

*THE  
ROYAL GUNPOWDER FACTORY  
WALTHAM ABBEY*

*POWDERMILL LANE HOUSING DEVELOPMENT SITE*

*ARCHAEOLOGICAL REPORT*

*NOVEMBER 1994*

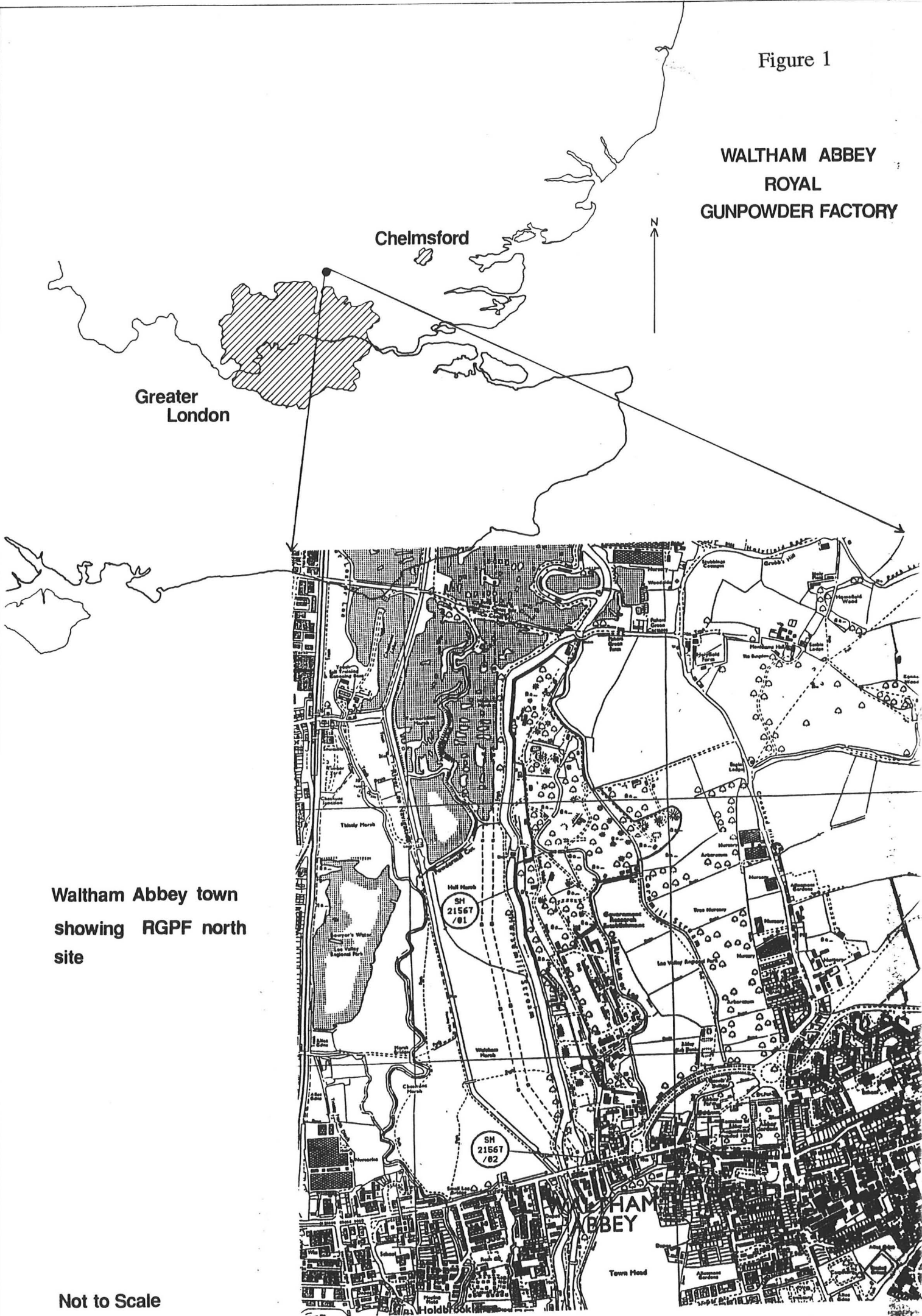
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MINISTRY OF DEFENCE*

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- Site and area location.
  
- Brief history of RGPF.
  
- History of report area.
  
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Figure 1

**WALTHAM ABBEY  
ROYAL  
GUNPOWDER FACTORY**

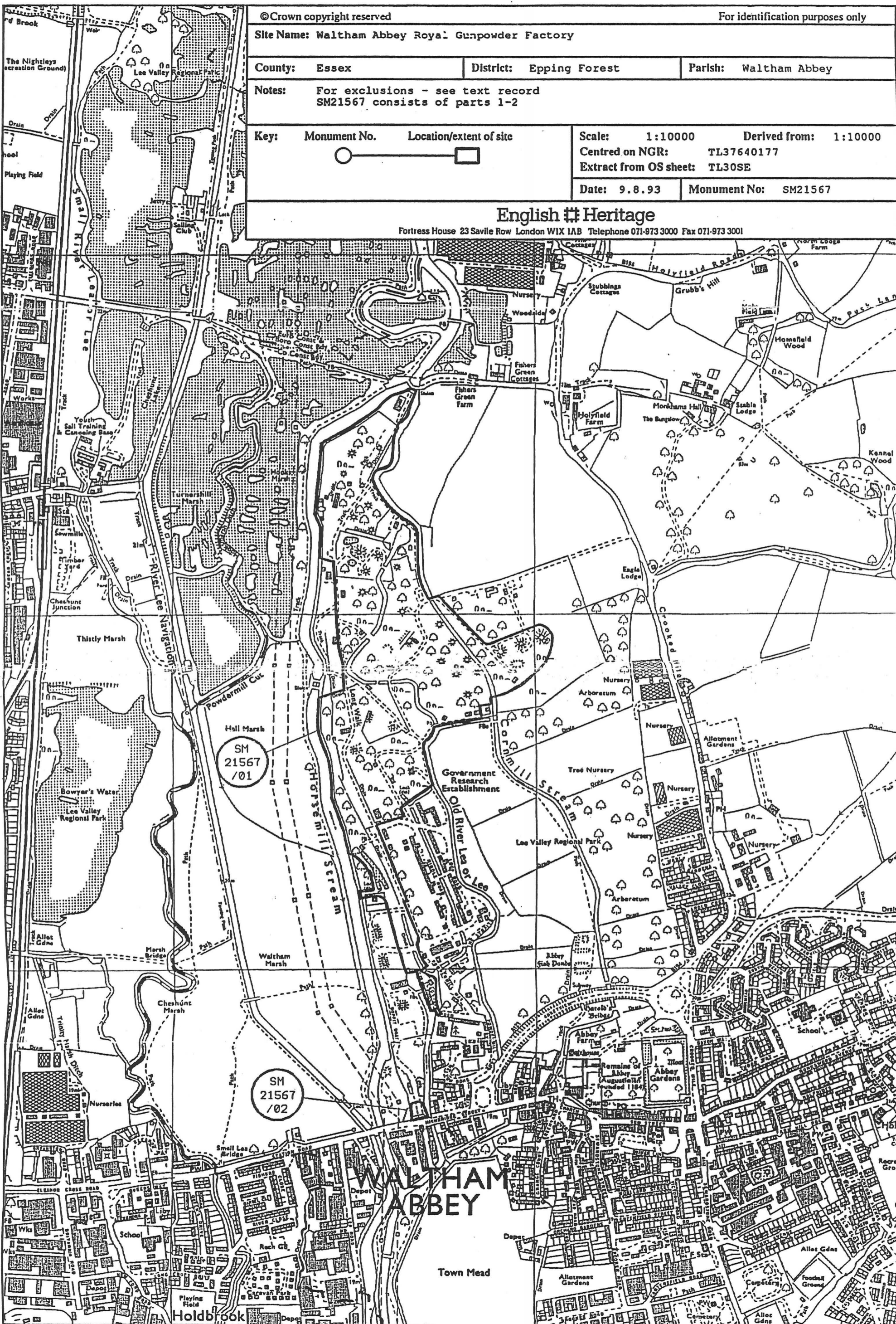


**Waltham Abbey town  
showing RGPF north  
site**

**Not to Scale**

# Scheduling Proposal

Figure 1a





POWDERMILL LANE HOUSING DEVELOPMENT AREA



Figure 2a

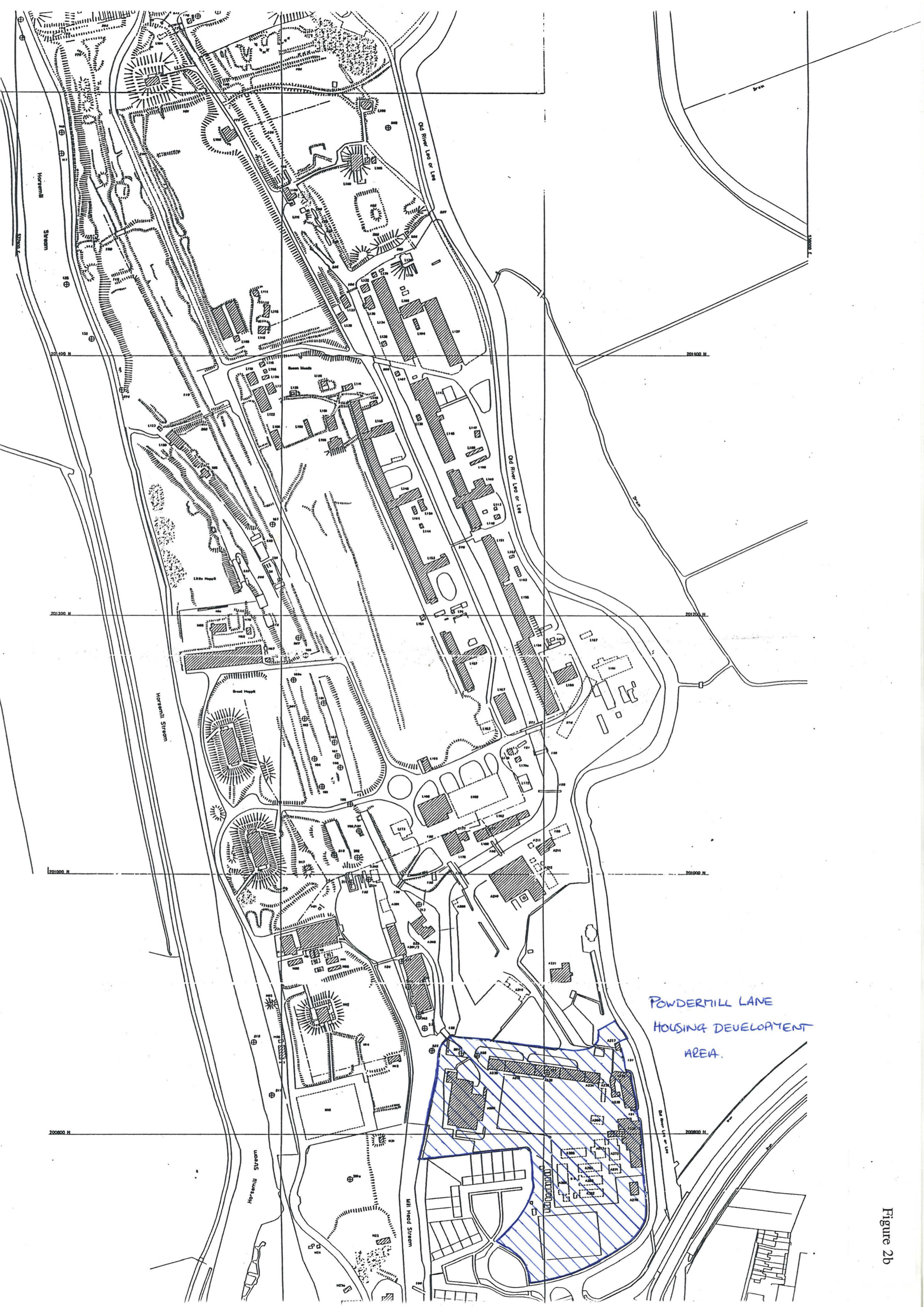


Figure 2b

## SITE LOCATION

County	-	Essex
District	-	Epping Forest
Parish	-	Waltham Abbey

National Grid Reference.

Waltham Abbey Royal Gunpowder Factory  
(North Site) (TL30SE) TL376 015

The Waltham Abbey Royal Gunpowder Factory, more recently known as the Ministry of Defence's Royal Armaments Research and Development Establishment (RARDE) is located immediately to the North of the historic Essex town of Waltham Abbey.

The North Site stretches for nearly two kilometres from Highbridge Street north/south along the Lea Valley to Fishers Green in the north. The perimeter fence encompasses almost 75 hectares (190 acres). The factory is bounded on three sides by waterways; the Horsemill Stream to the north and west and by the Cornmill Stream and Old River Lea to the east.

The Lower Island and South Site will not be covered in this report.

The surface geology is mixed river gravels overlying London clay.

The topography of the site has changed considerably over the last 300 years. Originally the land, excluding the New Hill area, was water meadow. As the factory developed, so the area was partially drained by ditches and canals and traversed by raised causeways and the higher level water system. The nature of explosive process buildings, generally surrounded by earth blast mounds, has also



Figure 3



Figure 8  
Survey

given the site a dynamic appearance. The woodland which covers just over half the site is a product of the manufacture of gunpowder. Alder, Willow and Black Dog Wood (Alder Buckthorn) plantations were set and coppiced creating an on site supply of wood for charcoal, one of the three ingredients of gunpowder.

The Powdermill Lane Housing Site constitutes an area of 5.1 acres in the south east corner of North Site.

National Grid Reference TL37800 00800.

The development site is delineated by Powdermill Lane to the east and south, by the 1950's housing estate to the south west and by two canals, Millhead Stream and canal RCHM356 to the west and north respectively.

This area traditionally incorporated the administration, storage and maintenance departments.

With the possible exception of the Old Engine House depicted on maps up to the beginning of the 19<sup>th</sup> Century, no buildings within the development boundary line were used for explosive manufacture.

A BRIEF HISTORY OF THE ROYAL GUNPOWDER FACTORY,  
WALTHAM ABBEY 1665 - 1994.

The Royal Gunpowder Factory has been involved in the research and manufacture of explosives for over 300 years. Initially producing Gunpowder, the site then developed to manufacture chemical based explosives and propellants and finally experimental development of explosive materials after the Second World War.

The first documented references to gunpowder production on the site came from two sources. One is a contract between Ralph Hudson a sub-tenant of the Waltham Mills, and the government, for the supply of gunpowder. The other is the first recorded death in the parish caused by an explosion within a mill, both date to 1665.

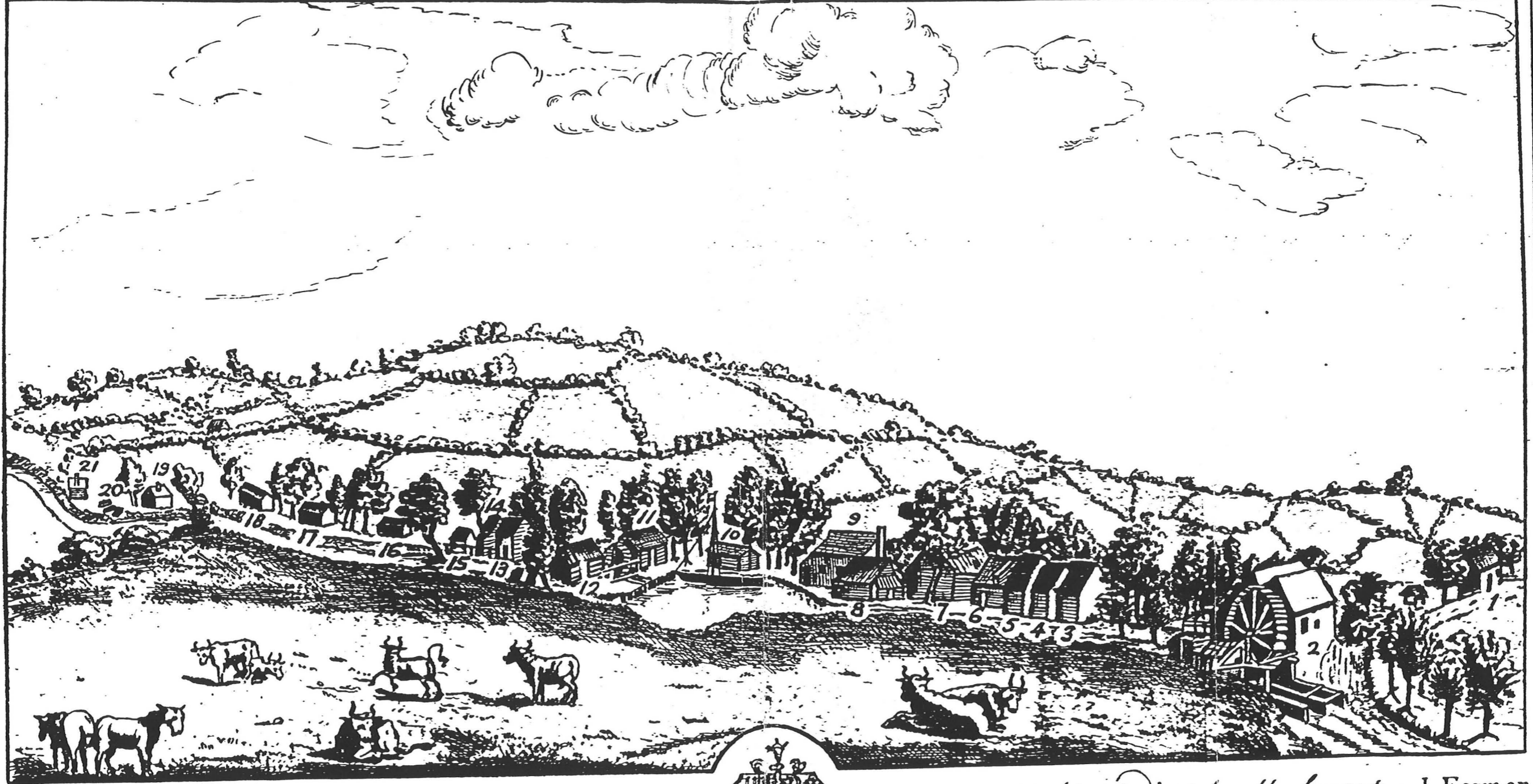
The early factory, based around a former fulling mill, probably situated to the south of the island site, quickly expanded to form the well established works depicted on the engraving by Farmer in 1735 (figure 4). The site continued to develop and became one of the principle suppliers of gunpowder to the Board of Ordnance. In the second half of the Eighteenth Century the Board became concerned about the quality, quantity and reliability of the black powder produced by these private firms. So much so that in 1759 the government purchased the Home Works at Faversham, the first Royal Gunpowder Factory. Later in 1787 they purchased the Waltham Abbey works. Almost immediately after, the demand for powder rose as a repercussion of the French Revolution and later the Napoleonic Wars. There was major expansion and investment including the development of the lower island site, a narrow strip of land to the south of the original site. In sharp contrast the first half of the Nineteenth Century, between 1820 and 1840 saw little new development.

This period of relative inactivity did not last, by the second half of the

- 1. A Horse Mill
- 2. The Corning and Glazing Engine
- 3. } Three Horse Mills
- 4. }
- 5. }
- 6. The Stables
- 7. The Coal Mill and Composition House

- 8. The Carpenters and Millwrights work house
- 9. The Clerks Counting house and the Watch house
- 10. The Loading house
- 11. } Two Stamping Mills
- 12. }
- 13. } Two Dumb Mills
- 14. }

- 15. The Charging house
- 16. The old Composition house
- 17. The Store house
- 18. The Dusting house
- 19. The Little Stove
- 20. Three Sun Stoves, or drying Leads
- 21. The great Stove



To John Walton Esq. Proprietor of these Mills this Plate is  humbly dedicated by his Obedient humble Servant J. Farmer.  
*Jas. Munds. Sculp.*

R. West. delin. 1735

GENERAL VIEW OF THE FACTORY IN 1735  
 (FROM FARMERS "HISTORY")

From Simmons W.H. 1963.

century the demand for cannon powders for larger guns and for moulded powders in greater quantities resulted in rapid changes and innovations.

It was also in the latter half of the Nineteenth Century that tentative production of the new chemical explosive, Guncotton, took place. Manufacture of the new liquid explosive Nitroglycerine soon followed and by the last decade of the Nineteenth Century, Cordite, a mixture of guncotton (Nitrocellulose) and nitroglycerine was in production. Cordite was such a successful explosive, it quickly became the main service propellant and by 1900 the majority of the old gunpowder buildings on site were converted to make cordite.

At the same time as the shift to chemical based explosives the works expanded south with the purchase of the Quinton Hill works in the 1880's now known as South Site.

Initially the South Site consisted of a guncotton factory but nitroglycerine and cordite production areas followed shortly afterward.

Back on the North Site an acid factory and nitroglycerine facility were built in 1890's. The wet guncotton was produced on the south site and barged up to the grand magazine where it was stored. Then it was moved down the site, north to south, from drying to mixing and pressing, finally resting at H12 the cordite reel magazine.

The First and Second World Wars naturally saw peaks in production and investment into the site. During the First World War the labour force rose to 5000 its greatest number, over half were women, working shifts to ensure continuous production.

A number of high explosive products were made at the RGPF even though the site was never a high explosive plant. Picric acid was produced in the 1870's and 1890's and later around 1910 tetryl (C.E or Composition Exploding) was produced. Between the Wars important research was carried out on the safe and efficient production of TNT and RDX.

The sites proximity to urban areas and the continent forced its closure as a production site in 1943 in favour of the new purpose built Ordnance sites in Scotland and the North West of England.

The site reopened in 1945 after the war as a government research establishment, initially set up to research into liquid fuels for rockets and other applications. A plant was also constructed to develop plastic propellants for use in rocket motors. Over the next 30 years research into propellants, plastic and rubber propellants, polymers, properties of high explosives and many other aspects of energetic and inert materials, took place on North and South Site.

By the 1960's Waltham Abbey was the sole government laboratory carrying out research on non nuclear explosives of every kind.

Many of the old cordite and gunpowder buildings were used as laboratories also some of the test beds were converted Nineteenth Century process buildings. A number of purpose built test beds were also constructed.

The site finally closed in June 1991 after 204 years of government service. Since 1992 a programme of decontamination and remediation has been carried out with the aim of putting the site to beneficial reuse in the public sector.

## HISTORY OF THE POWDERMILL LANE HOUSING SITE

### Introduction.

There are few written documents referring to the development of this area of the site, or to the buildings or activities carried out.

Much of the written documentation which survives, describes the buildings, machinery and processes which relate to explosives manufacture or research. Very few examples concern the administrative or support departments of the factory.

Almost all the evidence comes from the cartographic record and although the map and plan collection is remarkably comprehensive there are chronological gaps and detailed omissions due scale etc.

Construction dates for the main buildings from the 19<sup>th</sup> Century onwards are quite firm, obtained from other sources. The smaller buildings and short lived structures have no accurate start and finish date. As for the construction and development sequence of the canals and ditches that criss-cross the site, there are no records apart from the maps. For some of the larger waterways this source is sufficient to give estimated dates of construction but other courses are irregularly depicted or in some cases not shown at all.

c1590



*F. Mayfield*

*hookes*

FULLING  
MILL



*Walsham*

*De Eng...*

WEST



*Flint*

Figure 5



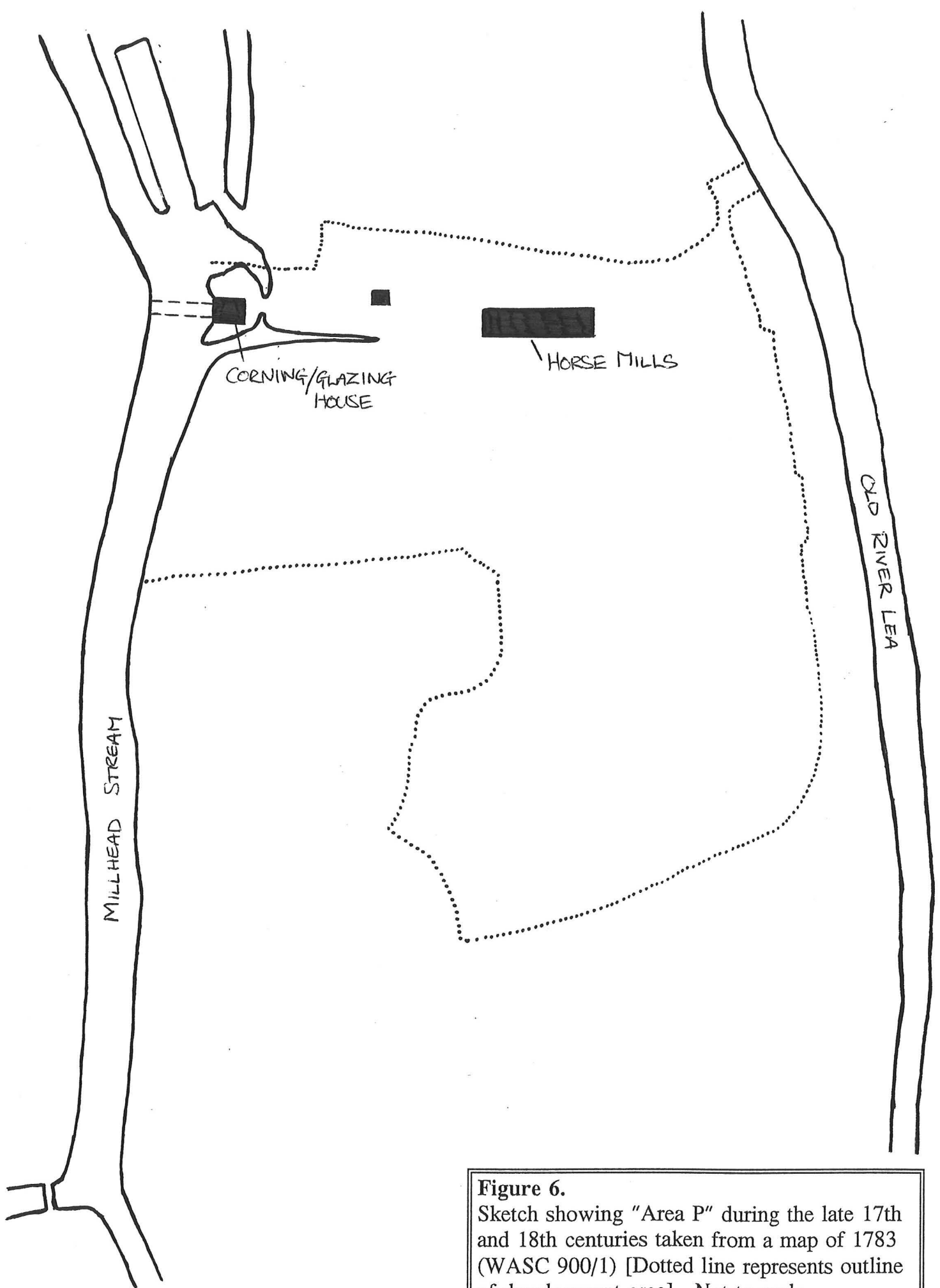
*i) Buildings.*

The earliest map showing activity in this area dates to c1590 which shows the environs of Waltham Holy Cross, Epping and Loughton (ERO T/M 125) figure 5. On this map a 'Fulling Mill' is shown on the eastern bank of Millhead Stream possibly in the vicinity of the southern end of Flagstaff bridge in the extreme north west corner of the development area. Written historical accounts explain that the early process buildings on site were converted fulling and oil mills, so it is quite probable that this building was later turned over to gunpowder processing.

