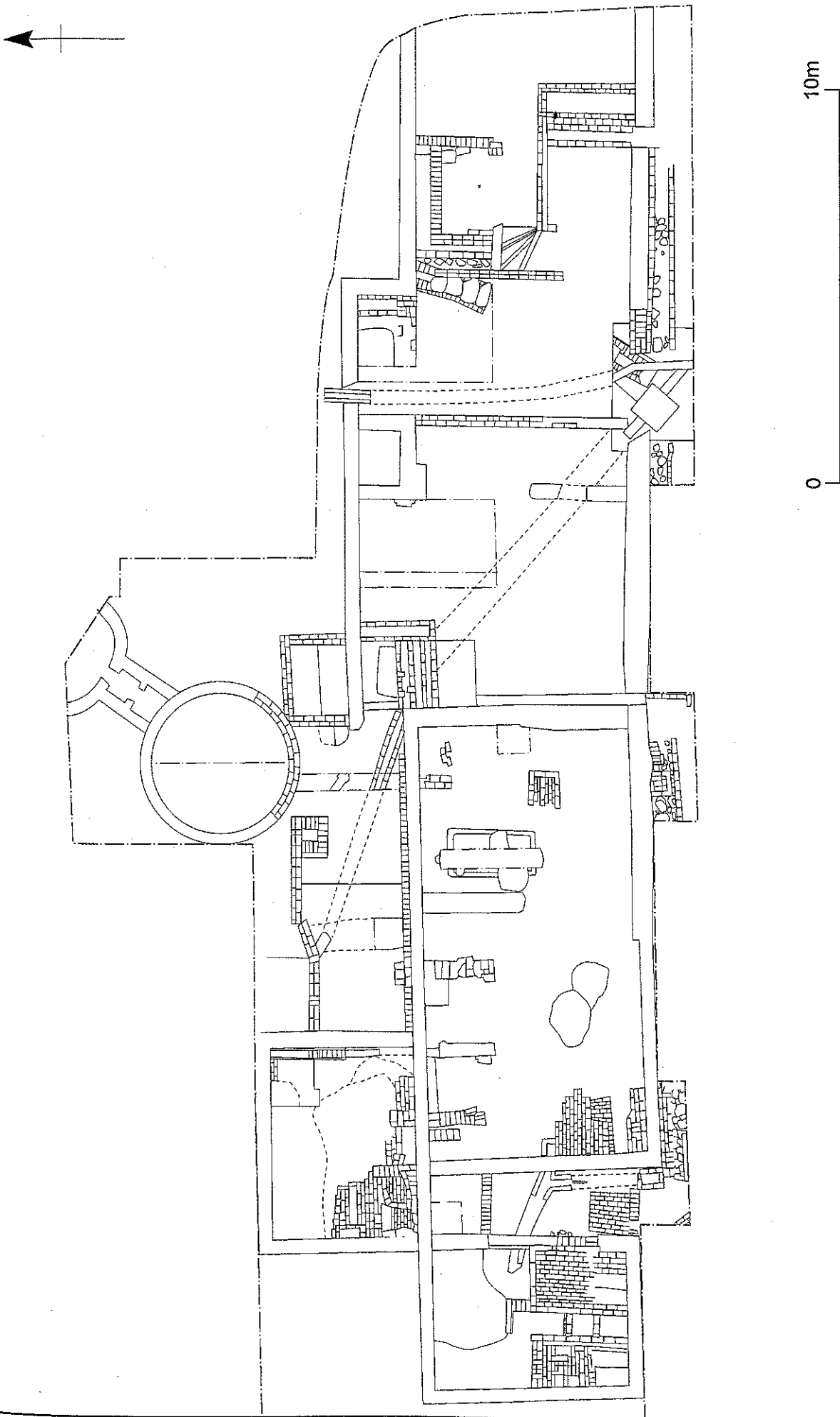
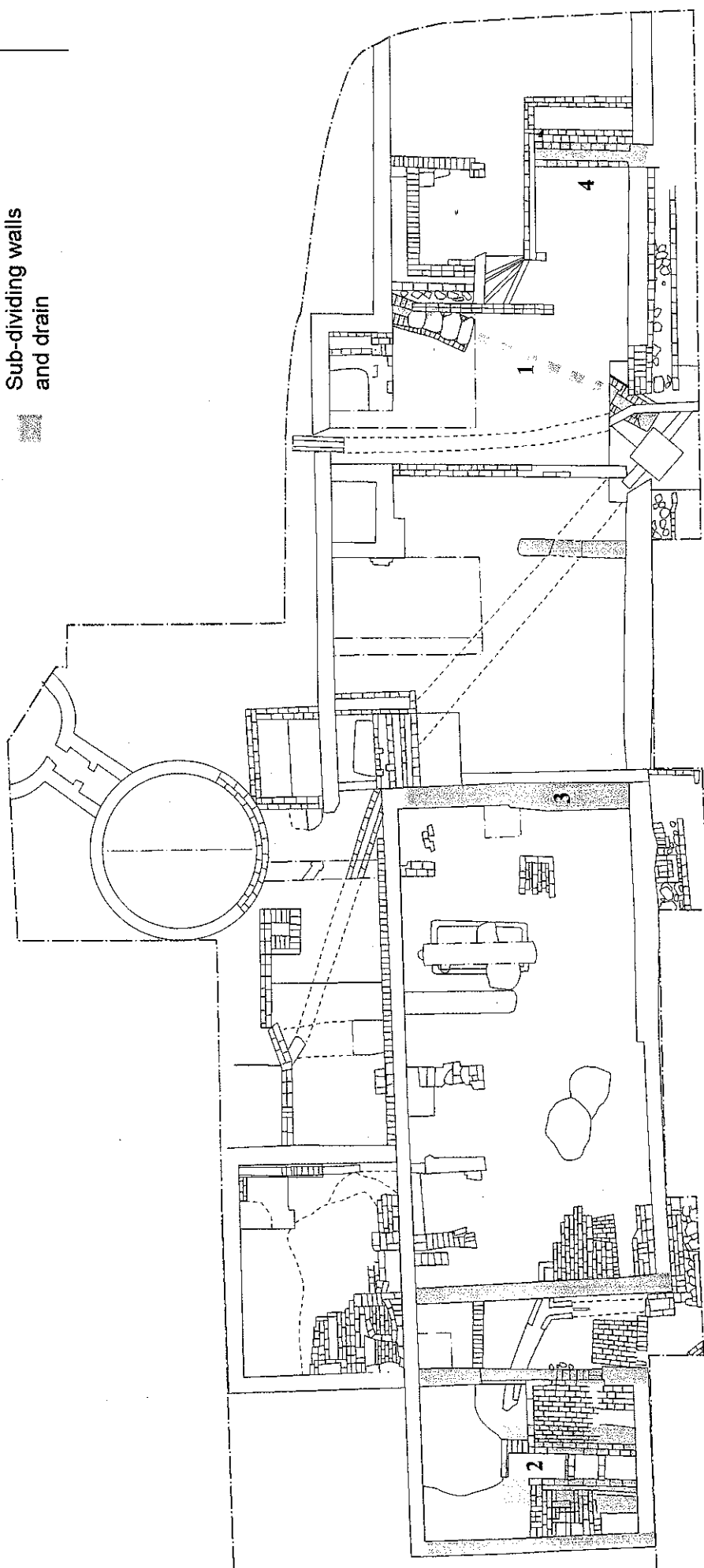
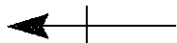


Fig. 3

Phase 1b

- Construction cut
- Sub-dividing walls and drain



0 10m

Fig.4

Phase 1c

Walkways
Front wall

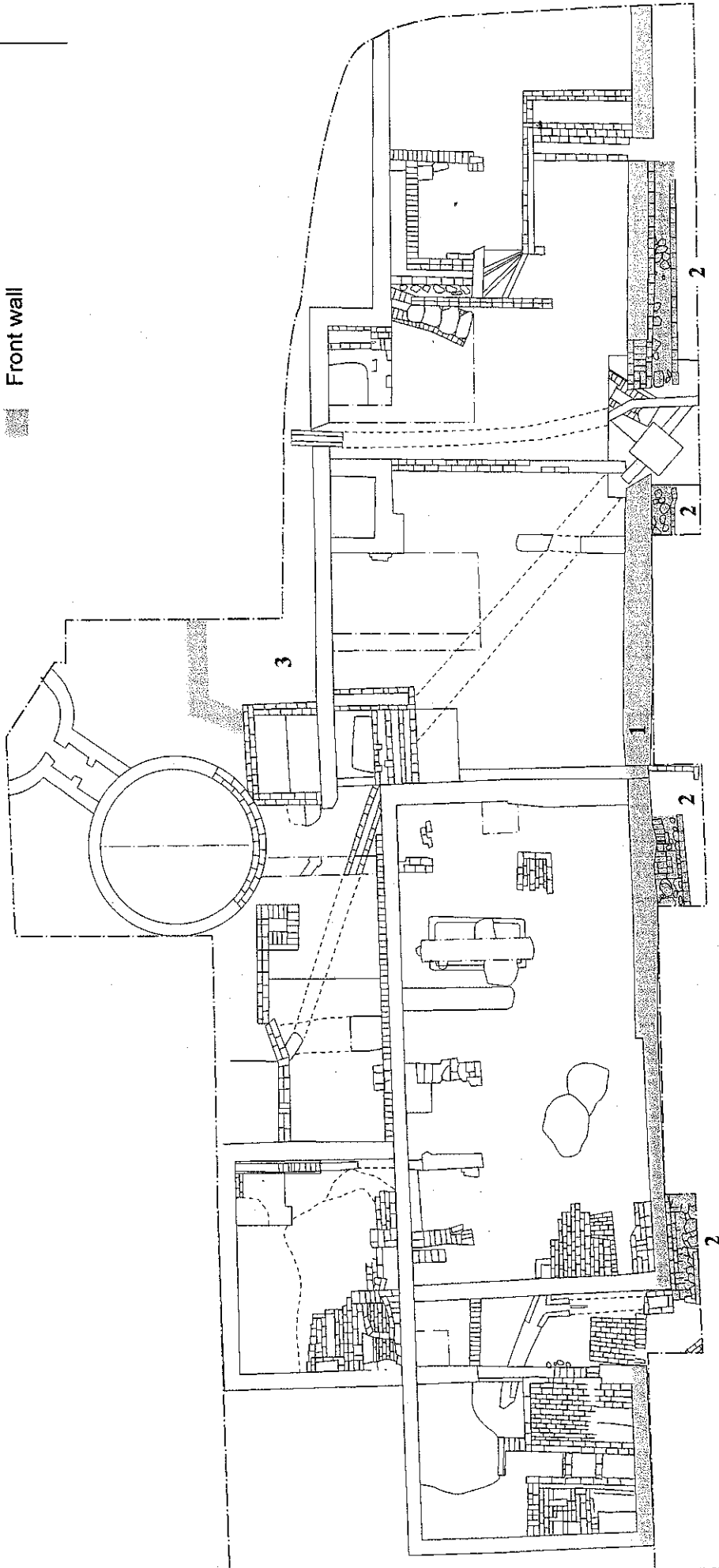