On Farmers engraving a building described as the 'Corning and Glazing Engine' is depicted in a similar position and may represent a later rebuild possibly on the same foundations (figure 4). On the same engraving another building described as a 'Horse Mill' is shown behind the corning and glazing engine just inside the northern boundary of the development site. This building plus a smaller ancillary structure are shown on the 1783 map, 'A Plan of the Powder Mills at Waltham and the Fishery on the River Lea the Property of Walton Esq', (WASC 900/1 also PRE MR593). (Figure 6).

No other buildings or features are shown in the area concerned. These buildings represent components of the earliest privately owned factory. The corning and glazing engine broke down the hard 'press cake' gunpowder into various sized granules which were sorted by sieves. The shot was then tumbled with graphite or 'glazed'. The process removed the rough edges and coated the gunpowder in graphite to reduce its hygroscopic tendencies. The horse mill was used to press or crush charcoal and sulphur.

As outlined in the previous section the site was acquired by Col. Congreve in 1787 for the Board of Ordnance. Soon after the government took control and as a direct response to the French Revolution and the Napoleonic wars, demand for gunpowder increased, resulting in a marked expansion of the factory.



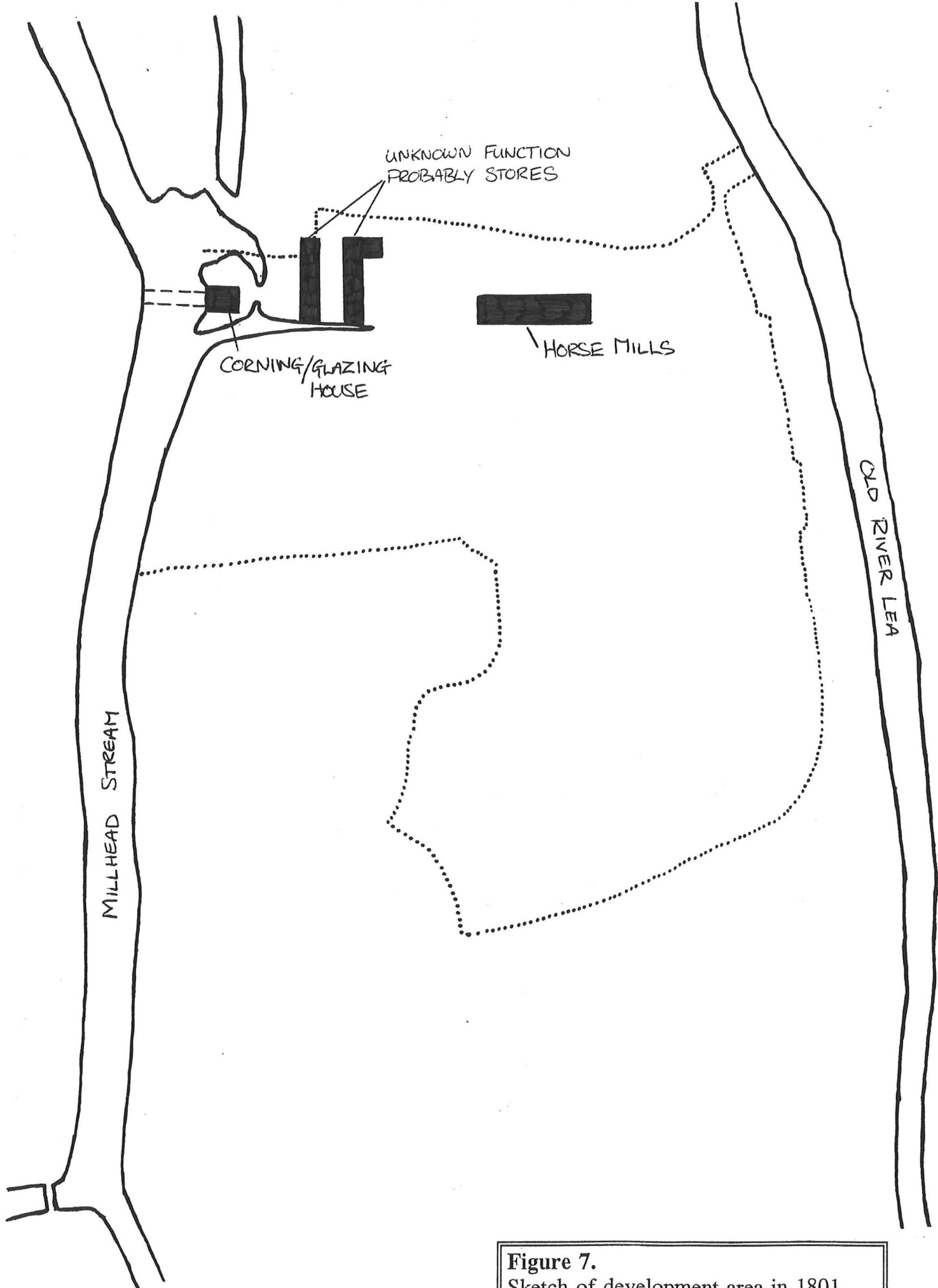
**Figure 6.**  
Sketch showing "Area P" during the late 17th and 18th centuries taken from a map of 1783 (WASC 900/1) [Dotted line represents outline of development area]. Not to scale.

Between 1801 and 1806 the corning and glazing engine, which by 1801 was simply referred to as the Old Engine House, and the horse mills had disappeared. In their place was raised an extensive collection of buildings forming the Artificers Yard. Arranged around a courtyard the buildings formed the main storage and support facilities for the expanding works to the north and south (Lower Island) (see figures 7 and 8).

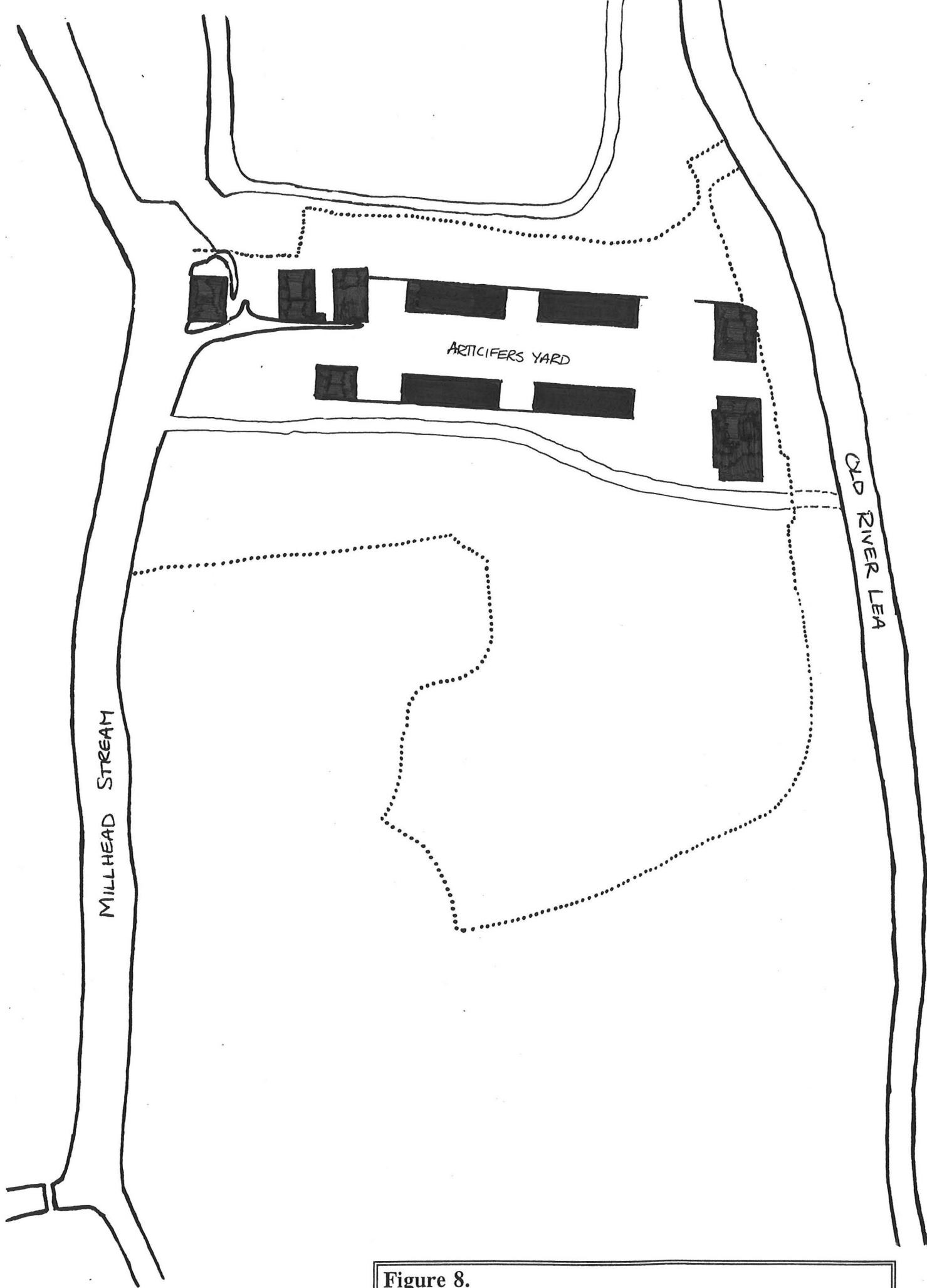
Over the next 140 years the area changed little in layout or function. It was renamed in the 1850's the Royal Engineers Department and later the B.W Department (Building Works Department). As well as housing all the repair and craft shops, the buildings which flanked the courtyard entrance also housed the site Library the Police Station and the various Royal Engineers and Board of Ordnance offices. On the southern boundary, along the original route of Powdermill Lane, a number of foremans cottages were built in the 1820's. These were demolished in the early 1970's during the construction of the Abbey View bypass road and roundabout. On the western flank of the area opposite the Sandhurst Hospital on Millhead Stream a saltpetre refinery was constructed in the 19<sup>th</sup> Century together with a building to the south associated with guncotton manufacture. Both were demolished between the two World Wars. Any remains now lie under the 1950's housing estate of Walton Gardens. (Figure 13).

The development of Walton Gardens and the construction of the Abbey View roundabout reduced the size of the area to the present situation. It was also in the mid 1950's that the buildings making up the southern flank of the Engineers Yard were demolished to make room for the new social club A250 (figure 14). Shortly after, the courtyard and area to the south was filled with a number of prefabricated single storey office buildings and latterly to the south of these structures two tennis courts were built.

Since the site official closure in 1991 all but the buildings abutting Powdermill Lane have been demolished.



**Figure 7.**  
Sketch of development area in 1801.  
Taken from a map of 1801 held at the  
PRO (MR 580 PFN/555). Not to scale.



**Figure 8.**  
Sketch of development area taken from a map of 1806 held at the PRO (MR 580 PFN/555). Not to scale.

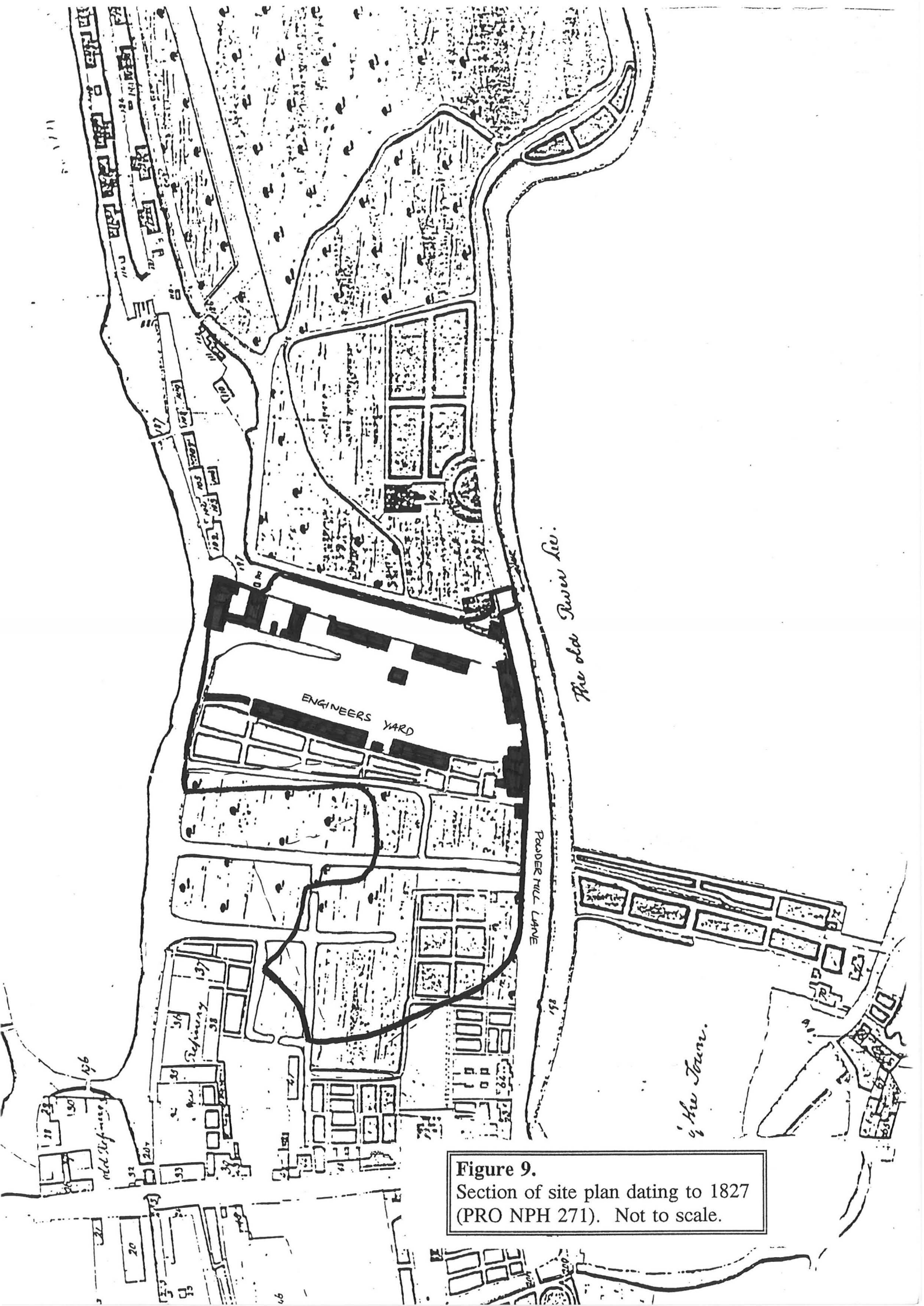


Figure 9.  
Section of site plan dating to 1827  
(PRO NPH 271). Not to scale.

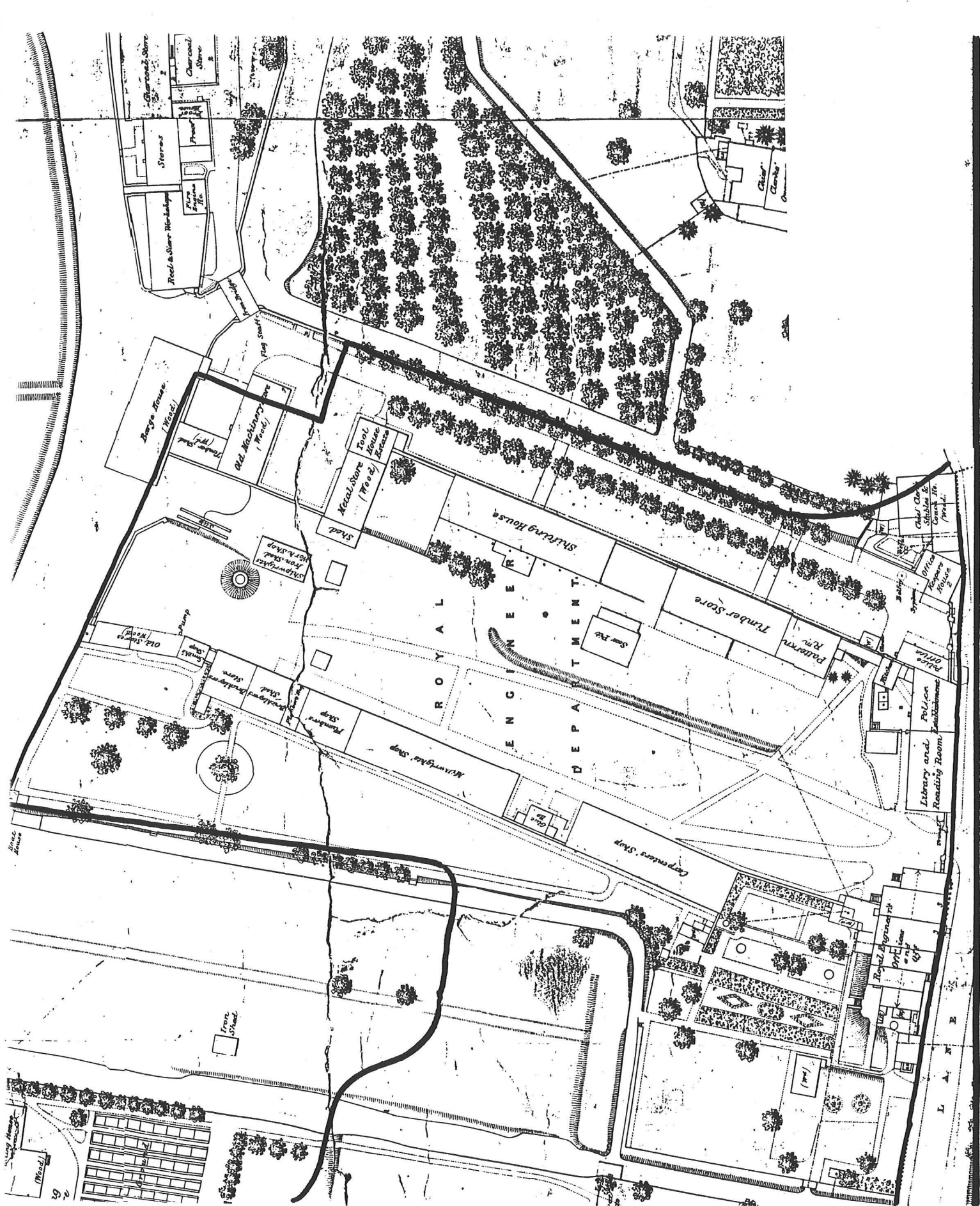


Figure 10.  
 Section of detailed site drawing dating  
 to 1865 revised 1886. Not to scale.

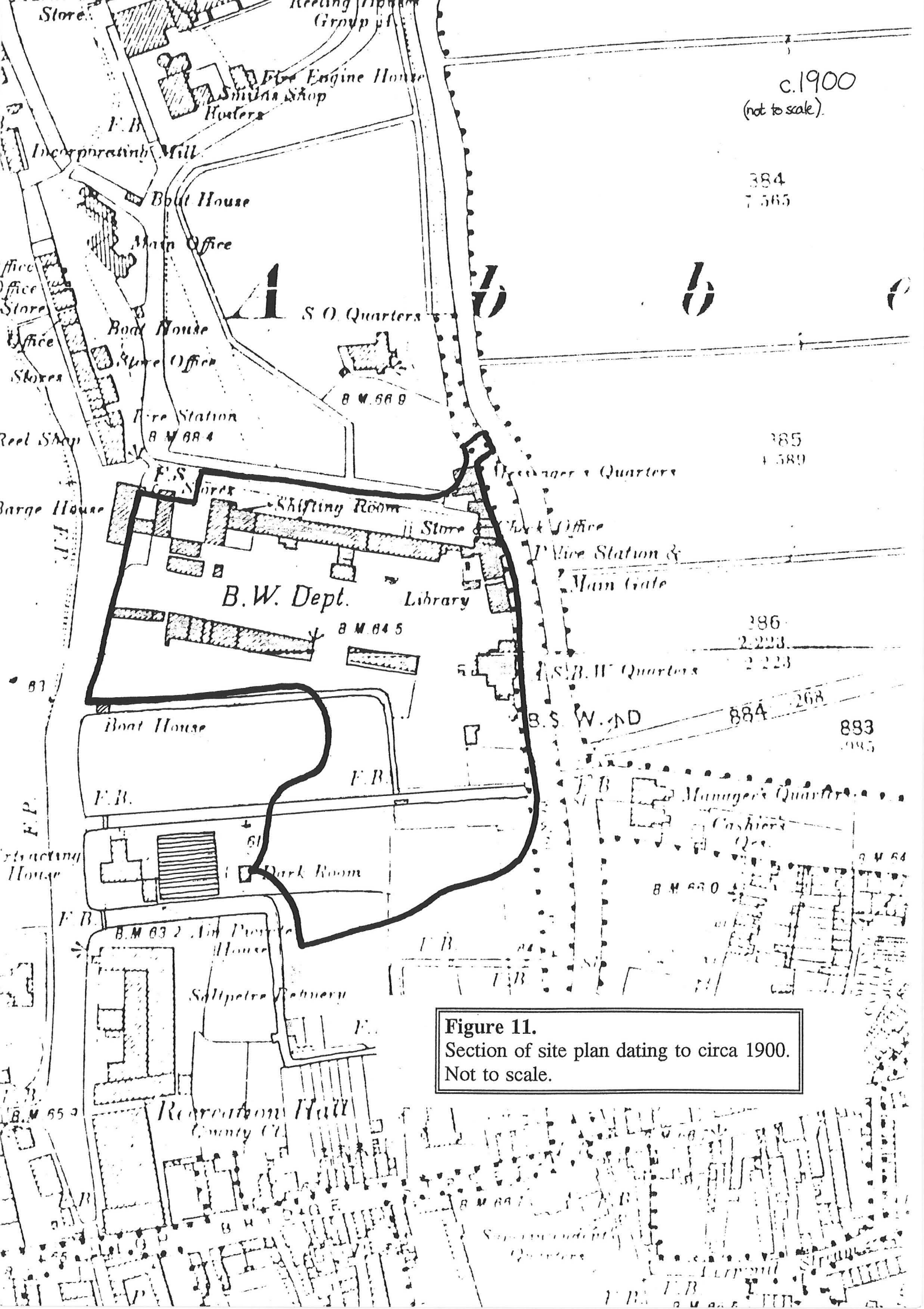


Figure 11.  
 Section of site plan dating to circa 1900.  
 Not to scale.