Fig.5

Phase 1 The Wash House

Laundry vat supports

Wash house

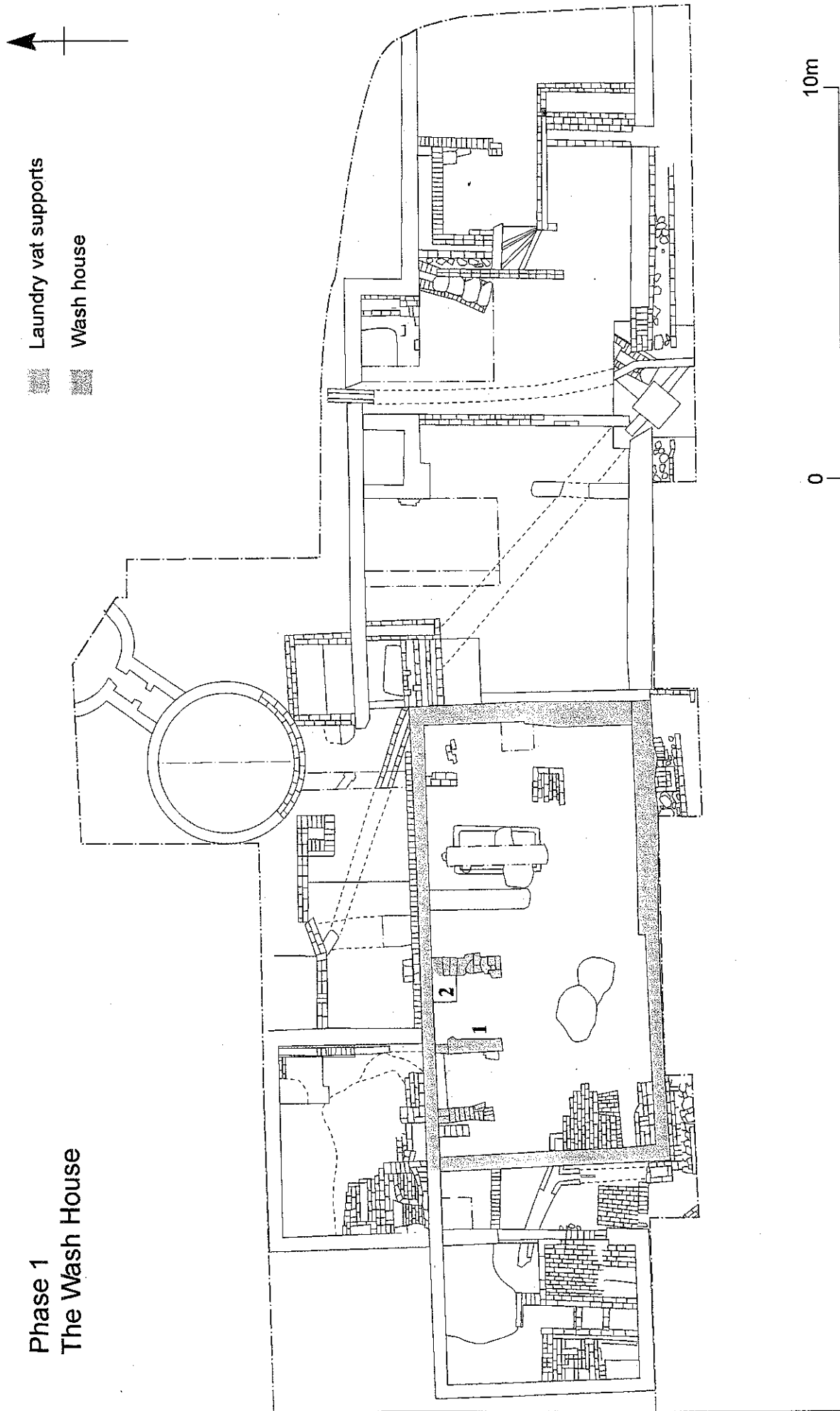
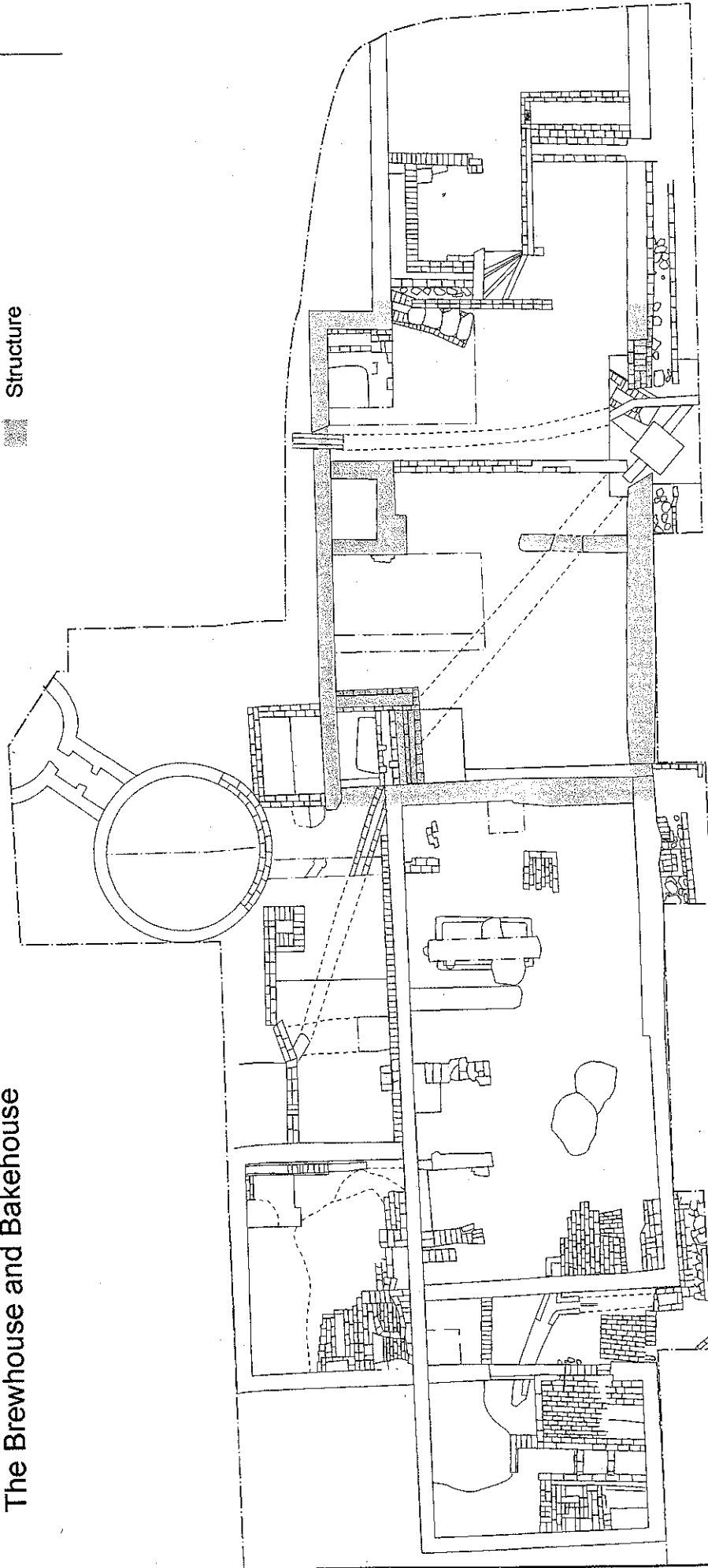