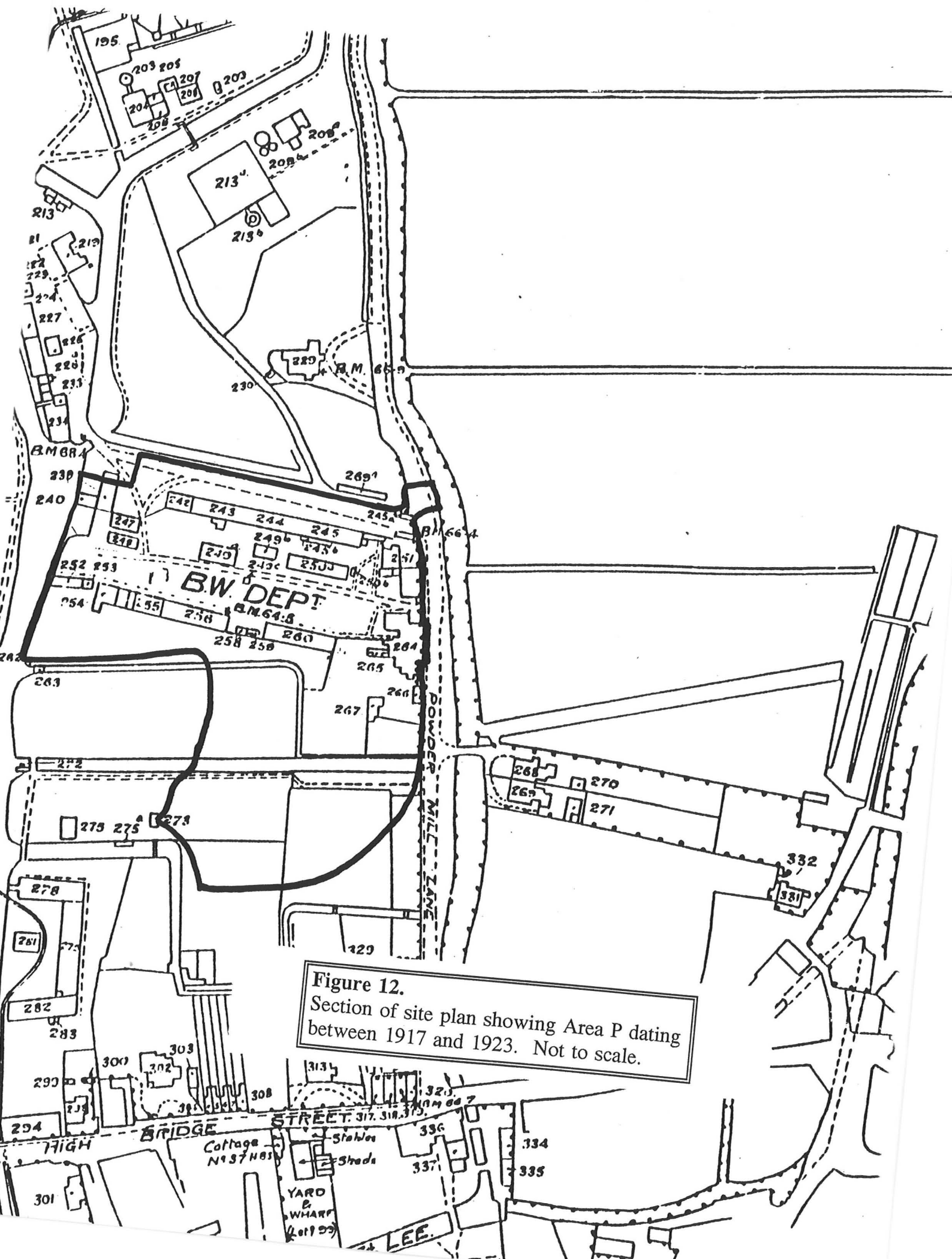
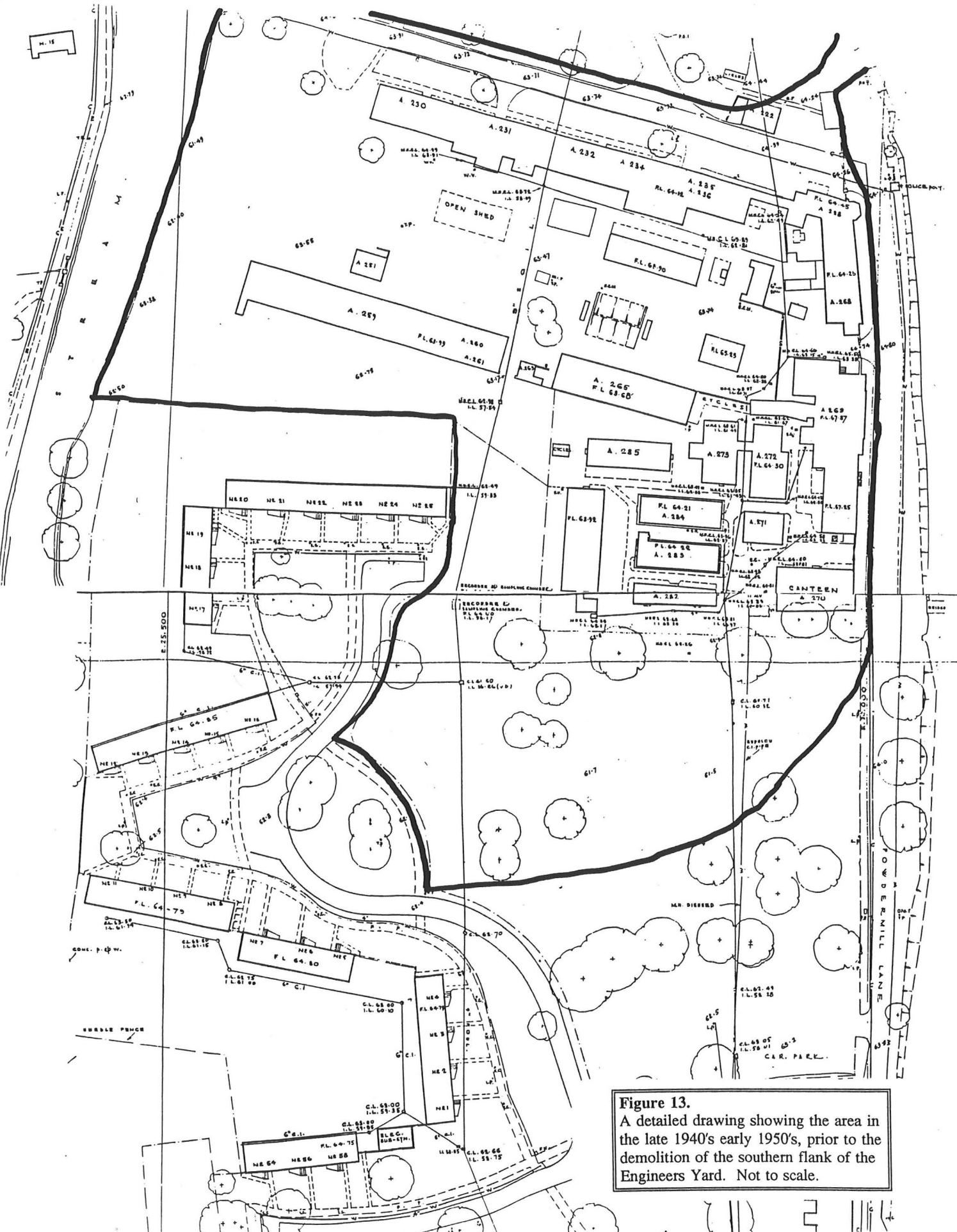
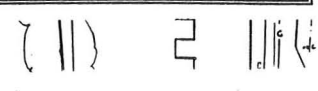
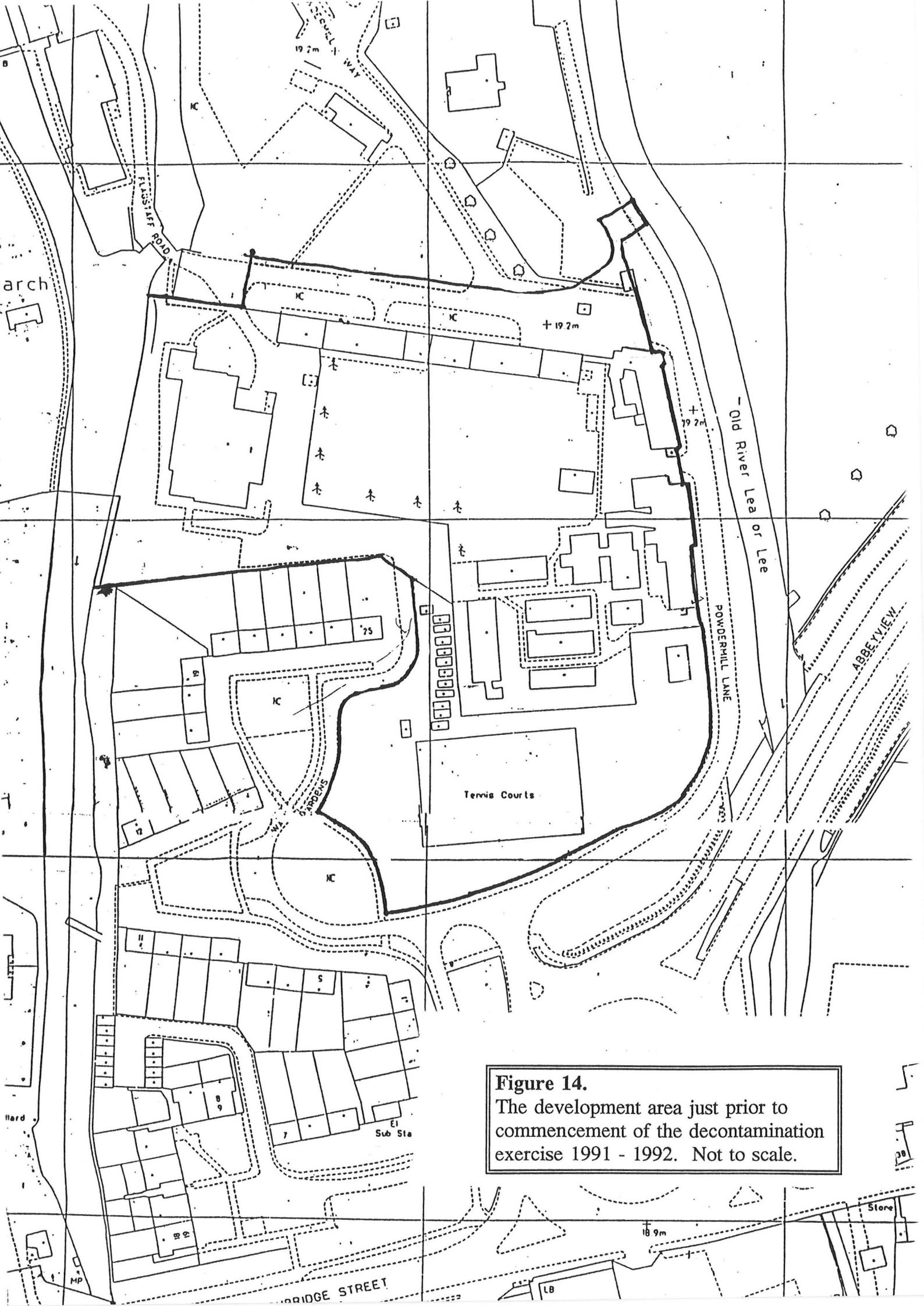


Figure 12.  
 Section of site plan showing Area P dating  
 between 1917 and 1923. Not to scale.



**Figure 13.**  
A detailed drawing showing the area in the late 1940's early 1950's, prior to the demolition of the southern flank of the Engineers Yard. Not to scale.





**Figure 14.**  
The development area just prior to commencement of the decontamination exercise 1991 - 1992. Not to scale.

The methodology set out in this report was followed as closely as circumstances allowed. (Appendix B).

### Recording Method.

An agreement was reached with the Project Officer and the Contractors to leave any remains exposed to allow recording to be completed. Stratigraphically the site was very simple with only three or possibly four identifiable phases.

Phase 1	Surface or standing structures.
Phase 2	Fill underlying phase 1 and overlying phase 3.
Phase 3	Early 19 <sup>th</sup> Century building footings and earthworks.
Phase 4	Possible late 18 <sup>th</sup> Century remains.

### Phase 1.

Recording of Phase 1 was carried out during the Royal Commission on the Historical Monuments of England field survey. The position of buildings and floor slabs were recorded on a plan at 1:1000 and digitally reproduced within a CAD environment.

The field survey also incorporated the documentation and cartographic search of the site including this area.

The standing structures were recorded in detail by the RCHME Threatened Buildings section (see Appendix A).

### Phase 2.

This phase was not formally recorded.

### Phase 3.

Recording of these remains was carried out as and when they were exposed but they were left 'in situ' until all remains had been exposed over the development

area.

Recording was carried out by the site archaeologist occasionally helped by the Royal Ordnance draughtsman.

As can be seen in figures 15 and 16 archaeological features, either structures or earthworks, covered approximately three quarters of the development area.

In ideal situations, as described in the EEC brief, the area would have been recorded, graphically, at a scale of 1:20. However it was decided, bearing in mind the time constraints and considering the importance of the remains, to record the whole site at 1:500 and individually record the more complex structures in the NW corner at 1:100. Features of note were recorded photographically as were all the remains using black and white prints and colour slides.

#### Phase 4.

Remains attributable to this phase were recorded as for phase 3.

All remains and features were levelled using a WILD 'dumpy' level.

## THE ARCHAEOLOGY

### Recording Method and Rationale.

#### Background.

Planning consent was granted for the planning application to re-develop the area for residential use by Epping Forest District Council. With this consent is included an archaeological condition requiring:-

'...the applicant to ensure that no development or preliminary ground works of any kind shall take place until the applicant has secured the implementation of a programme of archaeological work in accordance with a written scheme of investigation which has been submitted by the applicant, and approved by the Planning Authority, in line with the Department of the Environment Planning and Policy, Guidance Note 16: Archaeology and Planning ' (P.P.G. 16).

(Essex County Council, Planning Department, Archaeological Advisory Group).

In essence this condition requires the applicant/developer to provide for adequate archaeological recording of any remains uncovered during the re-development. Adequate recording could be a watching brief, where remains are suspected but not proven or where the significance of the archaeological remains is low, up to a full archaeological excavation where the remains uncovered are important and are threatened by the re-development.

In the case of the Powdermill Lane Housing Area it was decided by Essex County Council Archaeology Department that a watching brief would be carried out by the site archaeologist and that the majority of structural remains found could be satisfactorily recorded during the watching brief (please refer to EEC Archaeology Department "Brief for an archaeological watching brief at Powdermill Lane Housing Site, Royal Gunpowder Works, Waltham Abbey" September 1993).

Recent Developments. (June 1991 to present).

Waltham Abbey Royal Armaments Research and Development Establishment officially closed on the 30th June 1991. Focus turned to the problem of what to do with the 200 acre site.

The extent of contamination on site was unknown so in December of the same year Royal Ordnance Plc (Environmental Services Group) organised an initial ground investigation of the whole site excepting the standing structures. A report was submitted in August 1992 (ESG17/92) and from this information the decontamination program initiated in the Autumn of 1992 was planned. This programme included the Powdermill Lane Housing area.

Please see the WS Atkins Environment report of June 1994 (Powdermill Lane Housing Site, Waltham Abbey RARDE [North site]), Contaminated Land Investigation Final Report. This report details all results of land investigations within the development boundary.

*Outline of decontamination work carried out.*

October - November 1992 - Demolition of prefabricated garages and office buildings to south west of N<sup>o</sup> 9 Powdermill Lane.

January - April 1993 - Royal Commission on the Historical Monuments of England field survey of site including Powdermill Lane area.

June 1993 - Excavation of area to the South of A230 - A234 (removal of approximately 300mm of material).

August 1993 - Begin the demolition of A250 the works Social Club.

September 1993 - January 1994 - Demolition of the old Administration buildings A230 - A234 and excavation of fill material over the whole site.

March 1994 - Archaeological recording and evaluation.

September 1994 - Sheet piling of Millhead Stream and raising of small River Lea barge.

Over the next twenty one years the site as a whole and especially the area under discussion, developed considerably. As the Engineers yard and the Saltpetre Refinery complex to the south expanded so did the water ways in this area. None of these later courses were wide enough for transport use and most had tight right angled bends which definitely proclude the use of canal craft on them. There seems little doubt that they were constructed as drainage ditches to reduce the water table in this low lying area of the gunpowder factory.



(See Appendix A for RCHME component sheets of buildings referred to in the text).

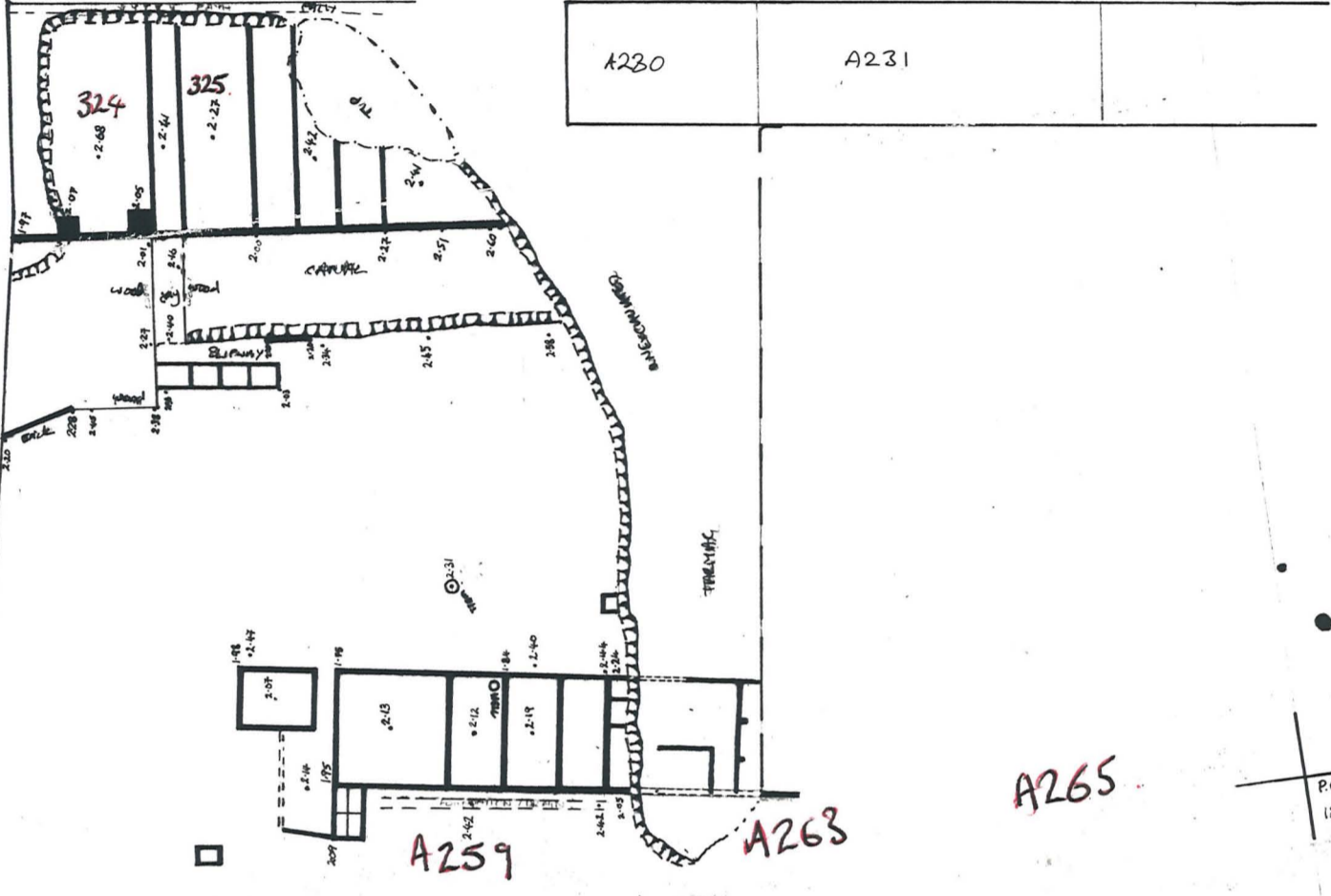
*ii) Waterways.*

As explained above, the development of the waterways; the canals, leats and drains in this area is little understood due to the paucity of the documentary and cartographic evidence so far uncovered. What can be said is that the two main waterways which flank the site on the east and west sides have changed little in line or size over the last three hundred years.

The earliest waterway depicted on the cartography of the area is a small inlet immediately to the south of the Old Engine house. From the map it does not appear to serve any access purpose and may even be natural (figure 6).

By 1801 two long buildings, probably storage structures, had been erected abutting the northern bank of the inlet. At this point the water course does not appear wide enough to be useful as a transport route (figure 7).

By 1806 two new water courses appear on the maps at the same time as the Artificers Yard is first shown. The first RCHM357 runs along the northern boundary of the housing area as mentioned in the location section. It is unclear whether this canal was used for transport or whether it served to move water from one side of the site to the other. However, as water, at this date, was the main power source, control and conservation of the water levels was most important. The later suggested function is therefore most likely. The second new water way ran from the Millhead Stream in the west to the Old River Lea to the east and passed to the south of the southern flank of the Artificers Yard. Definitely too narrow to allow barges or punts to pass through it probably performed the same function. Although the buildings abutting the inlet appear to have changed, the extent and shape of this feature is unchanged (figure 8).



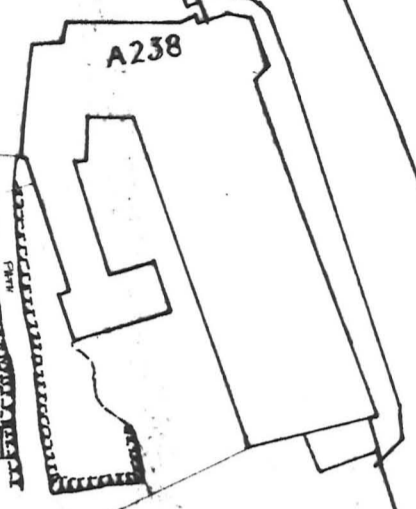
Pg. 11. (18)  
18.11.5m

Height of Instrument  
(a) 20.515

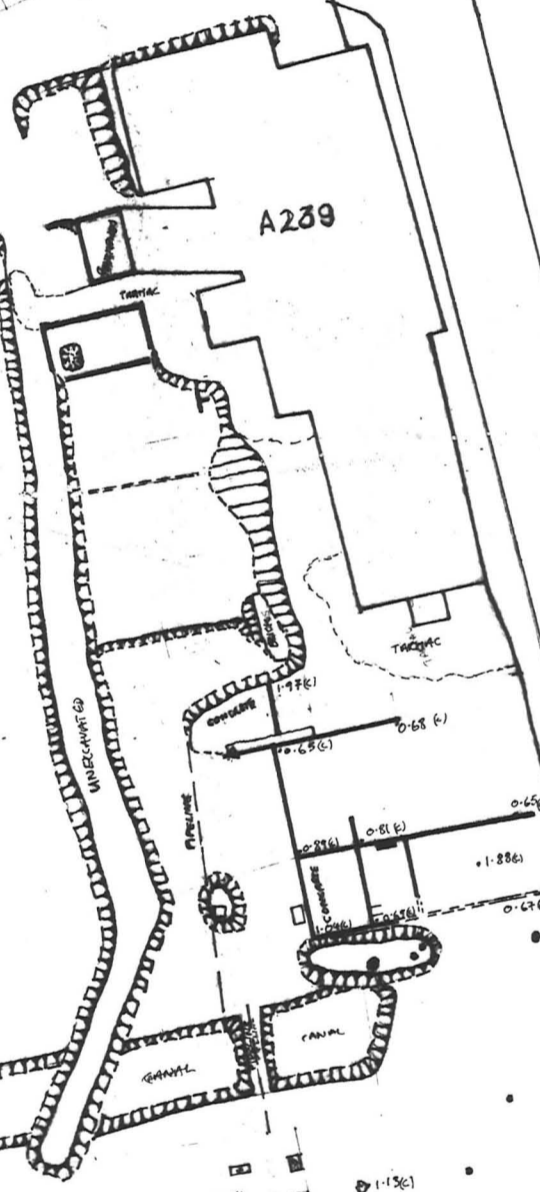
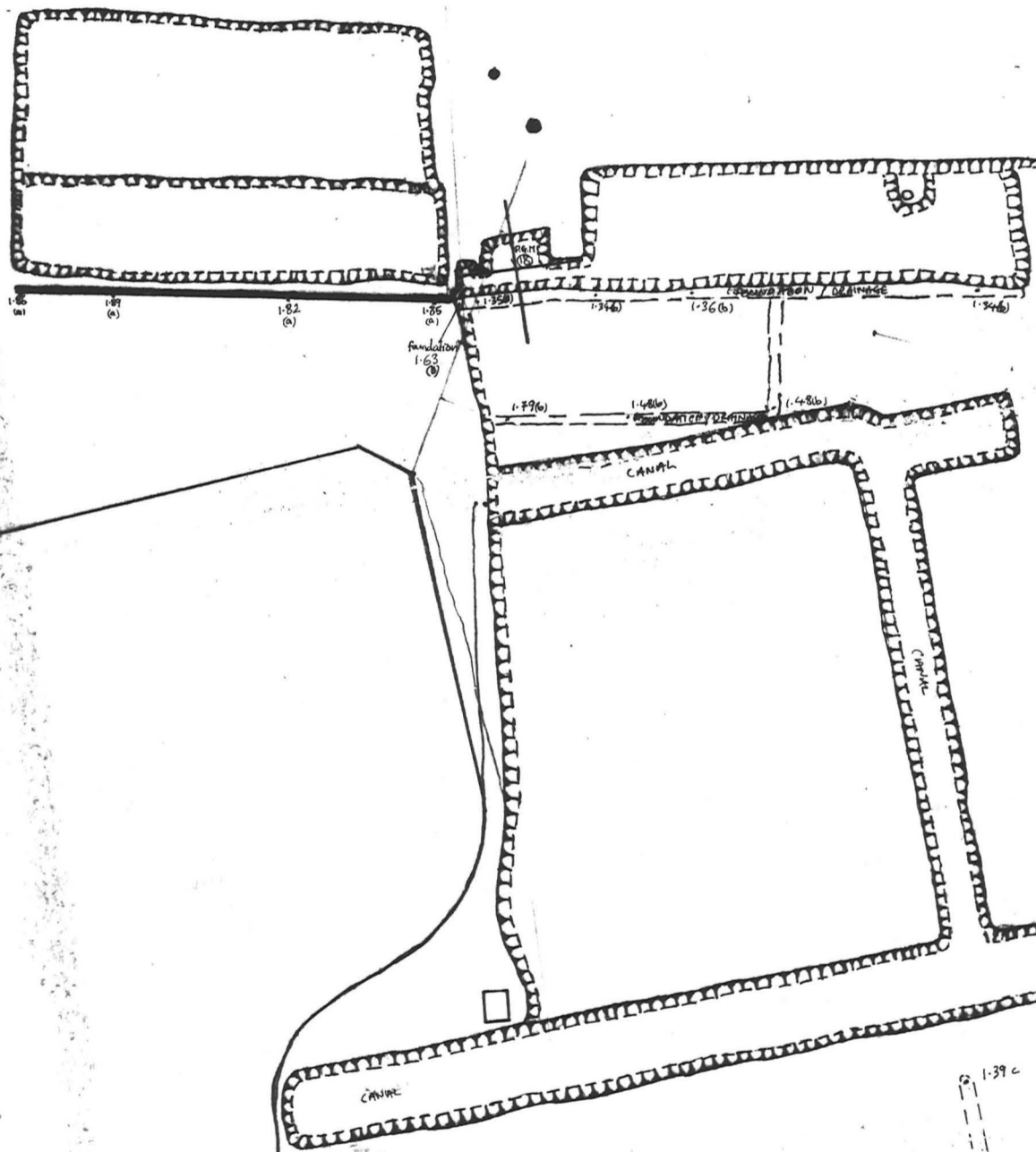
WALTHAM ABBEY 1993 Area P.  
former KARDE site 6.10.93  
Scale 1:500 SURVEYED + DRAWN BY ADF  
LEVELS ADF  
SHEET 2  
REF: ARCH 93/005

Instrument (B) = 19.805m

230 A231 A232 A234

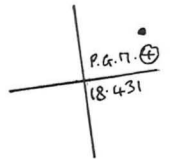


UNEXCAVATED



1.47 (a)  
1.46 (a)  
RCHM 551

1.61 (a)  
1.62 (a)  
RCHM 553



Height of Instrument (c)  
= 19.781

WALTHAM ABBEY 1993  
FORMER RADE SITE  
SCALE 1:500 SURVEYED  
SHEET 1

REF: A

## RESULTS.

### Phase 1.

#### Standing Architecture. (Extant).

A238/A268      Police Lodge and Offices.