Fig.6

Phase 1
The Brewhouse and Bakehouse

Chimney bases
Structure



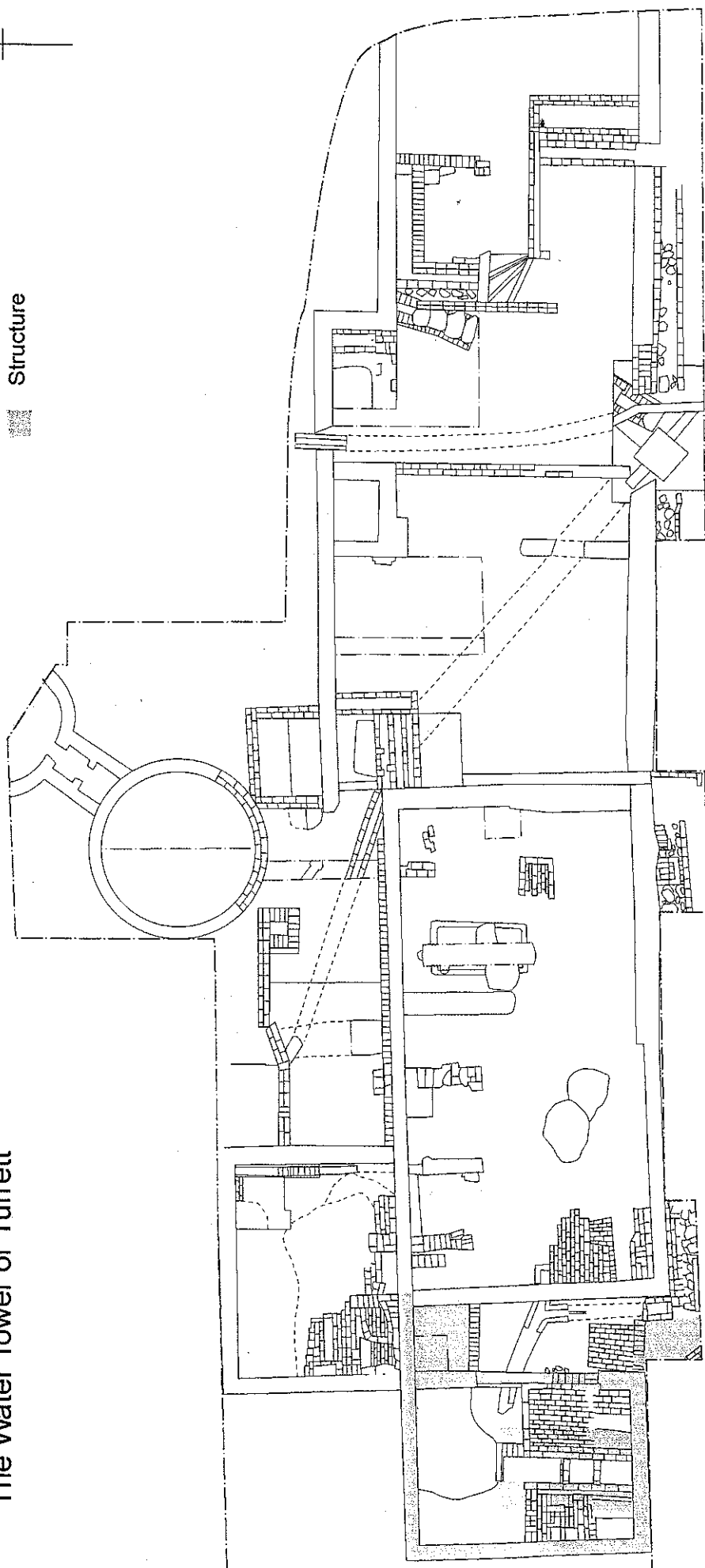
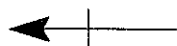
10m