A269              Offices, 9 Powdermill Lane.

(Please refer to RCHM threatened building reports and survey component sheets).

#### Standing Architecture. (Recently demolished).

A230 - A234      Store houses/Shifting houses, later administration block.

A235              Police cycle hut.

A250              Social Club.

A266              Cleaners hut.

A270, A271, A272, A273, A282, A283, A284, A285, A289 Office blocks.

(Please refer to RCHM threatened building reports and survey component sheets).

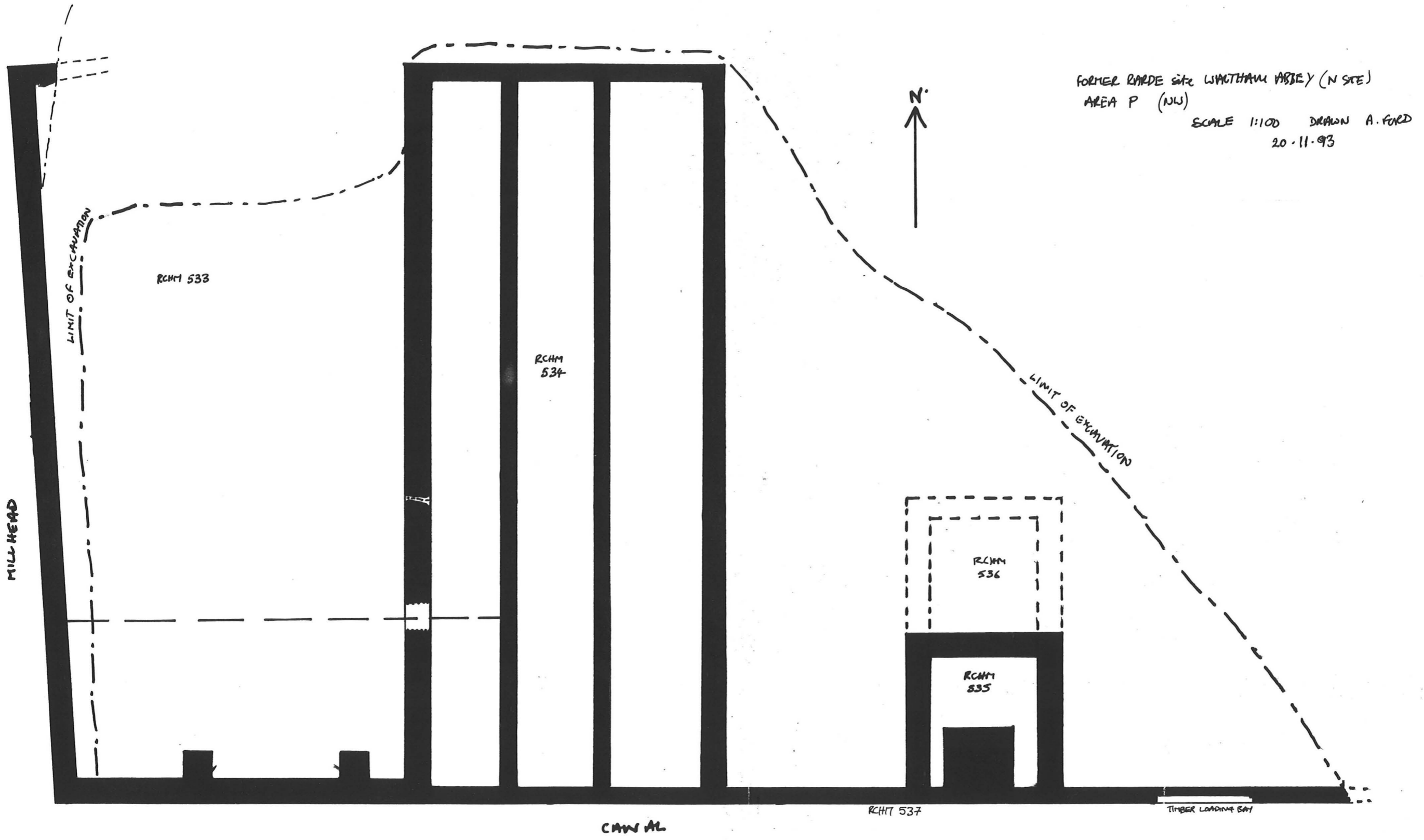
### Phase 3 and 4.

The remains uncovered in these phases will be dealt with here, geographically, from north to south.

#### Buildings 324 and 325 - (Figure 17).

The remains which represent the lower courses and foundations of at least two buildings were uncovered approximately 0.5m below the original surface in the north west corner of the development area (figure 17).

To the south they front the canal or basin RCHM501 with a wide revetment wall which is integral with and connects the two buildings. Building 325 extends to the north some 18m, the northern wall line just within the limit of



excavation. Due to the presence of a large tree immediately to the south of Bridge 1 the extreme north east corner of the development area was not excavated, as a result the northern extent of building 324 is not known: However a return was noted off the western wall of the building, which also acts as the revetment wall for Millhead Stream (see figure 17).

#### Structure - Building 324 - (Figure 17).

Only two walls of this structure were uncovered or survived. The southern wall, part of the canal revetment mentioned previously, was constructed of soft red and yellow hand made stocks (mild stocks) layed in standard flemish bond with flint tempered lime mortar. The wall which was 2½ bricks thick survived up to between 12 and 15 courses above the water level. Abutting this wall to the north were two square brick features which appeared to be buttresses for the southern wall or footing supports for an unknown architectural feature. These blocks were 0.68 x 0.77m and keyed into the southern wall. They were also made of mild yellow/red stocks, but with no distinct bonding pattern. They survived to the same level as the southern wall.

The western wall which also formed a boundary between the water system and the land was perpendicular to the southern wall. This wall survived above the level of the other remains and was capped, probably after the demolition of the original structure, by sandstone slabs. This wall was also made from hand made mild stocks in single flemish bond, bound with lime and mortar but was only 2 bricks thick.

At the northern end, some 15 - 18m north of the basin entrance, a wall return was noted, similar in construction, but of unknown vertical or horizontal extent.

The eastern wall was shared with building 325 and will be discussed in the next section.

No obvious floor layer could be detected, although it was not uncommon for buildings, especially store buildings of this age to have voids beneath elevated timber floors.

No other features were observed.

Structure - Building 325 - (Figure 17).

This building was more intact and displayed clear architectural features. The building was set perpendicular to the canal basin wall and was 18.6m long by 8.2m wide.

Both the north and south walls were 1½ bricks thick in normal Flemish bond with the northern wall surviving to approximately 10 courses above the excavated level. The southern wall although appearing to be contiguous with the wall making up the southern end of the building 324 to the west, it becomes narrower after the shared north south wall. It also does not survive as high.

The western wall, which appears to be a shared feature of building 324 and 325 is 2½ brick thick and as with all the others so far described is in Flemish bond.

Interestingly, approximately 7.5m north of the canal side there is a clear break in the wall which pinpoints the attempted jointing or keying in of two completely different walls. Although the bricks and the bonding are essentially the same, the orientation of the courses and the condition of the lime mortar suggests that the northern section of the wall was from a previous building phase. A layer of terracotta tile was discovered between two courses at a lower level in the northern section of the wall possibly representing a damp course layer. This being the case, it would mean that the contemporary ground level must have been at least 2m below the modern surface in this part of the site.

The eastern wall was similarly constructed but was 160mm narrower.

All of the external walls display a stepped feature where the wall 'steps in' forming a one brick wide ledge all around the inside of the building. ie. the external

walls change from being 2 or 2½ bricks thick to becoming 1 or 1½ bricks thick. On this ledge was set terracotta tiles in mortar and this feature survived along approximately 80% of the ledge. This was obviously where the floor joists were set.

The two narrow internal walls which run the full length of the building appear also to function as floor timber supports. They survive to the same height as the ledge and are constructed in English bond with the top course of headers.

To the east of building 325 was a smaller rectangular feature also abutting the canal wall (see figure 17).

#### RCHM535 and RCHM536.

RCHM535 was a simple rectangular structure represented by the canal wall to the south and three thicker walls to the west, north and east. The western wall did not survive as well as the others but is assumed to have been constructed in a similar manner ie. single Flemish bond of mild stocks bound with lime mortar and 2½ bricks thick. There was no evidence of floor supports or of any entrance way. Within the feature another brick block was recovered similar to the examples found within building 324, although much larger (1.8m x 1.5m). This feature also abutted the canal wall.

To the north of RCHM535 was a curious feature. RCHM536 was also rectangular but delineated this time by a thick and quite distinct line of lime. The whole feature measured 4m by 3.5m.

Initially it appeared to represent the foundation deposits of a later higher level building of which no brick work survived. However it is impossible to hypothesise further.

Further east again along the canal wall a timber insert to the wall suggested the position of a loading/unloading point probably into a yard rather than into a building.



After the removal of these remains the foundation structures were uncovered. These were found to be lines of timber piles with flat planks mounted on top and it was on this surface that the bricks were set (see ECC Archaeological Report). (Appendix C).

### Interpretation.

Very few artifacts were recovered from within or around these remains. It is possible that there simply were not any finds but is more likely due to the method of excavation, using a 15tonne tracked excavator with a six foot wide bladed bucket severely affects the retrieval percentage !

However all of the artifacts recovered appear to have been derived and cannot be safely related to the remains.

The only identification source is the cartographic archive.

It is possible that the western wall of building 324 and the northern section of the shared wall of 324 and 325 represents the foundation and lower courses of what is recorded as the Corning and Glazing House mentioned in the History. Although there is no proof apart from the antiquity of the brick and mortar and the geographical location.

The other remains are undoubtedly the remains of the store buildings, first clearly depicted on the drawing of 1806 and later the plan of 1827 (figure 8 and 9). All the structures appear to have been demolished by 1865 and replaced by long timber store buildings. No traces of these structures were found (figure 10). These structures seem to have been demolished between the First and the Second World Wars.

Structures: RCHM538, RCHM539, RCHM540 and RCHM541.

(See figure 18).

RCHM538.

The remains found to the south of the canal mouth represented a fairly complete canal revetment wall as depicted clearly in the 1886 plan of the area (figure 10).

Constructed of red and yellow mild stocks in single Flemish bond held with lime mortar the wall was 2½ bricks thick.

RCHM539.

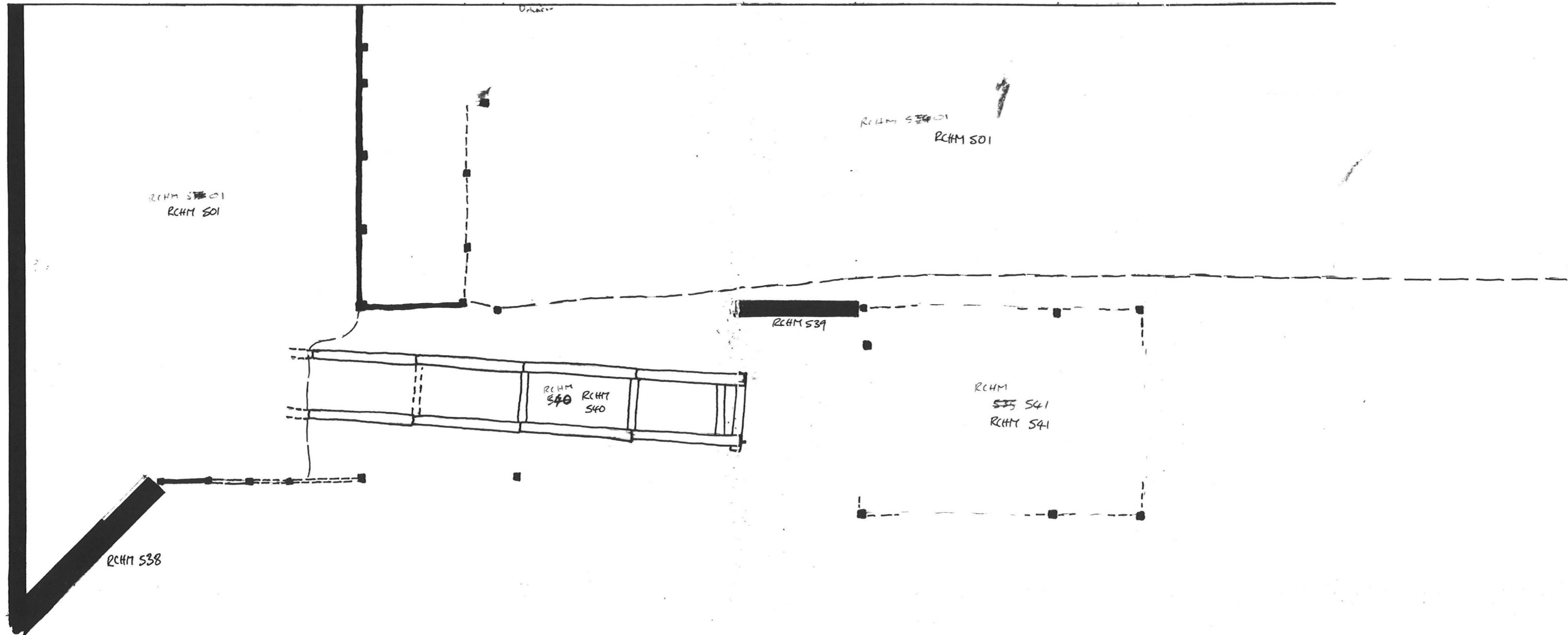
This short section of wall was uncovered at the top of the bank of canal RCHM501 to the north of the slipway RCHM540. The wall was constructed of yellow mild stocks in Flemish bond.

No known structure or function can be attributed to this wall.

RCHM540 and 541.

RCHM540, when fully excavated, was made up of a number of thick timber railway sleepers arranged to form a slipway. The railway sleepers were laid end on end supported at the nodes by cross members which were also sleepers, forming a ladder type pattern. All this was fixed by anchor bolts to an earth ramp aligned roughly east - west. Associated with this structure but to the north a double line of timbers were found traversing the canal (see figure 18).

These timber walls were set parallel but approximately 2½m apart. In between the two lines clay had been packed. This feature was obviously the revetment to create the basin around 1850. The canal to the east must have been backfilled around this time. This work may have coincided with the demolition of the large stores described above.



FORMER RADE SITE WALTHAM ABBEY N SITE  
AREA P (NW) DRAWN BY ADF  
SCALE 1:100  
24-11-93

The result was that the canal/inlet was converted into a small basin and it was into this basin that the slipway was constructed.

#### RCHM541.

To the east of the slipway a rectangular feature was uncovered by the machines, delineated by seven posts set into the clay (figure 18). No other features were noted.

These posts probably represented the remains of the supporting frame for the corrugated iron shipwrights shed depicted on the 1886 plan and it is therefore probably contemporary with the slipway and the basin (see figure 10).

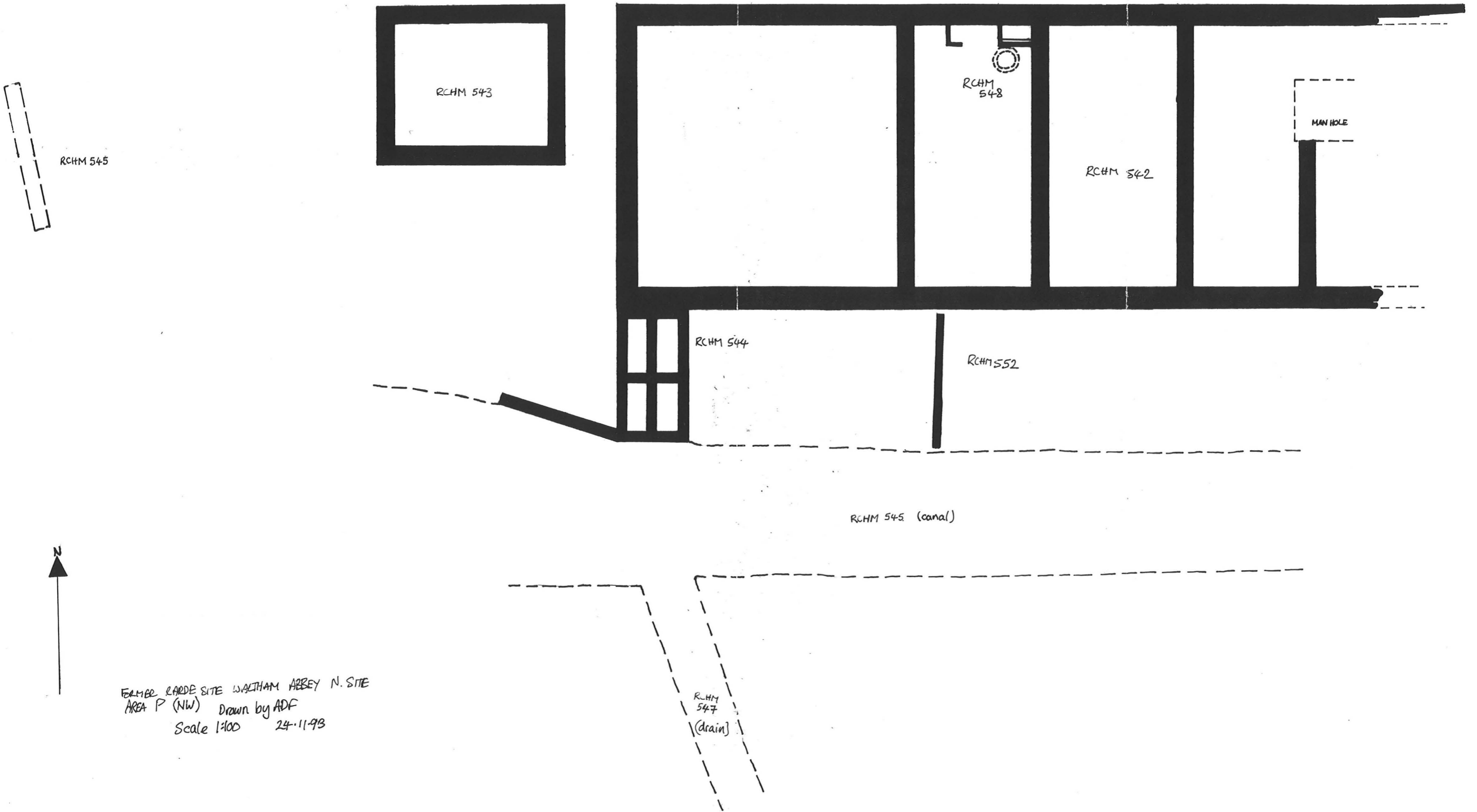
Again few of the artifacts recovered can be associated with the structural remains and most appear to be of secondary or tertiary context.

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The next group of structures uncovered during the decontamination operation lay to the south of the canal RCHM501 by approximately 20m (see figures 15 and 19).

These represented a section of a larger complex of building which formed the southern flank of the Engineers Yard. It is understood that the remains were much more extensive but all features to the east of the recorded wall lines were destroyed in summer of 1993 during preliminary ground works prior to the commissioning of the site archaeologist.

The main blocks, depicted in figures 8 to 13 were constructed at the same time as the old administration buildings to the north (demolished 1993/4) between 1801 and 1806. Only 15m of western end of A259 survived to be recorded as shown in figure 19, a number of ancillary structures were added to the west and they also survived as foundations and truncated walls.



#### RCHM545.

RCHM545 was a linear feature of a thick layer of lime set on the underlying clay and most likely represents the remains of a supporting wall for what is described in 1886 as the "Old Stores" which were made from timber (see figure 10). These stores appear to have been constructed between 1806 and 1827. They were demolished between the two World Wars. (Board of Ordnance number 252).

#### RCHM543.

This rectangular feature was constructed of red mild stocks in the standard Flemish bond, 2 bricks thick. No entrance or other architectural feature was noted.

This building is described as the Smiths Shop and was constructed at the same time as the "Old Stores" between 1806 and 1827. This to appears to have been demolished between the two World Wars.

(Board of Ordnance 253).

#### RCHM544.

As shown in figure 19, this structure comprised of four external walls, approximately 1 brick thick with the northern wall abutting the main building. It also had two internal walls forming a cross, the function is unknown but from the map evidence, it appears to have been a shed built on the southern side of the Bricklayers store. A sub circular brick lined culvert ran under the feature to discharge into canal RCHM545 to the south. The short length of retaining wall along the canal appears to have been associated with this outlet.

#### A259.

This number comes from one of the MoD or RARDE numbering systems adopted in 1940's. This number referred to the building as a whole and

encompassed the old Board of Ordnance numbers which referred to each separate shop or store. The remains uncovered had two B.O. numbers;

254 - Appears to have been constructed between 1801 and 1806 at the same time as the main Artificers yard buildings. No particular function is attributed to this square building until 1865/86 where it is described as a Bricklayers store.

By 1827 the gap between the Bricklayers store and the main building to the east had been filled in and is described on the same map as the Bricklayers shed. Within this structure a brick corbelled well was uncovered (RCHM548) see figure 19. The well was of a similar design to one found some 8m to the north in the yard area. The corbelling in a beehive shape appeared to be one brick thick and, as everything else uncovered in this part of the site, was made of red hand made mild stocks.

#### 255.

Referred to as the Plumbers Shop built around the same time as 254 and using exactly the same construction techniques.

#### 256.

The southern and western walls were all that survived of the main Engineers/Artificers buildings (see figures 15 and 16). B.O. series 256 is generally described as a store. On the 1886 plan, however, it is described as a Millwrights Shop.

Crossing the centre of the development area were found a number of waterways surviving as earthworks. Refer to description of waterways in the previous sections.

It is very difficult to sequence these features or to discuss their original functions.

As a rule, however, the width of the channel, the acuteness of the angles and the fact that they appear to come from nowhere in particular to nowhere seems to proclude the use of barges. It seems more likely that they were drainage ditches to reduce the water table in this low lying section of the site.

In the south west of the development site two small features were uncovered;

RCHM551.

A one brick thick wall line was uncovered adjacent to and running under the perimeter fence. The wall ran north to south and was approximately 4.3m long. Two returns were identified at either end heading west perpendicular to the main wall line.

From details found in the cartographic archive it is probable that these remains represent the foundations or truncated walls of a Dark Room dating to the last quarter of the 19<sup>th</sup> Century. (See figures 11 and 16).

RCHM553.

RCHM553 consisted of one single brick thick wall approximately 3.1m long with only one course surviving. The function of these remains is unknown.

To the south east and east of the area a number of features were uncovered and are depicted in figure 16. The shaded features were drainage ditches filled with shingle. To the east of these were a set of narrow reinforced concrete walls laid east west approximately 2m apart.

No structures corresponding to this location were found in the literature and their function remains a mystery.

To the north of these concrete lines, directly south of building A269, a number of brick walls were uncovered just below ground level, higher than the



other remains. These have been attributed to a 1940's canteen building (A270) which had been demolished by the mid 1970's and replaced with a prefabricated office building. This building was demolished in 1993.

### Artifacts.

The speed of the earth moving operation and the machinery used for that purpose meant that the artifact retention percentage was very low.

In ideal circumstances within an environment of a controlled archaeological excavation, the artifact retention percentage would be around 85% ie. approximately 15% of potential artifacts would be missed and thrown onto the spoil heap. These tend to be very small finds, for example small mammal or fish bones, small beads, shards of pottery or even environmental remains such as snail shells, seeds or insect remains. On later period archaeological sites, eg. late medieval period sites, it can be argued that the potential information gained from these sources would not greatly enhance the knowledge of the site or the period.

However, on prehistoric sites it is worth the effort and expense to attempt to collect these artifacts by either wet or dry sieving. Although extremely time consuming the environmental data which can be collated from these finds can be invaluable when piecing together the prehistoric landscape, diet etc.

On a site such as this the environment is known and the dietary habits of the 19<sup>th</sup> and 18<sup>th</sup> Centuries are fairly well documented.

The artifact retention percentage during the surface soil strip was probably less than 20% at maximum 30%. This is obviously not very satisfactory. Looking at the collection of artifacts that were recovered, however, it was reassuring to note that with very few exceptions the finds appeared to be later than the remains, mostly 20<sup>th</sup> Century domestic and industrial waste. It was also interesting to note that the majority of artifacts came from derived contexts possibly representing secondary or even tertiary deposition.

Thus very little can be interpreted from the finds and it would be very difficult to be able to attribute artifacts to specific structural remains or temporal phases.

Please refer to Essex County Councils Archaeology Department report for results and interpretations of the evaluation carried out in the north west corner of the development area in March 1994. (Appendix C).

### Conclusions.

In assessing the archaeological remains it was surprising to find only two features could not be correlated to the documentary or cartographic archive. It was also surprising to find so much of the 19<sup>th</sup> Century remains well preserved considering the amount of building work carried out since the Second World War.

In this situation the archaeology, unremarkable as it was, was useful in that it backed up the cartographic evidence. Normally the situation is the other way round.

In this instance the maps and plans proved to be more informative than the remains on the ground, again unusual on archaeological sites. It can be stated that the removal of these remains, which occurred in the late spring of 1994, is not a significant loss to the history of the site.

Of course it can be argued that destruction of any archaeological deposit is a significant loss. Also the question of "who decides what appears to be unimportant now will not be important in the future?" springs to mind !

The moralistic stance of cultural resource management is well understood as is the responsibility of archaeologists to preserve the past, for the future.

These views exercised, without a pragmatic approach, are often unworkable in practice. We can only judge the importance of the remains with today's information and endeavour to record them as accurately as possible.

In this instance the remains were judged to be less significant than other remains on site and as such could be removed after suitable recording.

**APPENDIX A.**

**ROYAL COMMISSION ON THE HISTORICAL  
MONUMENTS OF ENGLAND.**

**BUILDING COMPONENT SHEETS REFERRING TO  
POWDERMILL LANE DEVELOPMENT SITE.**

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**THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY**

NUMBER A227	OLD SERIES	RCHME NUMBER	N.G.R. TL 37857 00864
NAME/FUNCTION Main Gate Search (Contraband)		START DATE 1941?	END DATE
NO PHOTOGRAPHY AVAILABLE			
CARTOGRAPHIC DEPICTION  c1963    WASC 900/97 ; A227 1972    WASC 900/102 ; A227 1972    WASC 900/104 ; A227 1976    WASC 900/113 ; A227		DOCUMENTARY REFERENCES  Plan; A227    B01 - 22/12/1941 ; Contraband Main Gate	
PHOTOGRAPHY HISTORIC		PHOTOGRAPHY RCHME	
RELATIONSHIPS WITH OTHER MONUMENTS  ASSOCIATED WITH:			
CONDITION    Good			
DESCRIPTION 1)    CONSTRUCTIONAL MATERIAL Brick in stretcher bond  2)    ROOF MATERIALS AND STRUCTURE Flat concrete slab  3)    POWER SOURCE Electricity  4)    DIMENSIONS i) L 5.55m ii) W 3.62m iii) HT 2.33m  5)    The building has a pair of double doors on the eastern side and a single door to the west.			

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER A230	OLD SERIES 242	RCHME NUMBER	N.G.R. TL 37800 00848
NAME/FUNCTION Carpenters Store Gun House Shifting House Admin. Adj. Garage		START DATE  1902 194?	END DATE 1902  194?

NO PHOTOGRAPHY  
AVAILABLE

CARTOGRAPHIC DEPICTION	DOCUMENTARY REFERENCES
1827 WASC 900/04 + MPH 271 ; 81/82	Plans; A230 B01,B02 ; Plans and Elevations 1886 to 1924
1830 WO55 2694 ; 81/82 Carpenters Store	
1830 WASC 900/05	
c1830 WASC 900/06	1908 RGPF Ledger WASC 1509 + WASC 1764 ; Shifting Room built 1902 p27
c1835 WASC 900/07	c1925 RGPF Ledger WASC 1680 ; Shifting Room
1861-1868 WASC 900/10A	c1945 RGPF Ledger WASC 1508 ; Shifting Room
1865 WASC 900/13 ; Gun Shed	
1865 WASC 900/14 ; Gun Shed	
1865 WASC 900/38 + SUPP5 975 ; Shifting House	1972 ERDE List ; Store Canteen
1865 WASC 900/41A ; Shifting House	1991 Mott McDonald survey
1865 WASC 900/42	1992 RARDE List ; Admin Block/Garage
1897 WASC 900/53C	
c1910 WASC 900/65 ; Shifting Room	1993 RCHME NBR No.91467
c1910 WASC 900/79	
1917 WASC 900/70 ; Shifting Room & Timekeepers Store	
1917 WASC 900/72	
1919 WASC 900/74 ; 242	
c1920 WASC 900/80 ; 242	
1923 WASC 900/84 ; 242	
> 1940 WASC 900/91A ; A230	
1954 A - B.34 ; A230	
c1960 WASC 900/94 ; A230	
c1963 WASC 900/97 ; A230	
1972 WASC 900/102 ; A230	
1972 WASC 900/104 ; A230	
1976 WASC 900/113 ; A230	

PHOTOGRAPHY  
HISTORIC

PHOTOGRAPHY  
RCHME

- 1) 206/R/8 From North East
- 2) BB92/26234 A230,231,232 view from North West.  
BB92/26235 A230 view from North.  
BB92/26236 A230 Roof Structure.
- 3) 225/A/17-19 Roof

RELATIONSHIPS WITH OTHER MONUMENTS

ASSOCIATED WITH: A231, A232, A233, A234, A235

CONDITION      Good

DESCRIPTION

- 1)      CONSTRUCTIONAL MATERIAL  
        Brick in flemish bond
- 2)      ROOF MATERIALS AND STRUCTURE  
        Slate
- 3)      POWER SOURCE  
        Electricity and steam heat
- 4)      DIMENSIONS i) L 11.65m ii) W 8.08m iii) HT eave 3.25
- 5)      See Attached Threatened Buildings report

ROYAL COMMISSION ON THE HISTORICAL MONUMENTS OF ENGLAND

MOD Building No. A230  
Shifting Room  
The Royal Gunpowder Factory  
Waltham Abbey  
Essex

NBR No: 91467  
NGR: TL 37800 00848

Building A230 appears to have been built by c1895 as an infill between a pair of early nineteenth century buildings on its east and west sides. Its north elevation wall utilises an earlier brick wall which ran flush on the north elevation between those earlier two buildings.

It functioned as a Shifting Room, where workers would have washed themselves and changed clothing before and after working shifts on the site.

-oo0oo-

Building A230 was built by c1895 as a Shifting House, that is, a changing room where workers would have washed themselves and changed clothing before and after working shifts at the Gunpowder Factory site.<sup>82</sup> It was an infill between two early nineteenth-century buildings. On its east side is A231 which was built by c1806 as a Timber Store.<sup>83</sup> On its west side was a Storehouse which was demolished by c1923.<sup>84</sup> The north wall of A230 utilises an early nineteenth-century brick wall which formerly linked A231 with the Storehouse.

The building is rectangular in plan, 39' x 26'9" (11.89 x 8.2 m) and is 11' (3.36 m) to eaves height.<sup>85</sup>

Like the brickwork of A231, the north elevation and east party wall are constructed of red brick laid in Flemish bond. When the south and west elevations were built, the north wall was heightened. The top four rows of brickwork on the north elevation and the whole of the south and west elevations are of yellow brick laid in English bond. The present west wall may be a replacement of an original party wall. A wide doorway, with a cambered head, was inserted at the east end of the north elevation. There is no fenestration.

The roof is hipped and has slate coverings and carries a timber louvre. There appears to have been a skylight on the northern side of the roof to light the building. The roof trusses are of angle iron and rolled iron with ties at the hip ends.

Plans of 1924 show that the building continued to function as a Shifting Room.<sup>86</sup> At the time of this survey it was disused.

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OS County Series 1:2500 maps, 2nd ed. 1897 (surveyed 1865, revised 1895), sheet refs XLIX.14, XLI.8.12, XLII.5.9.

The Ledger of c1908 is incorrect in dating the building to 1902, cat. WASC 1509 (PRO, Hayes Repository).

F Drayson Drawing No. 36 of "Buildings forming the Engineers Establishment", 1830, cat. PRO MR580.

The Storehouse appears in the F Drayson Drawing No. 36 of "Buildings forming the Engineers Establishment", 1830, cat. PRO MP 11.15 (PRO, Kew) and in the OS County Series 1:2500 maps, 2nd ed. 1897 (surveyed 1865, revised 1895), sheet refs XLIX.14, XLI.8.12, XLII.5.9. However, it is not shown in "Royal Gunpowder Factory, Waltham Abbey" site plan 1:2500, as named 13 September 1917, revised March 1919 and March 1923, cat. WASC 900/84.

Ledger c1908, cat. WASC 1509 (PRO, Hayes Repository).

"Drawing of "Royal Gunpowder Factory, Waltham Abbey, New Heating Scheme", dated 12/9/1924, cat. A230.B.01 (MOD Central Disposals Unit, Chessington).



## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER A231	OLD SERIES 243	RCHME NUMBER	N.G.R. TL 37800 00848
NAME/FUNCTION Millwrights Store Gun House Timber Store Shifting Room Admin. Adj. Garage	START DATE 1807-27 by 1865 by 1886 by 1908 194?	END DATE by 1865 by 1886 by 1908 by 194?	

NO PHOTOGRAPHY  
AVAILABLE

CARTOGRAPHIC DEPICTION	DOCUMENTARY REFERENCES
1806 WO78/1352	Plans;
1827 WASC 900/04 + MPH 271 ; 81/82	A231 B01 - B17 ; Plans and Elevations 1884 to 1984
1830 WO55 2694	1830 Statement of Property WO55 2351; Millwrights Store
1830 WASC 900/05	1841 Statement of Property WO55 2856; Millwrights Store
c1830 WASC 900/06 ; Millwrights Store	1851 Statement of Property WO55 3027; 45 Millwrights Store
c1835 WASC 900/07	1908 RGPF Ledger WASC 1509 + WASC 1764 ; Shifting Room pre 1850 p27
1861-1868 WASC 900/10A	c1925 RGPF Ledger WASC 1680 ; Shifting Room
1865 WASC 900/13 ; Gun Shed	c1945 RGPF Ledger WASC 1508 ; Shifting Room
1865 WASC 900/14 ; Gun Shed	1972 ERDE List ; Director CAO & Shifting Room
1865 WASC 900/38 + SUPP5 975 ; Timber Store	1991 Mott McDonald survey
1865 WASC 900/41A	1992 RARDE List ; Admin Bolck/Garage
1886 WASC 900/42 ; Timber Store	1993 RCHME NBR No.91466
1897 WASC 900/53C	
c1910 WASC 900/65	
c1910 WASC 900/79 ; Shifting Room	
1917 WASC 900/70	
1917 WASC 900/72 ; 243	
1919 WASC 900/74 ; 243	
c1920 WASC 900/80 ; 243	
1923 WASC 900/84 ; 243	
> 1940 WASC 900/91A ; A231	
1954 A - B.34 ; A231	
c1960 WASC 900/94 ; A231	
c1963 WASC 900/97 ; A231	
1972 WASC 900/102 ; A231	
1972 WASC 900/104 ; A231	
1976 WASC 900/113 ; A231	

PHOTOGRAPHY  
HISTORIC

PHOTOGRAPHY  
RCHME

- 1) 206/R/7 From North East  
206/R/9 From South
- 2) BB92/26237 A231 View from North West.
- 3) 225/A/20-1 North elevation showing sjs  
225/B/2 South elevation

RELATIONSHIPS WITH OTHER MONUMENTS

ASSOCIATED WITH: 249b, A230, A233, A234, A235

CONDITION      Good

DESCRIPTION

- 1)      CONSTRUCTIONAL MATERIAL  
Brick in flemish bond
- 2)      ROOF MATERIALS AND STRUCTURE  
Slate
- 3)      POWER SOURCE  
Electricity
- 4)      DIMENSIONS i) L 30.5m ii) W 8.08m iii) HT eave 3.25m
- 5)      See Attached Threatened Buildings report

ROYAL COMMISSION ON THE HISTORICAL MONUMENTS OF ENGLAND

MOD Building No. A231  
Timber Store  
The Royal Gunpowder Factory  
Waltham Abbey  
Essex

NBR No: 91466  
NGR: TL 37800 00848

Building A231 was built by c1806 as one of a matching pair of Timber Storehouses on the north side of an Engineers Yard near the entrance to the site at the Gunpowder Factory.

Rectangular in plan and single-storeyed, it is constructed of red brick laid in Flemish bond. It appears to have had no fenestration on the north elevation originally and the south elevation had double doorways in each of its nine bays. The roof is hipped and contains timber trusses which each comprise a tie beam, king post with expanded head and foot and raking struts.

The brickwork on the west side of its north elevation contains a series of straight joints which may be original to the building or part of one of its later phases.

By 1827 it functioned as a Millwrights Store. It was a Gun Shed by c1863. By c1886 it was a Shifting House and by the late nineteenth century a lean-to projection had been added at the centre of its south elevation.

Extensive were alterations carried out in c1966 when the building was converted into offices.

-oo0oo-

Building A231 was built by c1806 as one of a matching pair of timber storehouses, aligned east to west,<sup>87</sup> on the north side of an Engineers Yard near the entrance to the site at the Gunpowder Factory.<sup>88</sup> The other of the pair, building A234, is situated approximately five metres to the east. Although separate, the two buildings were linked by a brick wall which is flush with their north walls to create a unified north elevation.<sup>89</sup>

Both buildings were still used as "timber stores" in c1821.<sup>90</sup> By 1827 they had begun to have slightly different functions, as A231 was described at that time as a Millwright's Store, while the adjacent A234 was a Carpenters Store, and a separate saw pit had been built on their south side. By c1863 both buildings were Gun Sheds, and although it is not clear exactly what this function involved, probably they were stores.<sup>91</sup> By c1886, the area between the two buildings was infilled (A232) and was, like A231, a Shifting House.<sup>92</sup> A Shifting House is a changing room, where workers would have washed themselves and changed clothing before starting and at the end of working shifts. Building A231 appears to have remained a Shifting House at least until 1924.<sup>93</sup>

Building A231 is built of red brick laid in Flemish bond and it has a stepped brick cornice. It has a rectangular plan of nine bays

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The buildings are aligned east-south-east to west-north-west but for clarity in this report they are described as if they were aligned east to west

Royal Gunpowder Factory, Waltham Abbey, site plan of 1806, cat. PRO MR580.

F Drayson Drawing No. 36 of "Buildings forming the Engineers Establishment", 1830, cat. PRO MP 11.15 (PRO, Kew).

"A Survey of the Lands and Buildings, the Property of the Ordnance, at the Royal Powder Works, Waltham Abbey, made in compliance with the Master General and Boards Order, 6th June 1821", [updated in the mid nineteenth century], (PRO, Hayes Repository).

"Royal Powder Factory, Waltham Abbey, General Plan", sheets 1 & 2, scale 1:2500, cat. WASC 900/13 & 14.

"Royal Powder Factory, Waltham Abbey", 1865, corrected May 1886, cat. WASC 900/38, PRO Supply 5/975.

Drawing of sections and elevations of the building for New Heating Scheme, dated 12/9/1924, cat. A230.B.01 (MOD Central Disposals Unit, Chessington).

by two bays, 100'6" x 26'9" (approximately 30.2 x 8 m) and is single-storeyed, at 20' (6 m) in height.<sup>94</sup> Each of the nine bays of the south elevation originally contained double doorways which would have been for bringing timber to and from the yard on the south side.<sup>95</sup> There was a doorway at the centre of the west elevation and a window at the centre of the east elevation.<sup>96</sup> There appears to have been no fenestration on the north elevation originally.<sup>97</sup>

The brickwork on the west side of the north elevation contains a series of straight joints which may be original to the building or part of one of its later phases. The straight joints extend from the ground to approximately 2.5 metres up the elevation. There are brick closers on both sides of the straight joints which suggests that a narrow piece of board or brickwork projected northward at the positions of each of the straight joints. The function of this is not clear. A site plan of c1821, updated in the mid nineteenth century, labels the north side of buildings A231 and A234 as "proof ground", and it is possible that the straight joints were somehow related to this.<sup>98</sup>

The roof is hipped and contains timber trusses which each comprise a tie beam, king post with expanded head and foot and raking struts. The timbers are through-bolted. There are no purlins. The roof has slate coverings, and carried four louvres which may not have been original.<sup>99</sup>

Originally the interior comprised a single large room. By the late nineteenth century a projection with a lean-to roof had been added at the centre of its south elevation, which was part of its Shifting Room function. Plans of 1924 show the layout of the building as it was as a Shifting Room at that date, with cupboards along the north side and wash stands along the south side.<sup>100</sup>

In c1965-6 the building was converted into offices.<sup>101</sup> Inserted on the north elevation is a doorway at the centre with four

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Ledger c1908, cat. WASC 1509 (PRO, Hayes Repository).

F Drayson Drawing No. 36 of "Buildings forming the Engineers Establishment", 1830, cat. PRO MP 11.15 (PRO, Kew).

F Drayson Drawing No. 36 of "Buildings forming the Engineers Establishment", 1830, cat. PRO MP 11.15 (PRO, Kew).

The F Drayson Drawing No. 36 of "Buildings forming the Engineers Establishment", 1830, cat. PRO MP 11.15 (PRO, Kew) shows no windows or doors on the north elevation. Two doorways were later inserted and were blocked in the 1960s, as indicated on proposal drawings for conversion of building A231 to offices, cat. A231.B.02 (MOD Central Disposals Unit, Chessington).

"A Survey of the Lands and Buildings, the Property of the Ordnance, at the Royal Powder Works, Waltham Abbey, made in compliance with the Master General and Boards Order, 6th June 1821", [updated in the mid nineteenth century], (PRO, Hayes Repository).

Louvres are not shown on the F Drayson drawings of "Buildings forming the Engineers Establishment", 1830, no. 36, cat. PRO MP 11.15 (Kew). However, they are shown in the Ledger of c1908, cat. WASC 1509 (PRO, Hayes Repository).

"Royal Gunpowder Factory, Waltham Abbey, New Heating Scheme", dated 12/9/1924, cat. A230.B.01 (MOD Central Disposals Unit, Chessington).

"ERDE Waltham Abbey, Proposed Conversion of Building A231", dated September 1965, cat. A231.B.02 (MOD Central Disposals Unit, Chessington).

tripartite sash windows on either side. Two secondary openings on the north elevation were blocked at this time.<sup>102</sup> Similarly, on the south elevation, a doorway was added in the central bay and tripartite sash windows were added in each of the remaining eight bays. A ceiling was inserted and the louvres were removed from the roof. The interior was subdivided into offices, a conference room and an interview room. This layout was essentially the same at the time of this survey in March 1993.

Surveyed March 1993  
Report by R L Burgess

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"ERDE Waltham Abbey, Proposed Conversion of Building A231", dated September 1965, cat. A231.B.02 (MOD Central Disposals Unit, Chessington).

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER A232	OLD SERIES 244	RCHME NUMBER	N.G.R. TL 37800 00848
NAME/FUNCTION Timber Store Shifting Room, Timekeepers Office Shifting Room, Office, Store Admin. Adj. Garage		START DATE by 1865 1898?	END DATE 1898 1945?

NO PHOTOGRAPHY  
AVAILABLE

<p>CARTOGRAPHIC DEPICTION</p> <p>1865 WASC 900/38 + SUPP5 975 ; Timber Store          1865 WASC 900/41A ; Timber Store          1865 WASC 900/42 ; Timber Store          1897 WASC 900/53C          c1910 WASC 900/65 ; Shifting Room          c1910 WASC 900/79 ; Shifting Room          1917 WASC 900/70 ; Timekeepers Office          1917 WASC 900/72 ; 244          1919 WASC 900/74 ; 244          c1920 WASC 900/80 ; 244          1923 WASC 900/84 ; 244          &gt; 1940 WASC 900/91A ; A232          1954 A - B.34 ; A232          c1960 WASC 900/94 ; A232          c1963 WASC 900/97 ; A232          1972 WASC 900/102 ; A232          1972 WASC 900/104 ; A232          1976 WASC 900/113 ; A232</p>	<p>DOCUMENTARY REFERENCES</p> <p>Plans; A232 B01 - B14 ; Plans and Elevations 1886 to 1971</p> <p>1830 Statement of Property WO55 2351          1841 Statement of Property WO55 2856          1851 Statement of Property WO55 3027</p> <p>1908 RGPF Ledger WASC 1509 + WASC 1764 ;          Shifting Room built 1887 p27          c1925 RGPF Ledger WASC 1680 ; Shifting Room          c1945 RGPF Ledger WASC 1508 ; Shifting Room</p> <p>1972 ERDE List ; Shift House          1991 Mott McDonald survey          1992 RARDE List ; Admin Block/Garage</p> <p>1993 RCHME NBR No.91468</p>
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<p>PHOTOGRAPHY HISTORIC</p>	<p>PHOTOGRAPHY RCHME</p> <p>1) 206/R/6 From North          206/R/9 From South</p> <p>2) BB92/26238 A232 View from North.          BB92/26239 A232 Interior view from North East.          BB92/26243 A234 and A232 from North East.          BB92/26246 A232 West end of Administrative block          view from South East.          BB92/26366 A232 Police lodge &amp; Officers          (Chessington)</p>
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RELATIONSHIPS WITH OTHER MONUMENTS

ASSOCIATED WITH: A230, A231, A233, A234, A235 OVERLIES: RCHME 321

CONDITION Good

DESCRIPTION

- 1) CONSTRUCTIONAL MATERIAL  
Brick in flemish bond
- 2) ROOF MATERIALS AND STRUCTURE  
Slate
- 3) POWER SOURCE  
Electricity
- 4) DIMENSIONS i) L 12.6m ii) W 8.08m iii) HT eave 3.3m
- 5) This building forms the link between A231 and A234.  
  
See Attached Threatened Buildings report

ROYAL COMMISSION ON THE HISTORICAL MONUMENTS OF ENGLAND

MOD Building No. A232  
Shifting Room  
The Royal Gunpowder Factory  
Waltham Abbey  
Essex

NBR No: 91468  
NGR: TL 37800 00848

This building is an infill between buildings A231 and A234. Its north elevation utilises an earlier brick wall which ran flush on the north elevation between the latter two buildings.

It has a rectangular plan and is single-storeyed. The north elevation is constructed of red brick, laid in Flemish bond, while the south elevation is of yellow brick, laid in English bond. It has a hipped roof with angle and wrought iron trusses and a pair of timber louvres. Skylights may have been the only source of natural lighting originally.

It functioned as a Shifting Room, where workers would have washed themselves and changed clothing before and after working shifts on the site. It contained cupboards and wash stands.

-oo0oo-

Building A232 was built by c1886 as a Shifting house, that is a changing room where workers would have washed themselves and changed clothing before and after working shifts on the site.<sup>103</sup> It is an infill between a pair of early nineteenth century buildings, A231 to its west and A234 to its east. Its north wall utilises an early nineteenth-century brick wall which, in a unified north elevation, linked A231 and A234.<sup>104</sup>

The building is rectangular in plan, 39' x 26'9" (approximately 11.7 x 8 m), and is single-storeyed, with a height of 19'4" (approximately 5.8 m) to the apex of the roof.<sup>105</sup>

Like the brickwork of the flanking buildings, the north wall of A232 is constructed of red brick laid in Flemish bond and contains a straight joint which has brick closers on both sides. A double doorway with a flat head has been inserted in the north wall. The south elevation is of yellow brick laid in English bond and contains a pair of small windows which have cambered heads. These windows may be secondary, as the surrounding brickwork lacks closers. Inserted in place of an earlier window<sup>106</sup> belonging to the east exterior wall of building A231, was a doorway, with a semi-circular head, connecting A232 with A231.<sup>107</sup>

The roof is hipped and carries a pair of louvres. There is a large skylight on the northern half of the roof. The remainder of the roof is covered with slate tiles. The roof trusses are of angle and wrought iron.

Plans of 1924 show the layout of the building at that date, with cupboards and stands along the south side.<sup>108</sup> At the time of this survey it contained some coat stands and seating, although the room has been disused for some time.

Surveyed March 1993  
Report by R L Burgess

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Site Plan of "Royal Powder Factory, Waltham Abbey", 1865, corrected May 1886, cat. WASC 900/38, PRO Supply 5/975.

F Drayson Drawing No. 36 of "Buildings forming the Engineers Establishment", 1830, cat. PRO MR580.

Ledger c1908, cat. WASC 1509 (PRO, Hayes Repository).

F Drayson Drawing No. 36 of "Buildings forming the Engineers Establishment", 1830, cat. PRO MR580.

"Drawing of "Royal Gunpowder Factory, Waltham Abbey, New Heating Scheme", dated 12/9/1924, cat. A230.B.01 (MOD Central Disposals Unit, Chessington).

"Drawing of "Royal Gunpowder Factory, Waltham Abbey, New Heating Scheme", dated 12/9/1924, cat. A230.B.01 (MOD Central Disposals Unit, Chessington).



## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER A234	OLD SERIES 245	RCHME NUMBER	N.G.R. TL 37800 00848
NAME/FUNCTION Carpenters Store Gun Shed Pattern Room Timber Store, Battery Store Shifting Room, Office, Store Shifting Room, Timekeepers Office Admin. Adj. Garage	START DATE 1801-06 by 1865 by 1886 1898? 1945?	END DATE by 1865 by 1886 1898? 1945?	