0

Fig. 7

Phase 1
The Water Tower or Turret

Cobbled surface
Structure



0 10m

Fig.8

Phase 2 18th Century Changes

- Structural features
- Other alterations

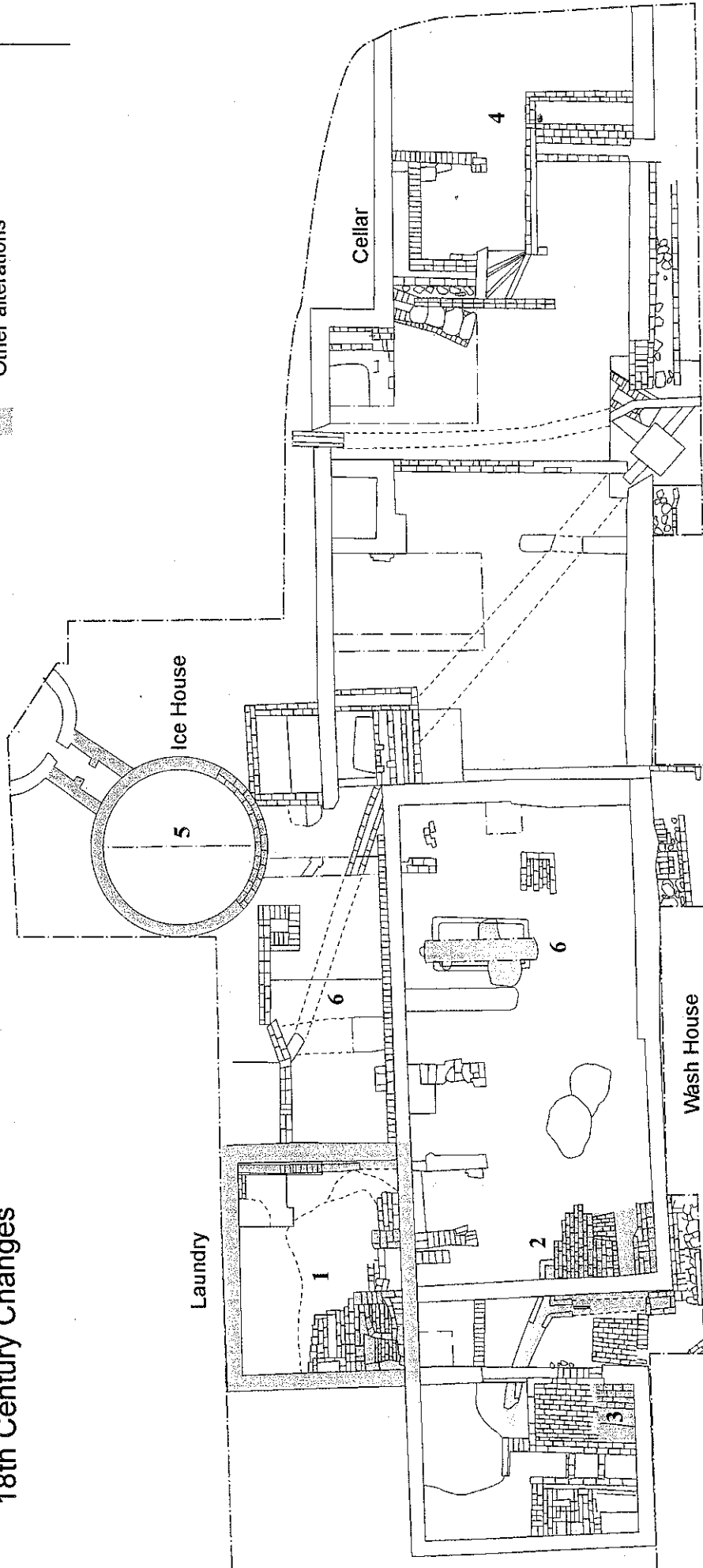


Fig.9

Phase 3

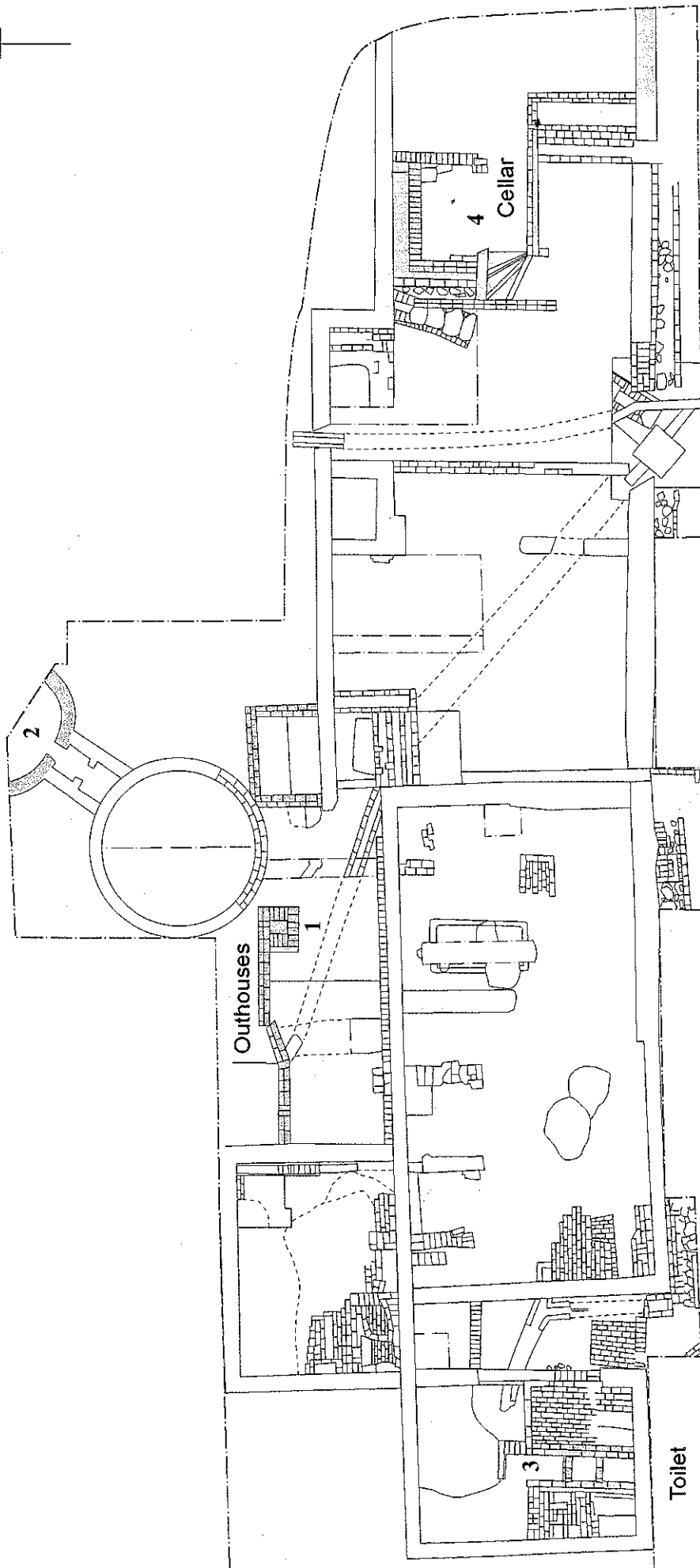


Fig.10

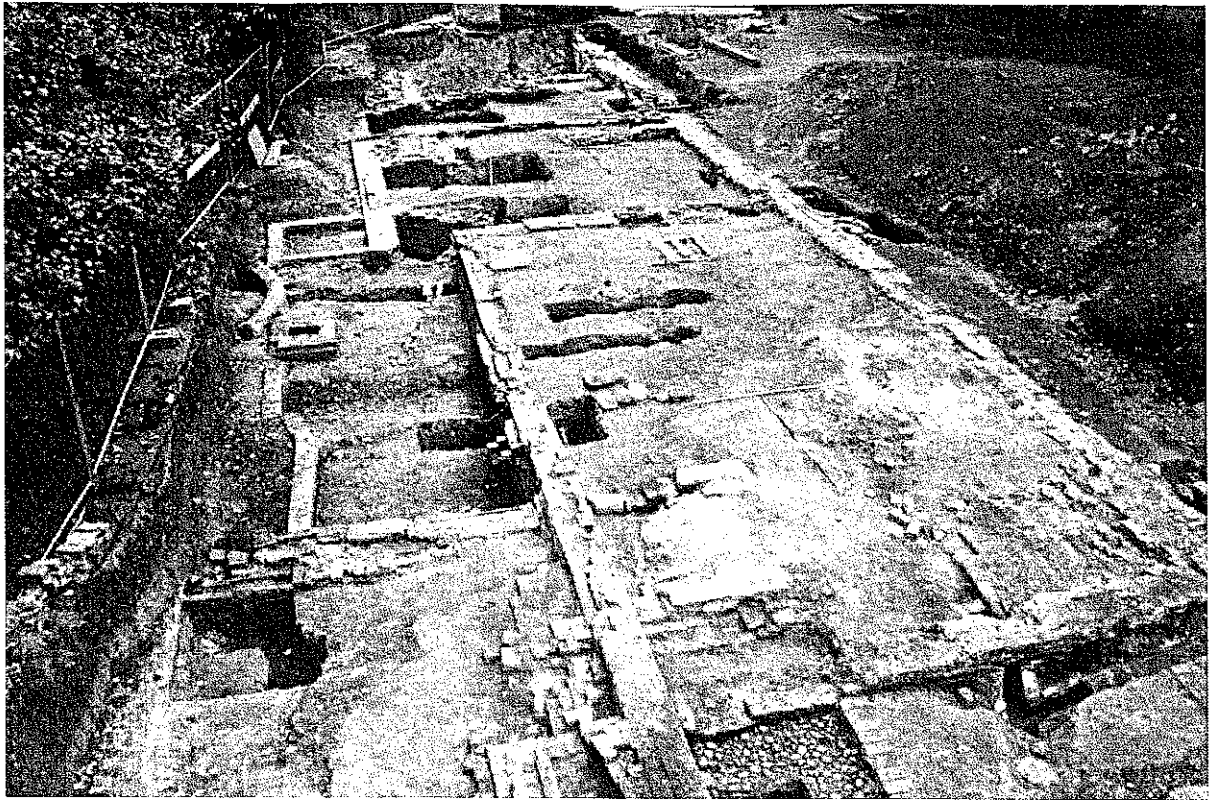