NO PHOTOGRAPHY  
AVAILABLE

CARTOGRAPHIC DEPICTION	DOCUMENTARY REFERENCES
1806 WO78/1352	1830 Statement of Property WO55 2351; 81 Carpenters Store
1827 WASC 900/04 + MPH 271;81	1841 Statement of Property WO55 2856; 81 Carpenters Store
1830 WO55 2694	1851 Statement of Property WO55 3027; 81 Carpenters Store
1830 WASC 900/05	
c1830 WASC 900/06 ; Carpenters Store	
c1835 WASC 900/07	
1861-1868 WASC 900/10A	
1865 WASC 900/13 ; Gun Sheds	1908 RGPF Ledger WASC 1509 + WASC 1764 ; Timber Store/Office pre 1850 p28
1865 WASC 900/14 ; Gun Sheds	c1925 RGPF Ledger WASC 1680 ; Timber Store/Office
1886 WASC 900/38 + SUPP5 975 ; Pattern Room	c1945 RGPF Ledger WASC 1508 ; Timber Store/Office
1886 WASC 900/41A ; Pattern Room	
1886 WASC 900/42	
1897 WASC 900/53C	1972 ERDE List ; Police Armoury
c1910 WASC 900/65 ; Shifting Room	1991 Mott McDonald survey
c1910 WASC 900/79 ; Shifting Room	1992 RARDE List ; Admin Block
1917 WASC 900/70 ; Timekeepers Office	1992 FBRC Inert Storage and Garage
1917 WASC 900/72 ; 245	1993 RCHME NBR No.91469
1919 WASC 900/74 ; 245	
c1920 WASC 900/80 ; 245	
1923 WASC 900/84 ; 245	
> 1940 WASC 900/91A ; A234	
1954 A - B.34 ; A234	
c1960 WASC 900/94 ; A234	
c1963 WASC 900/97 ; A234	
1972 WASC 900/102 ; SA234	
1972 WASC 900/104 ; A234	
1976 WASC 900/113 ; A234	

<p>PHOTOGRAPHY HISTORIC</p>	<p>PHOTOGRAPHY RCHME</p> <p>1) 206/R/4 From East</p> <p>2) BB92/26240 A234 Detail of North wall.  BB92/26241 A234 Interior Roof Structure.  BB92/26243 A234 and A232 from North East.  BB92/26245 A234 Administrative Block view from  South East.</p> <p>3) 225/A/22-3 Interior views  225/B/2 South elevation</p>
<p>RELATIONSHIPS WITH OTHER MONUMENTS</p> <p>ASSOCIATED WITH: 249b, A230, A231, A232, A233, A235</p>	
<p>CONDITION      Good</p>	
<p>DESCRIPTION</p> <p>1)      CONSTRUCTIONAL MATERIAL  Brick in flemish bond</p> <p>2)      ROOF MATERIALS AND STRUCTURE  Slate</p> <p>3)      POWER SOURCE  Electricity</p> <p>4)      DIMENSIONS i) L 30.5m ii) W 8.08m iii) HT eave 3.3m</p> <p>5)      See Attached Threatened Buildings report</p>	

ROYAL COMMISSION ON THE HISTORICAL MONUMENTS OF ENGLAND

MOD Building No. A234  
Timber Store  
The Royal Gunpowder Factory  
Waltham Abbey  
Essex

NBR No: 91469  
NGR: TL 37800 00848

Building A234 was built by c1806 as one of a matching pair of Timber Storehouses on the north side of an Engineers Yard near the entrance to the site at the Gunpowder Factory.

Rectangular in plan and single-storeyed, it is constructed of red brick laid in Flemish bond. It appears to have had no fenestration on the north elevation originally and the south elevation had double doorways in each of its nine bays. The roof is hipped and contains timber trusses which each comprise a tie beam, king post with expanded head and foot and raking struts.

The brickwork on the west side of its north elevation contains a series of straight joints which may be original to the building or part of one of its later phases.

The building has undergone alteration in a number of phases relating to its changing function. It had changed from being a Carpenter's Store in 1827 to a Gun Shed by c1863, reverted to a Timber Store by c1886 and was simply a Store in 1897. By 1923 it is labelled as being part of a series of Shifting Rooms.

At least by the early twentieth century its interior was divided into a square room at the eastern end, an off-centre narrow room and a large six-bay western room. The east side of north elevation had inserted two doorways with semi-circular heads, the easternmost of which was flanked by two sash windows with slightly cambered heads.

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Building A234 was built by c1806 as one of a matching pair of timber storehouses, aligned east to west,<sup>121</sup> on the north side of an Engineers Yard near the entrance to the site at the Gunpowder Factory.<sup>122</sup> The other of the pair, building A231 is situated approximately five metres to the west. Although separate, the two buildings were linked by a brick wall which is flush with their north walls to create a unified north elevation.<sup>123</sup>

Both buildings were still used as "timber stores" in c1821.<sup>124</sup> By 1827 they had begun to have slightly different functions, as A234 was described at that time as a Carpenters Store, while the adjacent A231 was a Millwright's Store, and a separate saw pit had been built on their south side. By c1863 both buildings were Gun Sheds, and although it is not clear exactly what this function involved, probably they were stores.<sup>125</sup> By c1886, A234 had reverted to being a Timber Store.<sup>126</sup> By c1895 A234 is described as a Store and a link passage had been built to its east side to connect it with a building (A233/8) by the entrance

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The buildings are aligned east-south-east to west-north-west but for clarity in this report they are described as if they were aligned east to west

Royal Gunpowder Factory, Waltham Abbey, site plan of 1806, cat. PRO MR580.

F Drayson Drawing No. 36 of "Buildings forming the Engineers Establishment", 1830, cat. PRO MP 11.15 (PRO, Kew).

"A Survey of the Lands and Buildings, the Property of the Ordnance, at the Royal Powder Works, Waltham Abbey, made in compliance with the Master General and Boards Order, 6th June 1821", [updated in the mid nineteenth century], (PRO, Hayes Repository).

"Royal Powder Factory, Waltham Abbey, General Plan", sheets 1 & 2, scale 1:2500, cat. WASC 900/13 & 14.

Site plan of "Royal Powder Factory, Waltham Abbey", 1865, corrected May 1886, cat. WASC 900/38, PRO Supply 5/975.

to the site.<sup>127</sup> A factory plan of 1923 labels the entire range of buildings (A230, A231, A232, A234) as Shifting Rooms, and shows a small projection at the south side of A234.<sup>128</sup> A Shifting Room is a changing room, where workers would have washed themselves and changed clothing before and after working shifts.

Building A234 is built of red brick laid in Flemish bond and it has a stepped brick cornice. It has a rectangular plan of nine bays by two bays, 100'6" x 26'9" (approximately 30.2 x 8 m) and is single-storeyed, at 20'6" (approximately 6.2 m) in height.<sup>129</sup> Each of the nine bays of the south elevation originally contained double doorways which would have been for bringing timber to and from the yard on the south side.<sup>130</sup> There was a doorway at the centre of the east elevation and a window at the centre of the west elevation.<sup>131</sup> There was no fenestration on the north elevation originally.<sup>132</sup>

The brickwork on the west side of the north elevation contains a series of straight joints which may be original to the building or part of one of its later phases. The straight joints extend from the ground to approximately 2.5 metres up the elevation. There are brick closers on both sides of the straight joints which suggests that a narrow piece of board or brickwork projected northward at the positions of each of the straight joints. The function of this is not clear. A site plan of c1821, updated in the mid nineteenth century, labels the north side of buildings A234 and A231 as "proof ground", and it is possible that the straight joints were somehow related to this.<sup>133</sup>

The roof is hipped and contains timber trusses which each comprise a tie beam, king post with expanded head and foot and raking struts. The timbers are through-bolted. There are no purlins. The roof carries two louvres, although these may not be original, and has slate coverings.<sup>134</sup>

Originally the interior appears to have comprised a single large room. This was later sub-divided into a square room at the eastern end, an off-centre narrow room and a large six-bay western room. To give access to, and to light, the newly created eastern rooms, two doorways and two windows were inserted at the east end of the north elevation. The doorways have semi-circular heads of rubbed brick and the windows contain sashes and have slightly cambered heads of rubbed brick. The eastern room contains a fireplace and was an office, and some time after c1908 the office was sub-divided to contain a battery store.<sup>135</sup>

Other alterations include the blocking of the double doorways on the south elevation with timber, the blocking of the doorway on the east elevation with brick, the insertion of a louvred window opening and another doorway on the north elevation, and the blocking of the office fireplace.

Surveyed March 1993  
Report by R L Burgess

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OS County Series 1:2500 maps, 2nd ed. 1897 (surveyed 1865, revised 1895), sheet refs XLIX.14, XLI.8.12, XLII.5.9.

"Royal Gunpowder Factory, Waltham Abbey" site plan 1:2500, as named 13 September 1917, revised March 1919 and March 1923, cat. WASC 900/84.

Ledger c1908, cat. WASC 1509 (PRO, Hayes Repository).

F Drayson Drawing No. 36 of "Buildings forming the Engineers Establishment", 1830, cat. PRO MP 11.15 (PRO, Kew).

F Drayson Drawing No. 36 of "Buildings forming the Engineers Establishment", 1830, cat. PRO MP 11.15 (PRO, Kew).

F Drayson Drawing No. 36 of "Buildings forming the Engineers Establishment", 1830, cat. PRO MP 11.15 (PRO, Kew).

"A Survey of the Lands and Buildings, the Property of the Ordnance, at the Royal Powder Works, Waltham Abbey, made in compliance with the Master General and Boards Order, 6th June 1821", [updated in the mid nineteenth century], (PRO, Hayes Repository).

Louvres are not shown on the F Drayson drawings of "Buildings forming the Engineers Establishment", 1830, no. 36, cat. PRO MP 11.15 (Kew) and nor are they shown in the Ledger of c1908, cat. WASC 1509 (PRO, Hayes Repository).

Ledger c1908, cat. WASC 1509 (PRO, Hayes Repository).

THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY			
NUMBER A235	OLD SERIES	RCHME NUMBER	N.G.R. TL 37800 00848
NAME/FUNCTION Police Cycle Shed Brick Structure		START DATE 194?	END DATE
NO PHOTOGRAPHY AVAILABLE			
CARTOGRAPHIC DEPICTION  1954     A - B.34 ; A235 c1960    WASC 900/94 ; A235 c1963    WASC 900/97 ; A235 1972     WASC 900/102 ; A235 1972     WASC 900/104 ; A235 1976     WASC 900/113 ; A235		DOCUMENTARY REFERENCES  1972     ERDE List ; Police Cycle Shed 1991     Mott McDonald survey 1992     RARDE List ; Brick Shed 1992     FBRC Flammable Store	
PHOTOGRAPHY HISTORIC		PHOTOGRAPHY RCHME  2) BB92/26242 A235 from North East.	
RELATIONSHIPS WITH OTHER MONUMENTS  ASSOCIATED WITH: A238			
CONDITION     Demolished			
DESCRIPTION The building has been demolished a concrete floor slab remains.			

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER A238	OLD SERIES 251	RCHME NUMBER	N.G.R. TL 37862 00836
NAME/FUNCTION Surgery Office Keepers House, Stores, Library/Reading Room Police Barracks Library/Reading Room Police Station, Library, Billiard Room, Cook and Washhouse Police Lodge		START DATE 1801-06 1865?  by 1886 by 1908  194?	END DATE 1865? by1886 by 1908  194?

NO PHOTOGRAPHY  
AVAILABLE

CARTOGRAPHIC DEPICTION	DOCUMENTARY REFERENCES
1806 WO78/1352	Plans; A238 B01 - B17 ; Plans and Elevations 1883 to 1983
1827 WASC 900/04 + MPH 271 ; 92	
1830 WO55 2694	
1830 WASC 900/05 ; 92	1830 Statement of Property WO55 2351; 92
c1830 WASC 900/06	Surgery
c1835 WASC 900/07	1841 Statement of Property WO55 2856; 92
1861-1868 WASC 900/10A	Surgery
1865 WASC 900/13	1851 Statement of Property WO55 3027; 48a
1865 WASC 900/14 ; Office Keepers House, Stores, Library/Reading Room	Engineers Office
1865 WASC 900/38 + SUPP5 975 ; Police Barracks, Library/Reading Room	1908 RGPF Ledger WASC 1509 + WASC 1764 ; Police Station, Library, Billiard Room, Cook and Wash House pre 1850 p28
1865 WASC 900/41A	c1925 RGPF Ledger WASC 1680 ; Police
1865 WASC 900/42	Station, Library, Billiard Room, Cook and Wash
1897 WASC 900/53C	House
c1910 WASC 900/65 ; Police Station	c1945 RGPF Ledger WASC 1508 ; Police
c1910 WASC 900/79 ; Police Station	Station, Library, Billiard Room, Cook and Wash
1917 WASC 900/70	House
1917 WASC 900/72 ; 251	
1919 WASC 900/74 ; 251	1972 ERDE List ; Police Lodge
c1920 WASC 900/80 ; 251	1991 Mott McDonald survey
1923 WASC 900/84 ; 251	1992 RARDE List ; Police Lodge
> 1940 WASC 900/91A ; A238	1992 FBRC Police Office
1954 A - B.34 ; A238	1993 RCHME NBR No 91473
c1960 WASC 900/94 ; A238	
c1963 WASC 900/97 ; A238	
1972 WASC 900/102 ; A238	
1972 WASC 900/104 ; A238	
1976 WASC 900/113 ; A238	

PHOTOGRAPHY  
HISTORIC

WASC 1543/22-25 No 9 Powdermill lane & Police main gate  
WASC 1592 Superintendents house No9 Powdermill lane  
Engelbach Army and Navy Illustrated 11-Oct-1899 p105

PHOTOGRAPHY  
RCHME

- 1) 206/E/15 21 Jan 1993 From North East
- 2) BB92/26063 A238 Police Lodge view from North East Powdermill Lane  
BB92/26064 From North East Powdermill Lane  
BB92/26244 A238 Police Lodge from North West.  
BB92/26346 A238 Plan & Elevation Proposed Extension 28.8.1886 ( Chessington)  
BB92/26353 Conversion  
BB92/26373 A238 Drawing A238.B.11 Police Quarters Library 12 Aug 1887 ( Chessington)  
BB92/26378 Alterations Nov 1926
- 3) 225/A/24-5 Former exterior West elevation GF  
225/A/26 West bay GF  
225/A/27 Former exterior West elevation FF  
225/A/28 Former hipped roof at West end  
225/A/29 Roof details
- 4) 4788/10 06.05.1993

RELATIONSHIPS WITH OTHER MONUMENTS

ASSOCIATED WITH:

CONDITION Good

DESCRIPTION

- 1) CONSTRUCTIONAL MATERIAL  
Brick in flemish bond
- 2) ROOF MATERIALS AND STRUCTURE  
Slate
- 3) POWER SOURCE  
Electricity
- 4) DIMENSIONS i) L 8.6m ii) W 3.7m iii) HT eave 4.5m
- 5) Powdermill Lane  
  
See Threatened Buildings report attached to A268

**THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY**

NUMBER A239	OLD SERIES	RCHME NUMBER	N.G.R. TL 37857 00827
NAME/FUNCTION Building		START DATE 1960?	END DATE
NO PHOTOGRAPHY AVAILABLE			
CARTOGRAPHIC DEPICTION  c1960 WASC 900/94 ; A239 c1963 WASC 900/97 ; A239 1972 WASC 900/102 ; A239 1972 WASC 900/104 ; A239 1976 WASC 900/113 ; A239		DOCUMENTARY REFERENCES	
PHOTOGRAPHY HISTORIC		PHOTOGRAPHY RCHME	
RELATIONSHIPS WITH OTHER MONUMENTS  ASSOCIATED WITH:			
CONDITION Demolished			
DESCRIPTION No surface remains of this building were found.			



**THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY**

NUMBER	OLD SERIES 249b	RCHME NUMBER	N.G.R. TL 37800 00836
NAME/FUNCTION Saw Pit Store		START DATE 1806-27	END DATE
NO PHOTOGRAPHY AVAILABLE			
CARTOGRAPHIC DEPICTION		DOCUMENTARY REFERENCES	
1827 MPH271;80	1886 WASC 900/42	1830 WO55/2694;80 Sawpit	1830 Drayson F MP.11.15 p36 Sawpit
1900 WASC 900/79	1923 WASC 900/84; 249b Store	1841 WO55/2856;80 Sawpit	1851 WO55/3027;42 Sawpit
1945 A-B.35; AB2		1908 RGPF Ledger WASC 1509 p28 250 Store pre 1850	
PHOTOGRAPHY HISTORIC	PHOTOGRAPHY RCHME		
RELATIONSHIPS WITH OTHER MONUMENTS			
ASSOCIATED WITH: A231, A234			
CONDITION	Demolished		
DESCRIPTION			
1)	CONSTRUCTIONAL MATERIAL		
2)	ROOF MATERIALS AND STRUCTURE		
3)	POWER SOURCE Muscle?		
4)	DIMENSIONS i) L      ii) W      iii) HT		
5)	No surface remains		

**THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY**

NUMBER A250	OLD SERIES	RCHME NUMBER	N.G.R. TL 37740 00824
NAME/FUNCTION Canteen and Social Club		START DATE 1959	END DATE
NO PHOTOGRAPHY AVAILABLE			
<p>CARTOGRAPHIC DEPICTION</p> <p>c1960 WASC 900/94 ; A250  c1963 WASC 900/97 ; A250  1972 WASC 900/102 ; A250  1972 WASC 900/104 ; A250  1976 WASC 900/113 ; A250</p>		<p>DOCUMENTARY REFERENCES</p> <p>Plans;  A250 B01 - B44 ; Plans and Elevations 1958 to 1985  1959 901/83 27 Nov 1959 North site Canteen  1972 ERDE List ; Canteen  1991 Mott McDonald survey  1992 FARDE List ; Social Club  1992 FBRC Social Club</p>	
<p>PHOTOGRAPHY HISTORIC</p> <p>WASC 737 New canteen inc waterways  WASC 738 New canteen Colour x6 1961</p>		<p>PHOTOGRAPHY RCHME</p>	
<p>RELATIONSHIPS WITH OTHER MONUMENTS</p> <p>ASSOCIATED WITH:</p>			
<p>CONDITION:</p>			
<p>DESCRIPTION:</p> <p>Not Described</p> <p>Demolished August 1993</p>			

**THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY**

NUMBER	OLD SERIES 256	RCHME NUMBER	N.G.R. TL 3778 0080
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NAME/FUNCTION Millwrights Shop Carpenters Shop	START DATE 1801-06	END DATE
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NO PHOTOGRAPHY  
AVAILABLE

<p><b>CARTOGRAPHIC DEPICTION</b></p> <p>1806 WO78/1352  1827 WASC 900/04 + MPH 271; 77 Millwrights Shop  1830 WO55 2694  1830 WASC 900/05;  c1830 WASC 900/06  c1835 WASC 900/07  1861-1868 WASC 900/10A  1865 WASC 900/13  1865 WASC 900/14  1871 SUPP5 682  1865 WASC 900/38 + SUPP5 975  1865 WASC 900/41A  1865 WASC 900/42  1897 WASC 900/53C  c1910 WASC 900/65  c1910 WASC 900/79  1917 WASC 900/70;  1917 WASC 900/72;  1919 WASC 900/74; 256  c1920 WASC 900/80; 256  1923 WASC 900/84; 256 Carpenters Shop  &gt; 1940 WASC 900/91A; A259  1954 A - B.34;A259  c1960 WASC 900/9; A259</p>	<p><b>DOCUMENTARY REFERENCES</b></p> <p>1830 Drayson F Plan and Elevation p36  1830 Statement of Property WO55 2351; 78 Bricklayers Store  1841 Statement of Property WO55 2856; 78 Bricklayers Store  1851 Statement of Property WO55 3027; 44 Bricklayers Store  1908 RGPF Ledger WASC 1509 + WASC 1764 ; Store</p>
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PHOTOGRAPHY HISTORIC	PHOTOGRAPHY RCHME
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**RELATIONSHIPS WITH OTHER MONUMENTS**

ASSOCIATED WITH: 255, 258, 259, 260 Part of:A259

CONDITION: Demolished

DESCRIPTION

1) CONSTRUCTIONAL MATERIAL  
Brick

2) ROOF MATERIALS AND STRUCTURE  
Slate

3) POWER SOURCE

4) DIMENSIONS i) L      ii) W      iii) HT

5) This building originally formed part of the Engineers Yard off Powdermill Lane. It was demolished during the 1960s, its brick foundations are believed to have been removed during decontamination work in 1993.

**THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY**

NUMBER A259	OLD SERIES 255	RCHME NUMBER	N.G.R. TL 37750 00805
NAME/FUNCTION Bricklayers Store Store		START DATE 1801-06	END DATE

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<p><b>CARTOGRAPHIC DEPICTION</b></p> <p>1806 WO78/1352          1827 WASC 900/04 + MPH 271; 78 Brick Layers Store          1830 WO55 2694          1830 WASC 900/05; Plumbers Shop &amp; Bricklayer          c1830 WASC 900/06          c1835 WASC 900/07          1861-1868 WASC 900/10A          1865 WASC 900/13          1865 WASC 900/14          1871 SUPP5 682          1865 WASC 900/38 + SUPP5 975          1865 WASC 900/41A          1865 WASC 900/42          1897 WASC 900/53C          c1910 WASC 900/65          c1910 WASC 900/79          1917 WASC 900/70; 255          1917 WASC 900/72; 255          1919 WASC 900/74; 255          c1920 WASC 900/80; 255          1923 WASC 900/84; 255 Store          &gt; 1940 WASC 900/91A          1954 A - B.34;          c1960 WASC 900/9; A259</p>	<p><b>DOCUMENTARY REFERENCES</b></p> <p>1830 Drayson F Plan and Elevation p36          1830 Statement of Property WO55 2351; 78 Bricklayers Store          1841 Statement of Property WO55 2856; 78 Bricklayers Store          1851 Statement of Property WO55 3027; 44 Bricklayers Store          1908 RGPF Ledger WASC 1509 + WASC 1764 ; Store</p>
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PHOTOGRAPHY HISTORIC	PHOTOGRAPHY RCHME
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<b>RELATIONSHIPS WITH OTHER MONUMENTS</b>	
ASSOCIATED WITH: 256, 258, 259, 260 Part of:	PART OF: A259

CONDITION	Demolished
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DESCRIPTION

- 1) CONSTRUCTIONAL MATERIAL  
Brick
- 2) ROOF MATERIALS AND STRUCTURE  
Slate
- 3) POWER SOURCE
- 4) DIMENSIONS i) L      ii) W      iii) HT
- 5) Originally formed part of the Engineers Yard off PowderMill Lane. Demolished during the 1960s, it is believed that its brick foundations were removed during decontamination work in 1993.

**THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY**

NUMBER A263	OLD SERIES	RCHME NUMBER	N.G.R.
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NAME/FUNCTION Glue Pot House Store	START DATE 1806-27	END DATE
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NO PHOTOGRAPHY  
AVAILABLE

<p><b>CARTOGRAPHIC DEPICTION</b></p> <p>1806 WO78/1352  1827 WASC 900/04 + MPH 271; 76 Glue House  1830 WO55 2694  1830 WASC 900/05; 76  c1830 WASC 900/06  c1835 WASC 900/07  1861-1868 WASC 900/10A  1865 WASC 900/13  1865 WASC 900/14  1871 SUPP5 682  1865 WASC 900/38 + SUPP5 975  1865 WASC 900/41A  1865 WASC 900/42  1897 WASC 900/53C  c1910 WASC 900/65  c1910 WASC 900/79  1917 WASC 900/70; 258/9  1917 WASC 900/72; 258/9  1919 WASC 900/74; 258/9  c1920 WASC 900/80; 258/9  1923 WASC 900/84; 258/9 Glue Pot Shed and EC  &gt; 1940 WASC 900/91A; A263  1954 A - B.34; A263  c1960 WASC 900/9; A263</p>	<p><b>DOCUMENTARY REFERENCES</b></p> <p>1830 Drayson F Plan and Elevation p36  1830 Statement of Property WO55 2351; 76 Glue Pot House  1841 Statement of Property WO55 2856; 76 Glue Pot House  1851 Statement of Property WO55 3027; 46 Glue Pot House    1908 RGPF Ledger WASC 1509 + WASC 1764 ; Store and WC</p>
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PHOTOGRAPHY HISTORIC	PHOTOGRAPHY RCHME
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**RELATIONSHIPS WITH OTHER MONUMENTS**

ASSOCIATED WITH: 255, 254, 260

CONDITION Demolished

DESCRIPTION

1) CONSTRUCTIONAL MATERIAL  
Brick

2) ROOF MATERIALS AND STRUCTURE  
Slate and Corrugated Iron

3) POWER SOURCE

4) DIMENSIONS i) L      ii) W      iii) HT

5) Originally formed part of the Engineers Yard off Powder Mill Lane. Demolished during the 1960s, brick foundations were found during the decontamination work in 1993 and removed.



**THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY**

NUMBER A266	OLD SERIES	RCHME NUMBER	N.G.R. TL 37840 00812
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NAME/FUNCTION Cleaners hut	START DATE 1960?	END DATE
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NO PHOTOGRAPHY  
AVAILABLE

CARTOGRAPHIC DEPICTION

c1960 WASC 900/94 ; A266  
 c1963 WASC 900/97 ; A266  
 1972 WASC 900/102 ; A266  
 1972 WASC 900/104 ; A266  
 1976 WASC 900/113 ; A266

DOCUMENTARY REFERENCES

1972 EDRE List ; Cleaners hut female  
 1992 FARDE List ; Cleaners hut

PHOTOGRAPHY  
HISTORIC

PHOTOGRAPHY  
RCHME

RELATIONSHIPS WITH OTHER MONUMENTS

ASSOCIATED WITH: A271, A272, A273, A282, A283, A284, A285, A289

CONDITION Demolished

DESCRIPTION

No surface remains of this building were found.

**THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY**

NUMBER A270	OLD SERIES	RCHME NUMBER	N.G.R. TL 27870 00758
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NAME/FUNCTION Tennis Club Rooms	START DATE 195?	END DATE 1972
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NO PHOTOGRAPHY  
AVAILABLE

<p>CARTOGRAPHIC DEPICTION</p> <p>c1960 WASC 900/94 ; A270  c1963 WASC 900/97 ; A270  1972 WASC 900/102 ; A270  1972 WASC 900/104 ; A270  1976 WASC 900/113 ; A270</p>	<p>DOCUMENTARY REFERENCES</p> <p>Plans;  A270 B01 - B04 ; Plans and Elevations 1968 to 1973  B01 - B06 ; Plans and Elevations</p> <p>1972 ERDE List ; Staff Canteen  1991 Mott McDonald survey  1992 RARDE List ; Tennis Club Rooms</p>
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<p>PHOTOGRAPHY HISTORIC</p>	<p>PHOTOGRAPHY RCHME</p> <p>1) 206/E/18 From south east</p>
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RELATIONSHIPS WITH OTHER MONUMENTS

ASSOCIATED WITH:

CONDITION      Good

DESCRIPTION

- 1)      CONSTRUCTIONAL MATERIAL  
Cedar board over timber frame
- 2)      ROOF MATERIALS AND STRUCTURE  
Roofing felt over board
- 3)      POWER SOURCE  
Electricity
- 4)      DIMENSIONS i) L 9.8m ii) W 5.92m iii) HT gable 3.62m
- 5)      Tennis Club House

**THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY**

NUMBER A271	OLD SERIES	RCHME NUMBER	N.G.R. TL 37856 00773
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NAME/FUNCTION Common room	START DATE 1940	END DATE
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NO PHOTOGRAPHY  
AVAILABLE

<p>CARTOGRAPHIC DEPICTION</p> <p>&gt; 1940 WASC 900/91A ; A271          1954 A - B.34 ; A271          c1960 WASC 900/94 ; A271          c1963 WASC 900/97 ; A271          1972 WASC 900/102 ; A271          1972 WASC 900/104 ; A271          1976 WASC 900/113 ; A271</p>	<p>DOCUMENTARY REFERENCES</p> <p>Plan;          A271 B01 - 15/10/1941 ; General Layout and Details</p> <p>1972 ERDE List ; Common Room          1991 Mott McDonald survey          1992 RARDE List ; Common Room</p>
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PHOTOGRAPHY HISTORIC	PHOTOGRAPHY RCHME
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RELATIONSHIPS WITH OTHER MONUMENTS

ASSOCIATED WITH: A272, A273, A282, A283, A284, A285, A289

CONDITION Demolished

DESCRIPTION

- 1) CONSTRUCTIONAL MATERIAL  
Brick possibly sill wall only
- 2) ROOF MATERIALS AND STRUCTURE  
-
- 3) POWER SOURCE  
Electricity and steam heat
- 4) DIMENSIONS i) L 8.8m ii) W 6.65m
- 5) The building was demolished in 1992, the concrete floor slab remains.

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER A272	OLD SERIES	RCHME NUMBER	N.G.R. TL 37850 00790
NAME/FUNCTION Civil drawing office Office block		START DATE 1941	END DATE 198?
NO PHOTOGRAPHY AVAILABLE			
<b>CARTOGRAPHIC DEPICTION</b>  > 1940    WASC 900/91A ; A272 1954     A - B.34 ; A272 c1960    WASC 900/94 ; A272 c1963    WASC 900/97 ; A272 1972     WASC 900/102 ; A272 1972     WASC 900/104 ; A272 1976     WASC 900/113 ; A272		<b>DOCUMENTARY REFERENCES</b>  Plans; A272    B01,B02 ; Plans and Elevations 1942  1972    ERDE List ; Civil Drawing Office 1991    Mott McDonald survey 1992    RARDE List ; Adjoining Offices	
PHOTOGRAPHY HISTORIC		PHOTOGRAPHY RCHME	
<b>RELATIONSHIPS WITH OTHER MONUMENTS</b>  ASSOCIATED WITH: A266, A271, A273, A282, A283, A284, A285, A289			
CONDITION      Demolished			
<b>DESCRIPTION</b> 1)    CONSTRUCTIONAL MATERIAL Brick possibly sill wall only  2)    ROOF MATERIALS AND STRUCTURE -  3)    POWER SOURCE Electricity  4)    DIMENSIONS i) L 15.87m ii) W 8.05m  5)    The building was demolished in 1992, the concrete floor slab remains.			

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER A273	OLD SERIES	RCHME NUMBER	N.G.R. TL 37840 00812
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NAME/FUNCTION Cash office Office block	START DATE 1940	END DATE
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NO PHOTOGRAPHY  
AVAILABLE

### CARTOGRAPHIC DEPICTION

> 1940 WASC 900/91A ; A273  
 1954 A - B.34 ; A273  
 c1960 WASC 900/94 ; A273  
 c1963 WASC 900/97 ; A273  
 1972 WASC 900/102 ; A273  
 1972 WASC 900/104 ; A273  
 1976 WASC 900/113 ; A273

### DOCUMENTARY REFERENCES

Plans;  
 A273 B01 - B06 ; Plans and Elevations 1941 to 1952  
  
 1972 ERDE List ; Cash Office  
 1991 Mott McDonald survey  
 1992 RARDE List ; Adjoining Office

PHOTOGRAPHY  
HISTORIC

PHOTOGRAPHY  
RCHME

### RELATIONSHIPS WITH OTHER MONUMENTS

ASSOCIATED WITH: A266, A271, A272, A282, A283, A284, A285, A289

CONDITION Demolished

### DESCRIPTION

- 1) CONSTRUCTIONAL MATERIAL  
Brick possibly sill wall only
- 2) ROOF MATERIALS AND STRUCTURE  
-
- 3) POWER SOURCE  
Electricity
- 4) DIMENSIONS i) L 13.77m ii) W 7.6m
- 5) The building was demolished in 1992, the concrete floor slab remains.

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER A282	OLD SERIES	RCHME NUMBER	N.G.R. TL 37836 00756
NAME/FUNCTION Wages office		START DATE 1948	END DATE
NO PHOTOGRAPHY AVAILABLE			
CARTOGRAPHIC DEPICTION  c1960    WASC 900/94 ; A282 c1963    WASC 900/97 ; A282 1972    WASC 900/102 ; A282 1972    WASC 900/104 ; A282 1976    WASC 900/113 ; A282		DOCUMENTARY REFERENCES  Plans; A282    B01 - B04 ; Plans and Elevations 1947-8  1972    ERDE List ; Wages Office 1991    Mott McDonald survey 1992    RARDE List ; Office	
PHOTOGRAPHY HISTORIC		PHOTOGRAPHY RCHME	
RELATIONSHIPS WITH OTHER MONUMENTS  ASSOCIATED WITH: A266, A271, A272, A273, A282, A283, A284, A285, A289			
CONDITION      Demolished			
DESCRIPTION 1)    CONSTRUCTIONAL MATERIAL Prefabricated concrete walls on low brick sill walls.  2)    ROOF MATERIALS AND STRUCTURE -  3)    POWER SOURCE Electricity  4)    DIMENSIONS i) L 18.9m ii) W 6m  5)    The building was demolished in 1992, the concrete floor slab remains.			

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER A283	OLD SERIES	RCHME NUMBER	N.G.R. TL 37836 00765
NAME/FUNCTION Registry Office blocks		START DATE 1948	END DATE
NO PHOTOGRAPHY AVAILABLE			
CARTOGRAPHIC DEPICTION  c1960    WASC 900/94 ; A283 c1963    WASC 900/97 ; A283 1972     WASC 900/102 ; A283 1972     WASC 900/104 ; A283 1976     WASC 900/113 ; A283		DOCUMENTARY REFERENCES  Plans; A283    B01,B02 ; Plans and Elevations 1948 to 1963  1972    ERDE List ; Registry 1991    Mott McDonald survey 1992    RARDE List ; Office	
PHOTOGRAPHY HISTORIC		PHOTOGRAPHY RCHME	
RELATIONSHIPS WITH OTHER MONUMENTS  ASSOCIATED WITH: A266, A271, A272, A273, A282, A284, A285, A289			
CONDITION      Demolished			
DESCRIPTION 1)    CONSTRUCTIONAL MATERIAL Prefabricated concrete walls on low brick sill  2)    ROOF MATERIALS AND STRUCTURE -  3)    POWER SOURCE Electricity  4)    DIMENSIONS i) L 18.9m    ii) W 6m  5)    The building was demolished in 1992, the concrete floor slab remains.			

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER A284	OLD SERIES	RCHME NUMBER	N.G.R. TL 37836 00775
NAME/FUNCTION Archives and Housing Office Office Block		START DATE 1948	END DATE 198?
NO PHOTOGRAPHY AVAILABLE			
CARTOGRAPHIC DEPICTION  c1960    WASC 900/94 ; A284 c1963    WASC 900/97 ; A284 1972    WASC 900/102 ; A284 1972    WASC 900/104 ; A284 1976    WASC 900/113 ; A284		DOCUMENTARY REFERENCES  1972    ERDE List ; Archives and Housing Office 1991    Mott McDonald survey 1992    RARDE List ; Office	
PHOTOGRAPHY HISTORIC		PHOTOGRAPHY RCHME	
RELATIONSHIPS WITH OTHER MONUMENTS  ASSOCIATED WITH: A266, A271, A272, A273, A282, A283, A285, A289			
CONDITION      Demolished			
DESCRIPTION 1)      CONSTRUCTIONAL MATERIAL Prefabricated concrete walls on low brick sill walls  2)      ROOF MATERIALS AND STRUCTURE -  3)      POWER SOURCE Electricity  4)      DIMENSIONS i) L 18.7m ii) W 6.45m  5)      The building was demolished in 1992, the concrete floor slab remains.			



## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER A285	OLD SERIES	RCHME NUMBER	N.G.R. TL 37822 00784
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NAME/FUNCTION Mechanical Engineering Design Office	START DATE 1951	END DATE
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NO PHOTOGRAPHY  
AVAILABLE

### CARTOGRAPHIC DEPICTION

c1960	WASC 900/94 ; A285
c1963	WASC 900/97 ; A285
1972	WASC 900/102 ; A285
1972	WASC 900/104 ; A285
1976	WASC 900/113 ; A285

### DOCUMENTARY REFERENCES

Plans; A285	B01 - B05 ; Plans and Elevations 1949 to 1972
1972	ERDE List ; Mechanical Engineering Design Office
1991	Mott McDonald survey
1992	RARDE List ; Mechanical Engineering Design Office

PHOTOGRAPHY  
HISTORIC

PHOTOGRAPHY  
RCHME

### RELATIONSHIPS WITH OTHER MONUMENTS

ASSOCIATED WITH: A266, A271, A272, A273, A282, A283, A284, A289

CONDITION      Demolished

### DESCRIPTION

- 1)      CONSTRUCTIONAL MATERIAL  
        Prefabricated concrete walls over ow brick sill walls
  
- 2)      ROOF MATERIALS AND STRUCTURE  
        -
  
- 3)      POWER SOURCE  
        Electricity
  
- 4)      DIMENSIONS i) L 19.1m ii) W 6.8m
  
- 5)      The building was demolished in 1992, the concrete floor slab remains.

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER A289	OLD SERIES	RCHME NUMBER	N.G.R. TL 37816 00766
NAME/FUNCTION Office and stores Office		START DATE 1950	END DATE
NO PHOTOGRAPHY AVAILABLE			
CARTOGRAPHIC DEPICTION  c1960 WASC 900/94 ; A289 c1963 WASC 900/97 ; A289 1972 WASC 900/102 ; A289 1972 WASC 900/104 ; A289 1976 WASC 900/113 ; A289		DOCUMENTARY REFERENCES  Plans; A289 B01 - B03 ; Plans and Elevations 1951  1972 ERDE List ; Office and Stores 1991 Mott McDonald survey 1992 RARDE List ; Office and Stores	
PHOTOGRAPHY HISTORIC		PHOTOGRAPHY RCHME	
RELATIONSHIPS WITH OTHER MONUMENTS  ASSOCIATED WITH: A266, A271, A272, A273, A282, A284, A285, A289			
CONDITION      Demolished			
DESCRIPTION 1)      CONSTRUCTIONAL MATERIAL Precast concrete walls on low brick sill walls.  2)      ROOF MATERIALS AND STRUCTURE -  3)      POWER SOURCE Electricity  4)      DIMENSIONS i) L 22.6m ii) W 8m  5)      The building was demolished in 1992, the concrete floor slab remains.			

**THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY**

NUMBER	OLD SERIES	RCHME NUMBER	N.G.R.
		321	TL 37802 00847

NAME/FUNCTION	START DATE	END DATE
Old Horse Mills	pre1735	1783-1801

NO PHOTOGRAPHY  
AVAILABLE

CARTOGRAPHIC DEPICTION	DOCUMENTARY REFERENCES
1783 WASC 900/01 + MR 593 ; Old Horse Mills 1783 WASC 900/01A	1735 Farmer J. Engraving ; Horse Mills

PHOTOGRAPHY HISTORIC	PHOTOGRAPHY RCHME
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RELATIONSHIPS WITH OTHER MONUMENTS

CONDITION Demolished

DESCRIPTION

No Surface Remains

**THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY**

NUMBER	OLD SERIES	RCHME NUMBER 322	N.G.R. TL 37715 00864
NAME/FUNCTION Barge House		START DATE 1806-27	END DATE 1900?
NO PHOTOGRAPHY AVAILABLE			
CARTOGRAPHIC DEPICTION		DOCUMENTARY REFERENCES	
1827 WASC 900/04 + MPH 271 ; Barge House 1830 WO55 2694 1830 WASC 900/05 c1830 WASC 900/06 c1835 WASC 900/07 1861-1868 WASC 900/10A 1865 WASC 900/13 1865 WASC 900/14 1871 SUPP5 682 1865 WASC 900/38 + SUPP5 975 ; Barge House 1865 WASC 900/41A 1865 WASC 900/42 1897 WASC 900/53C			
PHOTOGRAPHY HISTORIC		PHOTOGRAPHY RCHME	
RELATIONSHIPS WITH OTHER MONUMENTS			
CONDITION Destroyed			
DESCRIPTION  Destroyed by widening of Millhead Stream			

**THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY**

NUMBER	OLD SERIES	RCHME NUMBER 324,325	N.G.R. TL 37735 00862
NAME/FUNCTION Storehouses	START DATE 1801?	END DATE 1900?	
NO PHOTOGRAPHY AVAILABLE			
<p>CARTOGRAPHIC DEPICTION</p> <p>1801 WASC 900/58 + MR 580          1806? WO 78/1352 + MR 580          1827 WASC 900/04 + MPH 271          1830 WO55 2694          1830 WASC 900/05          c1830 WASC 900/06          c1835 WASC 900/07          1861-1868 WASC 900/10A          1865 WASC 900/13          1865 WASC 900/14          1871 SUPP5 682          1870-3 OS Essex XLIX. 10          1865 WASC 900/38 + SUPP5 975          1865 WASC 900/41A          1865 WASC 900/42          1897 WASC 900/53C          1897 OS 2nd Ed Essex XLIX. 10</p>		<p>DOCUMENTARY REFERENCES</p>	
<p>PHOTOGRAPHY HISTORIC</p>		<p>PHOTOGRAPHY RCHME</p>	
<p>RELATIONSHIPS WITH OTHER MONUMENTS</p> <p>ASSOCIATED WITH:</p>			
<p>CONDITION Demolished</p>			
<p>DESCRIPTION</p> <p>No Surface Remains</p>			

**APPENDIX B.**

**BRIEF FOR AN ARCHAEOLOGICAL WATCHING BRIEF AT  
POWDERMILL LANE HOUSING SITE,  
ROYAL GUNPOWDER WORKS,  
WALTHAM ABBEY**

**SEPTEMBER 1993**



Essex County Council  
Planning Department  
Archaeological Advisory Group

# **BRIEF FOR AN ARCHAEOLOGICAL WATCHING BRIEF AT POWDERMILL LANE HOUSING SITE, ROYAL GUNPOWDER WORKS, WALTHAM ABBEY**

## **1 Summary of Brief**

The following brief has been prepared by the Archaeological Advisory Group of Essex County Council Archaeology Section. The Essex Sites and Monuments Record which is held at County Hall, Chelmsford identifies the location of the proposed housing development as part of the site of the Royal Gunpowder Factory, Waltham Abbey (ESMR 3450). This site is the most important site for the history of explosives in Europe. It was the place where most of the major breakthroughs were made and has the best surviving examples of structures representing each of these technologies. An archaeological watching brief on all ground works has been considered necessary as archaeological deposits are likely to survive beneath and surrounding the standing buildings which may be disturbed or damaged during any groundworks.

## **2 Site Location and Description**

The area of the proposed housing development lies in the south-east corner of the site between Powdermill Lane in the east and Walton Gardens in the south-west. A number of the building which stood on the site have recently been demolished. The buildings which have been retained up to the present include the listed building at 9 Powdermill Lane, a further building to the north of this on the eastern limit of the proposed development area and a linear block of nineteenth century buildings in the northern part of the proposed development area. The topsoil has been stripped from the majority of the site to check for and remove contaminated deposits. The positions of infilled waterways have been located which have been cleared and scraped to remove contaminated rubble and rubbish fill.

## **3 Planning Background**

The MoD have recently vacated the site allowing a detailed survey and report to be undertaken by the Royal Commission on the Historical Monuments of England (RCHME 1993), however the area of the proposed development was not included in this survey. As a result of this report English Heritage have proposed to designate a large proportion of the site as a Scheduled Ancient Monument with other building being protected under listing legislation. It is intended that those parts of the site which fall outside of the designated areas will be developed. This will help to raise the capital necessary for the preservation and public display of the protected parts of the site. The whole area is currently undergoing a programme of testing and decontamination prior to areas being sold off. Planning consent has been granted for a planning application by Epping Forest District Council. This consent includes an archaeological condition requiring the applicant to ensure that no development or preliminary groundworks of any kind shall take place until the applicant has secured the implementation of a programme of archaeological work in accordance with a written scheme of investigation which has been submitted by the applicant, and approved by the Planning Authority, in line with DoE "Planning and Policy Guidance 16: Archaeology and Planning" (PPG 16).



## 4 Archaeological Background

The RARDE site has evidence belonging to three main technologies; gunpowder manufacture, guncotton, nitroglycerine and cordite manufacture and the manufacture of other explosives such as tetrol as well as research. The earliest production of gunpowder was in the 16th century and the site continued in use for the production of explosives until the decommissioning of the works in 1960s.

The south-eastern part of the RARDE site was the location of administrative buildings and stores during the latter part of the sites history as well as a canteen in the 1960s. Within the proposed development area the northern part has the highest potential for the preservation of important archaeological deposits. Documentary evidence suggests that some of the earliest horse driven powder mills were located in this area (Simmons 1963). Although there are no surface traces of these buildings it is possible that buried features still survive relating to this 17th and 18th century method of gunpowder production.

## 5 Watching Brief Methodology

Due to the proposed development area not being included in the survey carried out by the Royal Commission on the Historic Monuments of England documentary research should be undertaken in this area in order to identify where potential below ground features or deposits are likely to survive.

5.1 The following documentary evidence (printed and manuscript) shall be examined where available, pertaining to the RARDE site in general and the area of the development specifically.

5.1.1 Historic and cartographic documents (where easily available from Epping Forest District Museum, the Public Records Office at Hayes and the Public Records Office at Kew).

5.1.2 The locations of all mains services shall also be studied to avoid any possible damage to these services.

5.2 The fieldwork shall take the form of an archaeological watching brief with the investigation and recording of archaeological deposits and features which are identified during the removal of make up and other ground works.

5.2.1 An inspection of the cleared area shall be made after initial clearance work has been undertaken and before the excavation of any further groundworks. Where necessary the area shall be cleaned by hand to ensure the visibility of archaeological deposits.

5.2.2 If archaeological features are visible these shall be recorded on a plan of the site at an appropriate scale. Any surviving archaeological remains which are to be disturbed or destroyed by ground works shall be archaeologically excavated and recorded prior to any further construction work.

5.2.3 The photographic policy shall include general site shots and shots of all archaeological features and deposits in black and white prints and colour slides. The preferred policy for planning is that all identified archaeological features should be planned at a scale of 1:20 with all sections drawn at a scale of 1:10.

5.2.4 No additional excavation should be undertaken which extends beyond the agreed area of the groundworks without the prior consultation of and agreement from the Archaeological Advisory Group of Essex County Councils Archaeology Section.

5.2.5 Once the full groundworks have been undertaken and whilst still open these shall be inspected, and all archaeological deposits and features thus revealed shall be recorded.

5.2.6 The contractor shall be responsible for adherence to the most up to date Health and Safety codes and legislation.

## **6 Finds**

6.1 All finds shall be cleaned and, where appropriate, marked with a site code, year of excavation and context number.

6.2 It is important that any finds from the excavation are kept with the archival material. Where the commissioning body does not own the land the contractor shall be expected to discuss the matter of finds deposition with the landowner/s.

6.3 The requirements for conservation and storage shall be agreed with the appropriate museum (Epping Forest District Museum).

## **7 Results**

7.1 A full archive shall be prepared for all work undertaken, copies of which should be deposited with the museum housing the finds and a summary shall be sent to the Essex Sites and Monuments Record within four weeks of the completion of the work.

7.2 It is important that any finds from the excavation shall be kept with the archival material. The contractor shall be expected to discuss the matter of finds deposition with the landowner.

7.3 Publication of the results should take place within a reasonable length of time (normally one year after the completion of the work). Style and format shall be determined by the archaeological contractor, with regard to the requirements of the local or national journal which will publish the results.

## **8 Monitoring**

The Archaeological Advisory Group of Essex County Council Archaeological Section, will be responsible for monitoring progress and standards throughout the project. This will include the assessment, fieldwork, post-excavation and publication stages and will comprise a combination of prearranged and *ad hoc* monitoring sessions.

## **9 References**

RCHME 1993

*Survey of the RARDE North Site at Waltham Abbey*

McLaren M 1975

The explosives research and development establishment: its historical background *J Newcomen Soc* Vol 1 No 2, p176-83

Simmons W H 1963

*A Short History of the Royal Gunpowder Factory at Waltham Abbey.* London.



**APPENDIX C.**

**BRIEF FOR AN ARCHAEOLOGICAL WATCHING BRIEF AT  
POWDERMILL LANE HOUSING SITE,  
ROYAL GUNPOWDER WORKS,  
WALTHAM ABBEY**

**SEPTEMBER 1993**



**Essex County Council  
Planning Department  
Archaeological Advisory Group**

# **BRIEF FOR AN ARCHAEOLOGICAL WATCHING BRIEF AT POWDERMILL LANE HOUSING SITE, ROYAL GUNPOWDER WORKS, WALTHAM ABBEY**

## **1 Summary of Brief**

The following brief has been prepared by the Archaeological Advisory Group of Essex County Council Archaeology Section. The Essex Sites and Monuments Record which is held at County Hall, Chelmsford identifies the location of the proposed housing development as part of the site of the Royal Gunpowder Factory, Waltham Abbey (ESMR 3450). This site is the most important site for the history of explosives in Europe. It was the place where most of the major breakthroughs were made and has the best surviving examples of structures representing each of these technologies. An archaeological watching brief on all ground works has been considered necessary as archaeological deposits are likely to survive beneath and surrounding the standing buildings which may be disturbed or damaged during any groundworks.

## **2 Site Location and Description**

The area of the proposed housing development lies in the south-east corner of the site between Powdermill Lane in the east and Walton Gardens in the south-west. A number of the building which stood on the site have recently been demolished. The buildings which have been retained up to the present include the listed building at 9 Powdermill Lane, a further building to the north of this on the eastern limit of the proposed development area and a linear block of nineteenth century buildings in the northern part of the proposed development area. The topsoil has been stripped from the majority of the site to check for and remove contaminated deposits. The positions of infilled waterways have been located which have been cleared and scraped to remove contaminated rubble and rubbish fill.

## **3 Planning Background**

The MoD have recently vacated the site allowing a detailed survey and report to be undertaken by the Royal Commission on the Historical Monuments of England (RCHME 1993), however the area of the proposed development was not included in this survey. As a result of this report English Heritage have proposed to designate a large proportion of the site as a Scheduled Ancient Monument with other building being protected under listing legislation. It is intended that those parts of the site which fall outside of the designated areas will be developed. This will help to raise the capital necessary for the preservation and public display of the protected parts of the site. The whole area is currently undergoing a programme of testing and decontamination prior to areas being sold off. Planning consent has been granted for a planning application by Epping Forest District Council. This consent includes an archaeological condition requiring the applicant to ensure that no development or preliminary groundworks of any kind shall take place until the applicant has secured the implementation of a programme of archaeological work in accordance with a written scheme of investigation which has been submitted by the applicant, and approved by the Planning Authority, in line with DoE "Planning and Policy Guidance 16: Archaeology and Planning" (PPG 16).

## 4 Archaeological Background

The RARDE site has evidence belonging to three main technologies; gunpowder manufacture, guncotton, nitroglycerine and cordite manufacture and the manufacture of other explosives such as tetrol as well as research. The earliest production of gunpowder was in the 16th century and the site continued in use for the production of explosives until the decommissioning of the works in 1960s.

The south-eastern part of the RARDE site was the location of administrative buildings and stores during the latter part of the sites history as well as a canteen in the 1960s. Within the proposed development area the northern part has the highest potential for the preservation of important archaeological deposits. Documentary evidence suggests that some of the earliest horse driven powder mills were located in this area (Simmons 1963). Although there are no surface traces of these buildings it is possible that buried features still survive relating to this 17th and 18th century method of gunpowder production.

## 5 Watching Brief Methodology

Due to the proposed development area not being included in the survey carried out by the Royal Commission on the Historic Monuments of England documentary research should be undertaken in this area in order to identify where potential below ground features or deposits are likely to survive.

5.1 The following documentary evidence (printed and manuscript) shall be examined where available, pertaining to the RARDE site in general and the area of the development specifically.

5.1.1 Historic and cartographic documents (where easily available from Epping Forest District Museum, the Public Records Office at Hayes and the Public Records Office at Kew).

5.1.2 The locations of all mains services shall also be studied to avoid any possible damage to these services.

5.2 The fieldwork shall take the form of an archaeological watching brief with the investigation and recording of archaeological deposits and features which are identified during the removal of make up and other ground works.