Plate 1



Plate 2



Plate 3



Plate 4

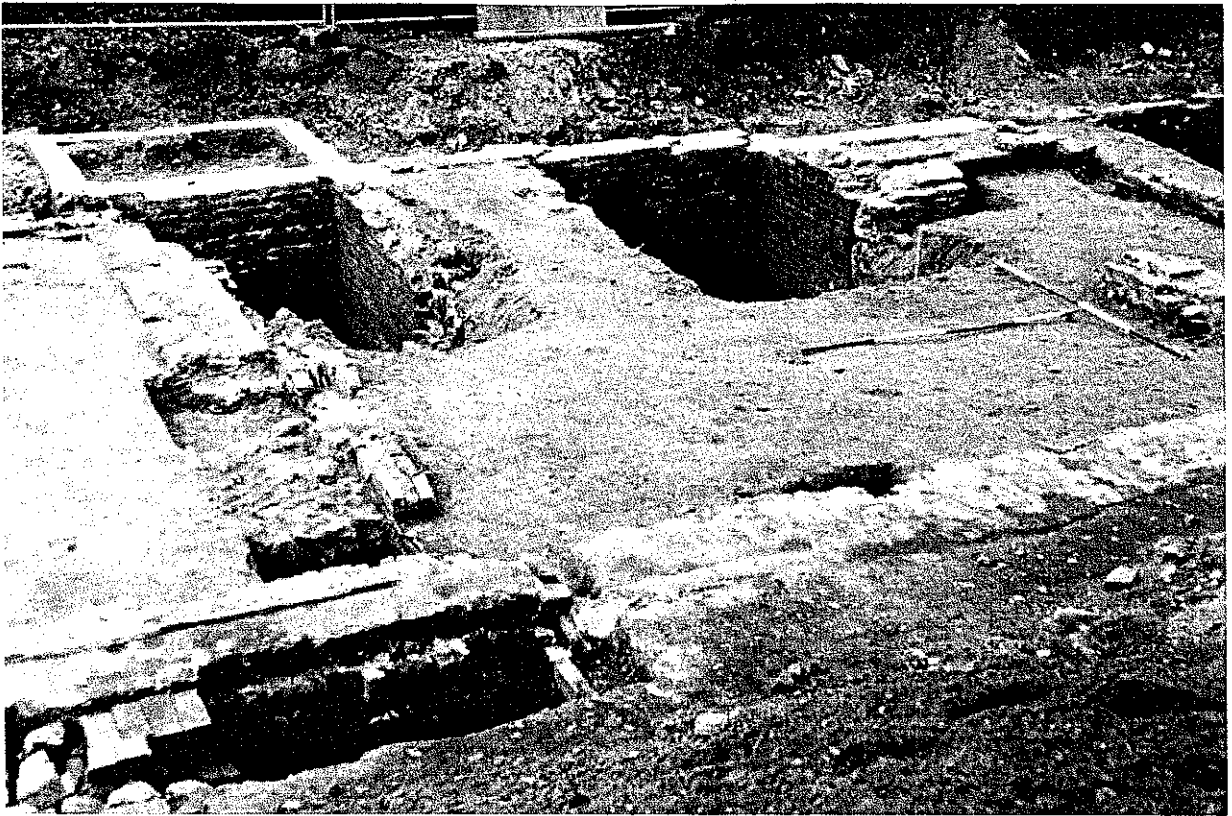


Plate 5

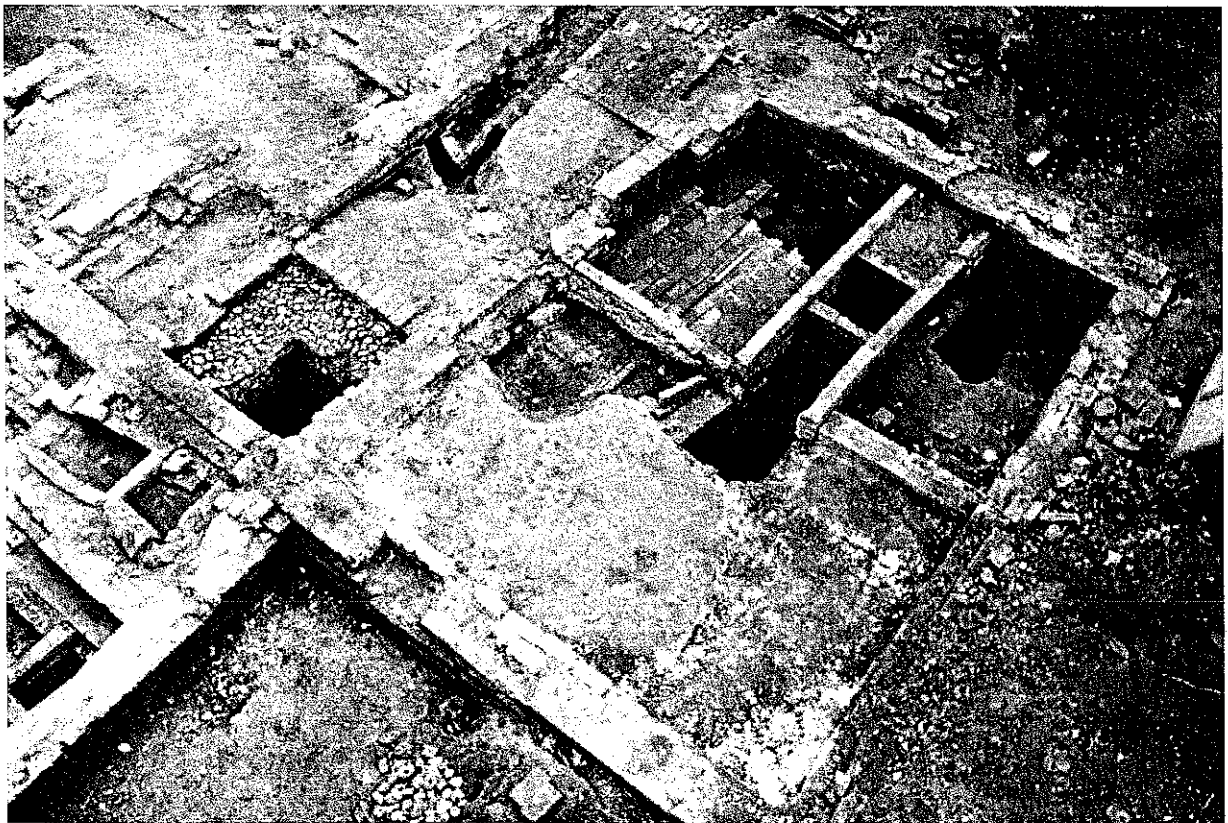


Plate 6

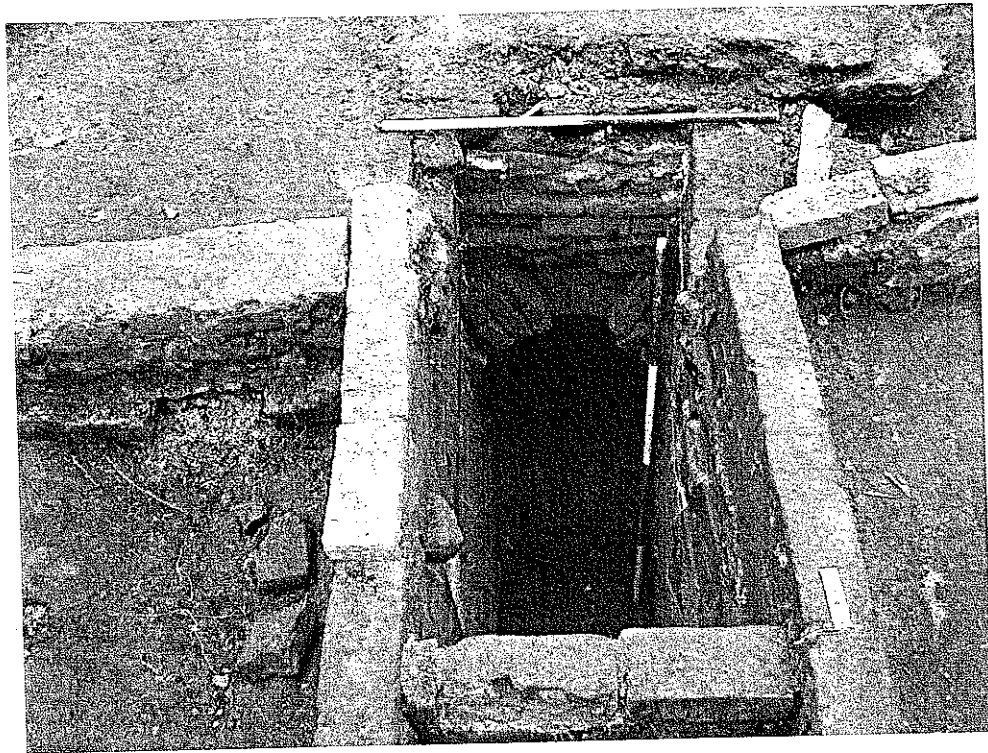


Plate 7

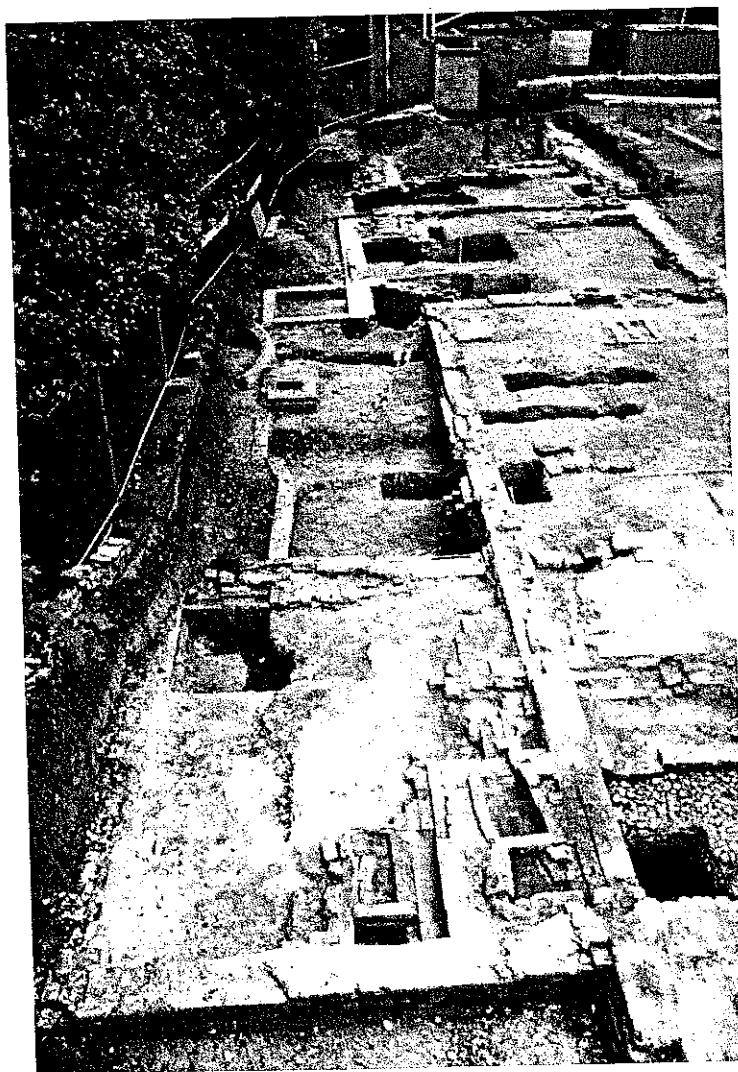


Plate 8

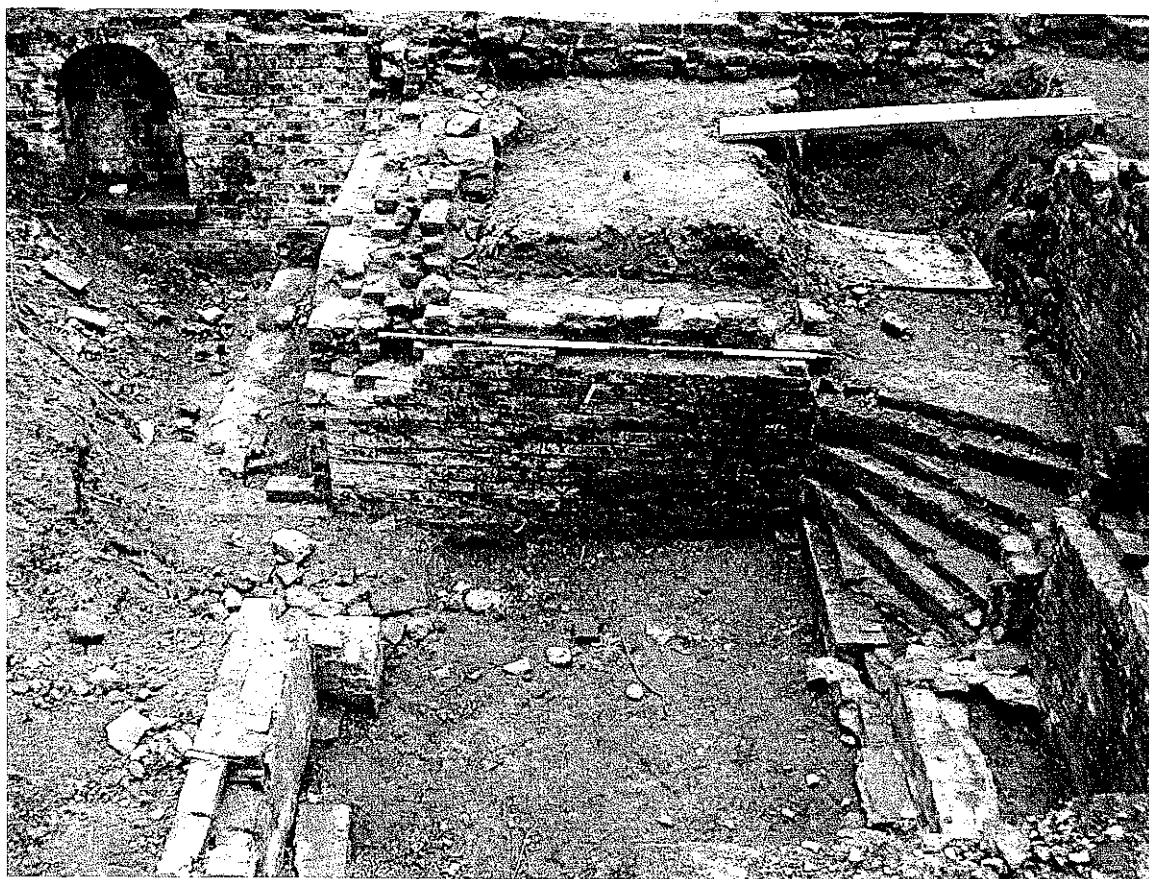


Plate 9



Plate 10