5.2.1 An inspection of the cleared area shall be made after initial clearance work has been undertaken and before the excavation of any further groundworks. Where necessary the area shall be cleaned by hand to ensure the visibility of archaeological deposits.

5.2.2 If archaeological features are visible these shall be recorded on a plan of the site at an appropriate scale. Any surviving archaeological remains which are to be disturbed or destroyed by ground works shall be archaeologically excavated and recorded prior to any further construction work.

5.2.3 The photographic policy shall include general site shots and shots of all archaeological features and deposits in black and white prints and colour slides. The preferred policy for planning is that all identified archaeological features should be planned at a scale of 1:20 with all sections drawn at a scale of 1:10.

5.2.4 No additional excavation should be undertaken which extends beyond the agreed area of the groundworks without the prior consultation of and agreement from the Archaeological Advisory Group of Essex County Councils Archaeology Section.

5.2.5 Once the full groundworks have been undertaken and whilst still open these shall be inspected, and all archaeological deposits and features thus revealed shall be recorded.

5.2.6 The contractor shall be responsible for adherence to the most up to date Health and Safety codes and legislation.

## 6 Finds

6.1 All finds shall be cleaned and, where appropriate, marked with a site code, year of excavation and context number.

6.2 It is important that any finds from the excavation are kept with the archival material. Where the commissioning body does not own the land the contractor shall be expected to discuss the matter of finds deposition with the landowner/s.

6.3 The requirements for conservation and storage shall be agreed with the appropriate museum (Epping Forest District Museum).

## 7 Results

7.1 A full archive shall be prepared for all work undertaken, copies of which should be deposited with the museum housing the finds and a summary shall be sent to the Essex Sites and Monuments Record within four weeks of the completion of the work.

7.2 It is important that any finds from the excavation shall be kept with the archival material. The contractor shall be expected to discuss the matter of finds deposition with the landowner.

7.3 Publication of the results should take place within a reasonable length of time (normally one year after the completion of the work). Style and format shall be determined by the archaeological contractor, with regard to the requirements of the local or national journal which will publish the results.

## 8 Monitoring

The Archaeological Advisory Group of Essex County Council Archaeological Section, will be responsible for monitoring progress and standards throughout the project. This will include the assessment, fieldwork, post-excavation and publication stages and will comprise a combination of prearranged and *ad hoc* monitoring sessions.

## 9 References

RCHME 1993

*Survey of the RARDE North Site at Waltham Abbey*

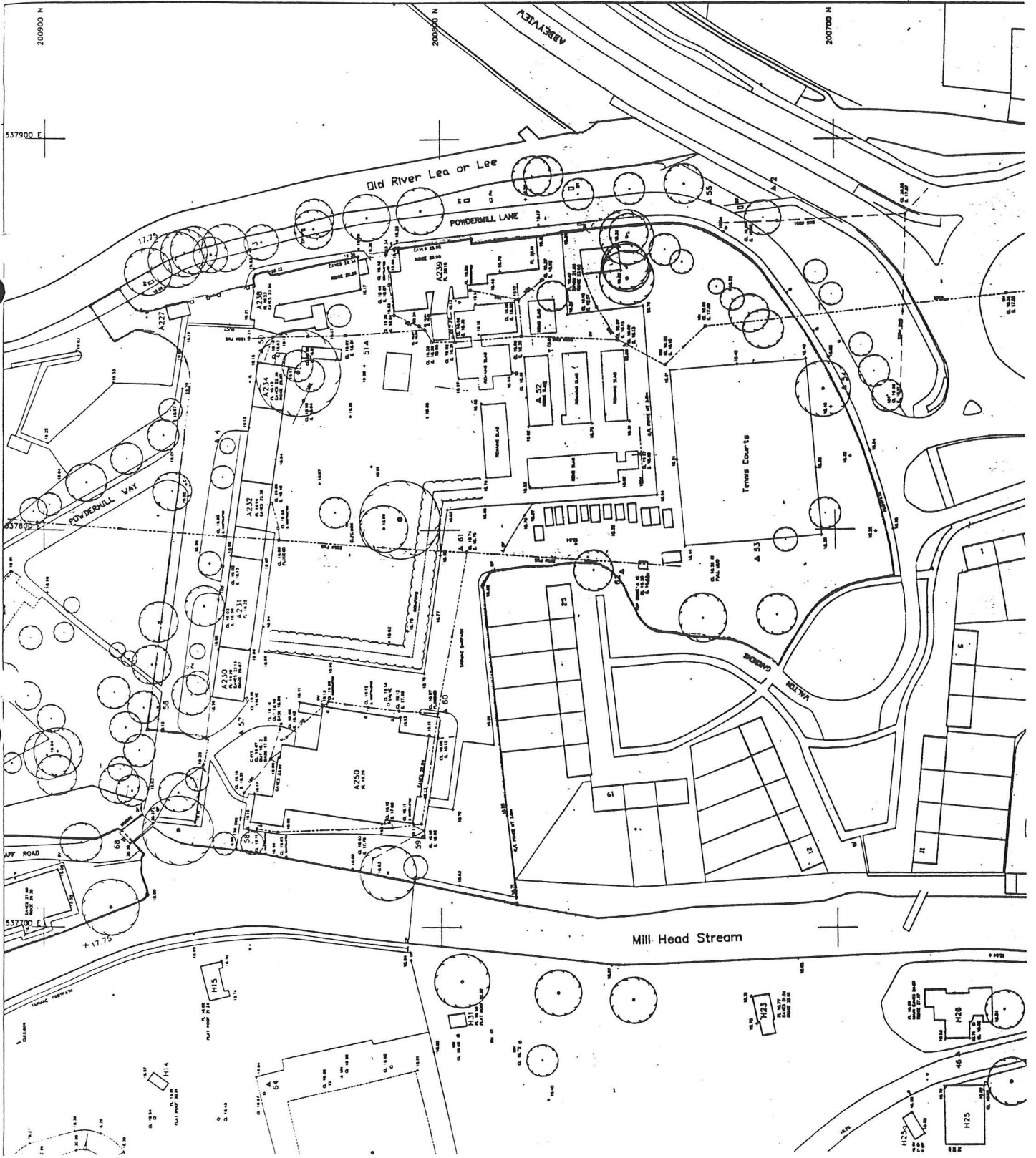
McLaren M 1975

The explosives research and development establishment: its historical background *J Newcomen Soc* Vol 1 No 2, p176-83

Simmons W H 1963

*A Short History of the Royal Gunpowder Factory at Waltham Abbey.* London.





200900 N

200900 N

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537900 E

537800 E

537700 E

Old River Lea or Lee

POWERMILL LANE

POWERMILL WAY

Tennis Courts

Mill Head Stream

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A232

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**RARDE NORTH SITE, AREA P  
WALTHAM ABBEY  
ESSEX**

**ARCHAEOLOGICAL EVALUATION**



**ESSEX COUNTY COUNCIL  
PLANNING DEPARTMENT  
FIELD ARCHAEOLOGY GROUP**

**March 1994**

**RARDE NORTH SITE, AREA P  
WALTHAM ABBEY**

Report prepared by J.Ecclestone BA

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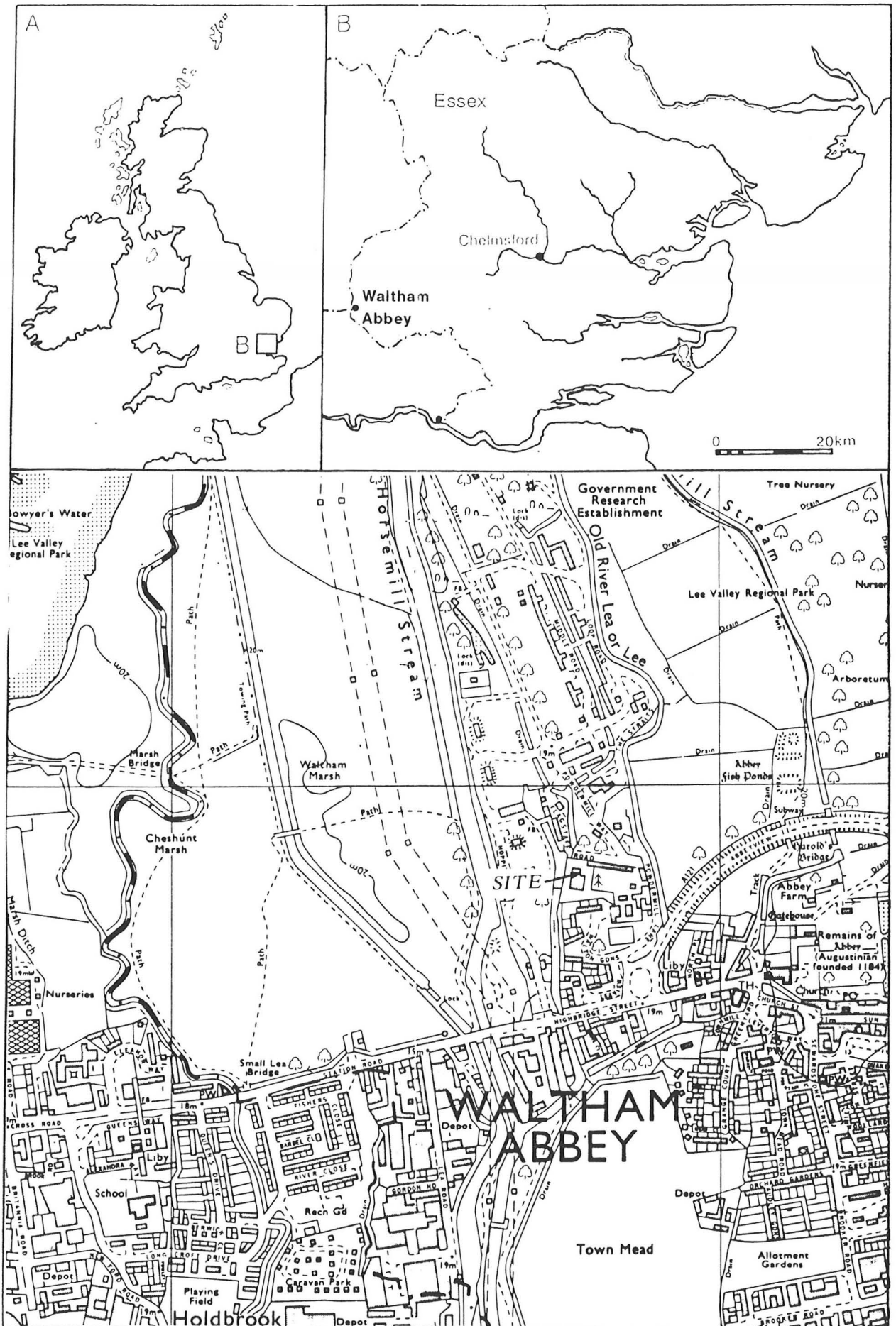


Fig.1 Location of site

**RARDE SITE NORTH, AREA P, WALTHAM ABBEY**  
**ARCHAEOLOGICAL EVALUATION**

Site Code: WAGF94  
NGR: TL 377008  
Date of Fieldwork: 17.2.94 - 3.3.94

**SUMMARY**

*Evaluation of the archaeological deposits within the development area did not identify remains of the 17/18th century Horse Mill as expected, but extensive timber remains were identified which were part of 19th century work-shops and stores, documented in many sources.*

**1. INTRODUCTION**

This report describes the results of the evaluation of archaeological deposits revealed during decontamination processes within Area P of the Royal Armaments Research and Development Establishment (RARDE) North site. A watching brief was maintained during stripping of topsoil and further contaminated layers, by MoD archaeological consultant Adam Ford. This area was potentially of high interest due to documentary references to horse mills at this location: one of the earliest types of machinery used in the manufacture of gunpowder.

The evaluation was carried out by the Essex County Council Field Archaeology Group, in response to a brief prepared by the Archaeological Advisory Group of the Essex County Council Planning Department. It was intended to facilitate mitigation for archaeological deposits affected by any ensuing development scheme.

Finds and archive will be deposited with the MoD archaeological consultant for inclusion with the general collection of finds from the site as a whole.

**2. GEOLOGY AND TOPOGRAPHY**

The site lies at c17m OD in the plain between the Old and Small rivers Lea. The subsoil geology is London Clay.

**3. ARCHAEOLOGICAL AND HISTORICAL BACKGROUND**

Although sixteenth century gunpowder production at Waltham Abbey has been documented, the RARDE site itself was first noted as a site of production in 1662, when mills were operating on the river Lea. By 1735 the production was based on either side of a leat later called the Millhead stream, and the first pictorial evidence from Farmer's "The History of the Worthies of England" (Simmons 1963) identifies the location and function of many structures, including a horse mill in the development area. Horse

driven mills were used for incorporating the three components of gunpowder, with water power used only for the corning and glazing engines, until 1770, when a newly designed water mill took their place (McLaren 1975).

In the mid nineteenth century developments in explosives led to production of guncotton, nitroglycerine and cordite, which were produced intensively through the first world war.

Research into high explosives was continued, after a lull, in the 1930's with the production of RDX, TNT and Teteryl.

The site was surpassed by other production centres during the second world war, and finally put out of action in 1941. In 1946, however, it was re-opened as a chemical research centre, where developments in propellents and pyrotechnics were researched. The site was finally closed in 1991.

A survey of the site was carried out in 1993 by the Royal Commission on the Historic Monuments of England (RCHME), partly to record the standing buildings and earthworks, and also to inform decisions about future re-use and development of the site. The survey resulted in English Heritage designating a large proportion of the site as a scheduled ancient monument, with other buildings being protected under listing legislation.

The area under consideration in this evaluation was not included in the RCHME survey. The only evidence of structures in this area which were directly involved with explosive manufacture is from 1735 (Simmons 1963) when the area was occupied by a horse driven incorporating mill and a small wooden structure to its west. This mill is still documented in an engraving of 1783, but is referred to as 'old' which suggests that it had, by then, been succeeded by water power. Beyond this date the area was serving a supply/maintenance function; in 1806 the area was documented as an 'Artificers Yard' (PRO WO78 1352) (Fig.6,B), and in 1827 as an 'Engineers Yard' (PRO MPH 271) (Fig.6,C). Nineteenth and twentieth century administrative buildings occupied the site until 1993, when they were demolished during decontamination procedures.

The area was connected to the rest of the site by the complex system of canals and leats, which again were of fluctuating use in this area throughout the 250 years documented. An east-west running canal existed in this area in the 18th century, as shown on Farmer's picture of 1735, connecting the Mill Head stream with the horse mill. In maps of 1783 (ERO T/M 335) and a similar (probably redrawn) copy of 1801 (PRO MR 580) (Fig.6,A) this waterway appears shortened, with the 'old horse mills' no longer being reached by it. By 1806 it is not shown at all, although buildings constructed on either side appear to respect its earlier course. A map of 1827 shows the canal part way re-opened, apparently providing access for the buildings at the north-west of the 'Engineers Yard' which were fronting it. Although the layout of these buildings remained the same in 1897, the 2nd Edition Ordnance Survey of this date shows that the canal had been infilled, with only a pool remaining on the east bank of the Mill Head stream.

#### **4. METHODOLOGY**

Prior to the arrival of Essex County Council Field Archaeology Group, the site had been stripped by machine under the supervision of MoD archaeological consultant Adam Ford, as part of the decontamination process to various levels. The canal had been machined clear of all of its silts and backfill down to gravels at its base, and Trench A had been excavated due to a higher level of brick rubble in this area. The rest of the site had been machined down to a level at which timbers were appearing.

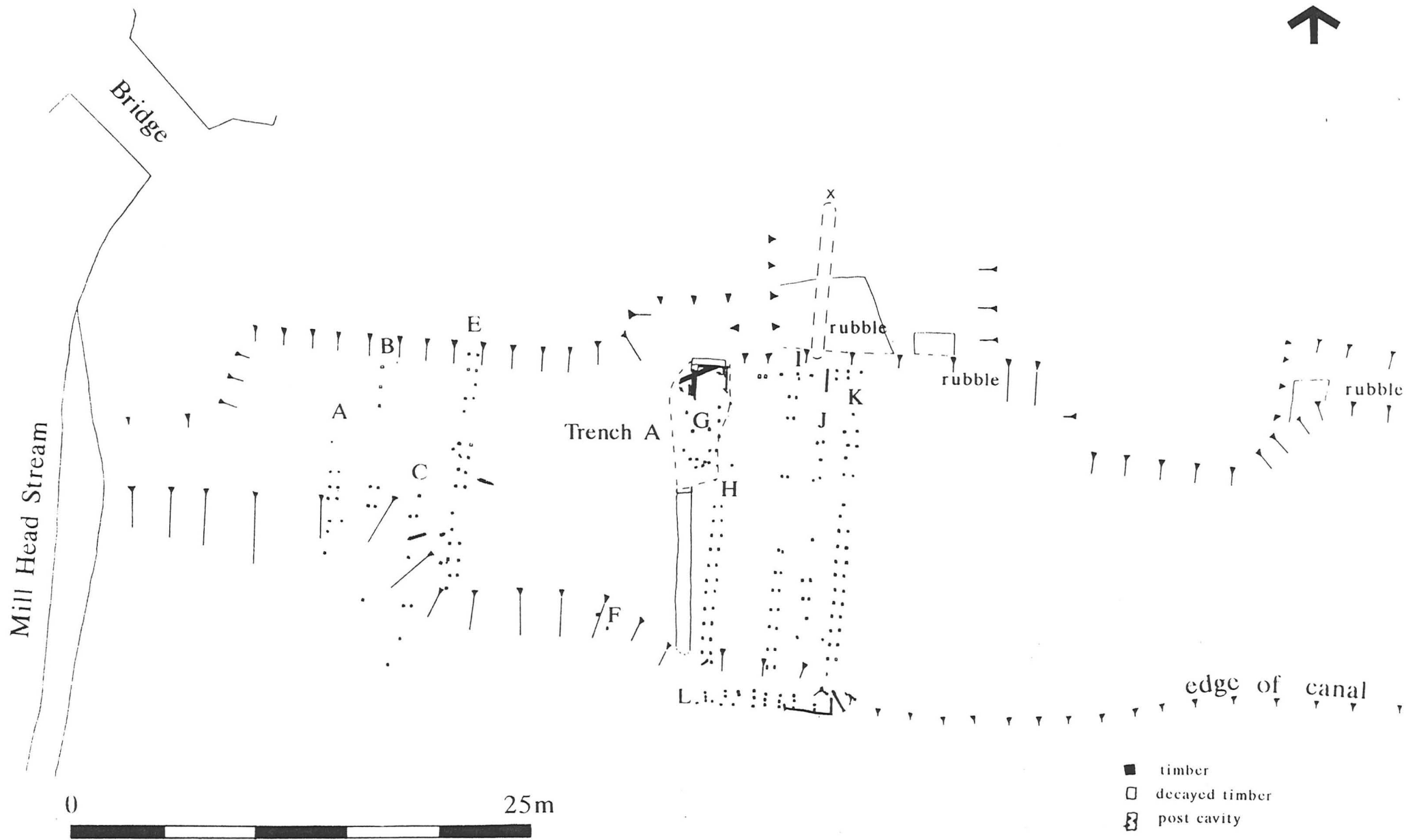


Fig.2 Plan of features

Brickwork was observed in the north section of Trench A, and also brick rubble at various points along the north section of the site. Remains of timbers were visible both in the edge of the newly cleared canal, and also on the machined surface of the site.

The areas of rubble were machined further to clarify their extent, and planned at 1:20. A section was cut through at X (Fig 2) to identify any masonry remains, but none existed.

No remains were found which could be clearly associated with the documented horse mills, and so it was decided to concentrate on recording the timber structures, which were more extensive than was first appreciated.

All timber and masonry features were cleaned by hand, photographed in both monochrome and colour, and planned at 1:20.

## 5. RESULTS

Eight lines of paired timber posts were located (Figs.2-4: A-C, E, H-K), orientated north-south, and running at right angles to the edge of the canal. On the whole the timbers were fairly uniform in dimension, although alignment E incorporated consistently larger and squarer timbers than the rest (an average of 0.15 x 0.17m as compared with 0.11 x 0.15m in alignment K, 0.13 x 0.16m in alignment I and 0.12 x 0.17m in alignment H). None of the timbers survived much more than 0.3m above the surrounding soil; the extant length of them is not known, but displaced examples had a maximum length of 1.2m.

The timber used was a softwood: possibly Alder, as this was grown on site for making charcoal, and was also well suited for use in waterlogged conditions. The conversion of the timbers, where it was possible to tell, was most commonly into a box-quartered form, with a few examples appearing to be tangential blocks. Where preservation on the surface was good, the timbers retained straight clean edges, and square cut corners.

Anomalous to these alignments are four timbers at the west end of the site, which lie 0.4m to the west of alignment E (Fig.3: 20,117,15 and 30). Although varying in state of preservation, they all have a dense, hard, blackened appearance, which contrasts with the pale coloured wood of the other timbers. Timber 15 was excavated to a depth of 0.5m and was seen to be well preserved at this depth, with a flattened D shaped cross section, smooth faces and set at an angle (apparently original) of 45 - 50 degrees from the upright, inclined eastwards. Its dimensions at their greatest point were 0.35 x 0.11m which suggests timbers of a substantial size.

The north-south running alignments were associated at the eastern end of the site with 26 posts (more were probably hidden by the mud) driven into the gravels at the bottom of the canal (Fig.4: L). The uprights were sawn off to provide level surfaces at a common height of 16.26m OD, about 0.15m clear of the gravels in most places. They were all very well preserved, and showed a variety of treatments. Six timbers (apparently randomly placed) had a blackened surface, were very dense and hard: presumably fire hardened. Three others located closest to the edge of the canal had a yellow colour to the wood, and were also very well preserved, although not as hard as the blackened ones.

Two horizontal planks were identified in association with the uprights (Fig.4). One (217: 0.1 x 0.16 x >0.86m) runs back into the bank in the same orientation as the timber alignments, and the other (161: 0.09 x >0.22 x 2.5m) is at right angles to this and set on edge, running east-west along the canal on the outside of the upright posts. No form of attachment between the uprights and the horizontal timbers was identified, and no



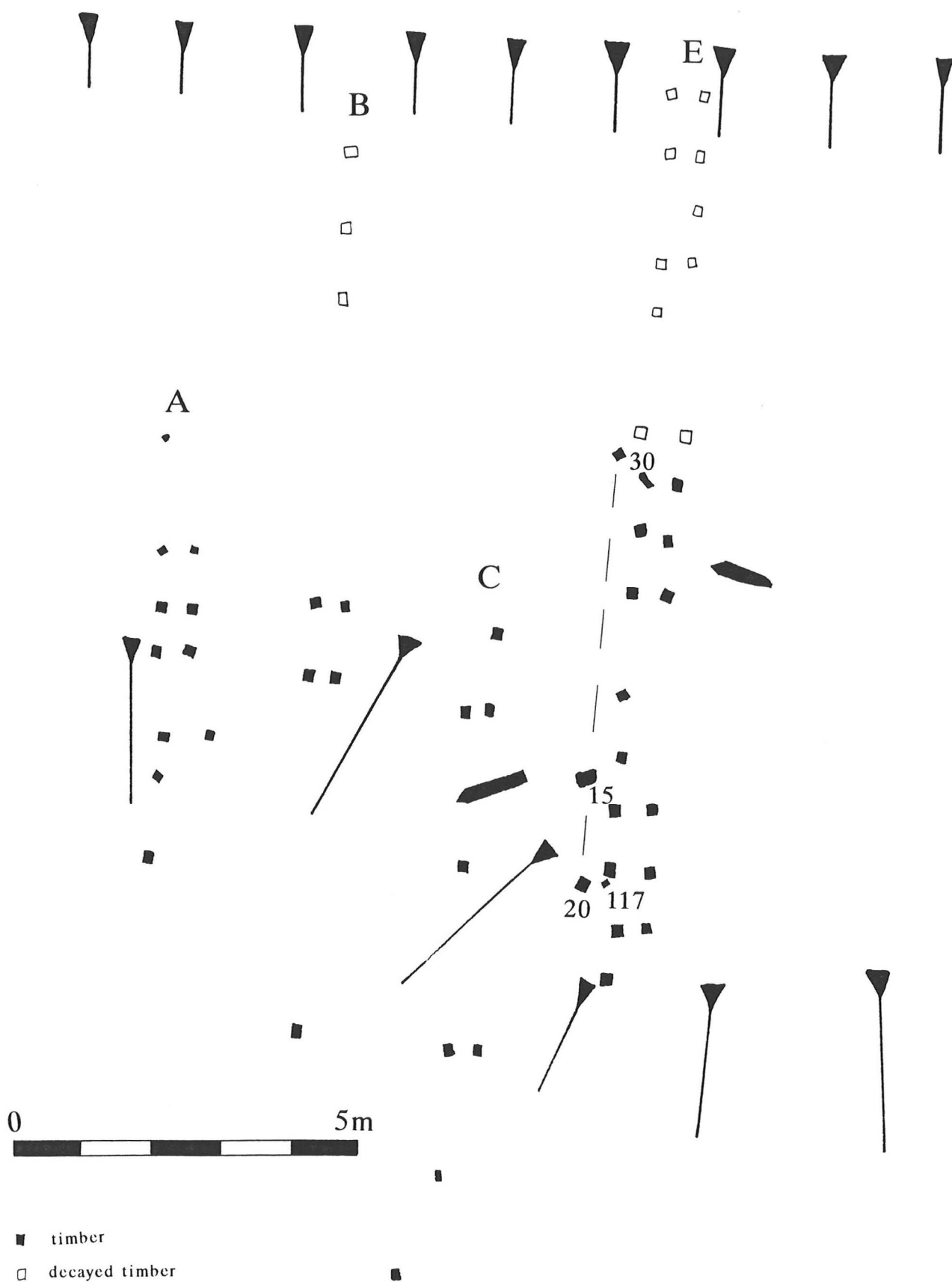


Fig.3 Structure '85'

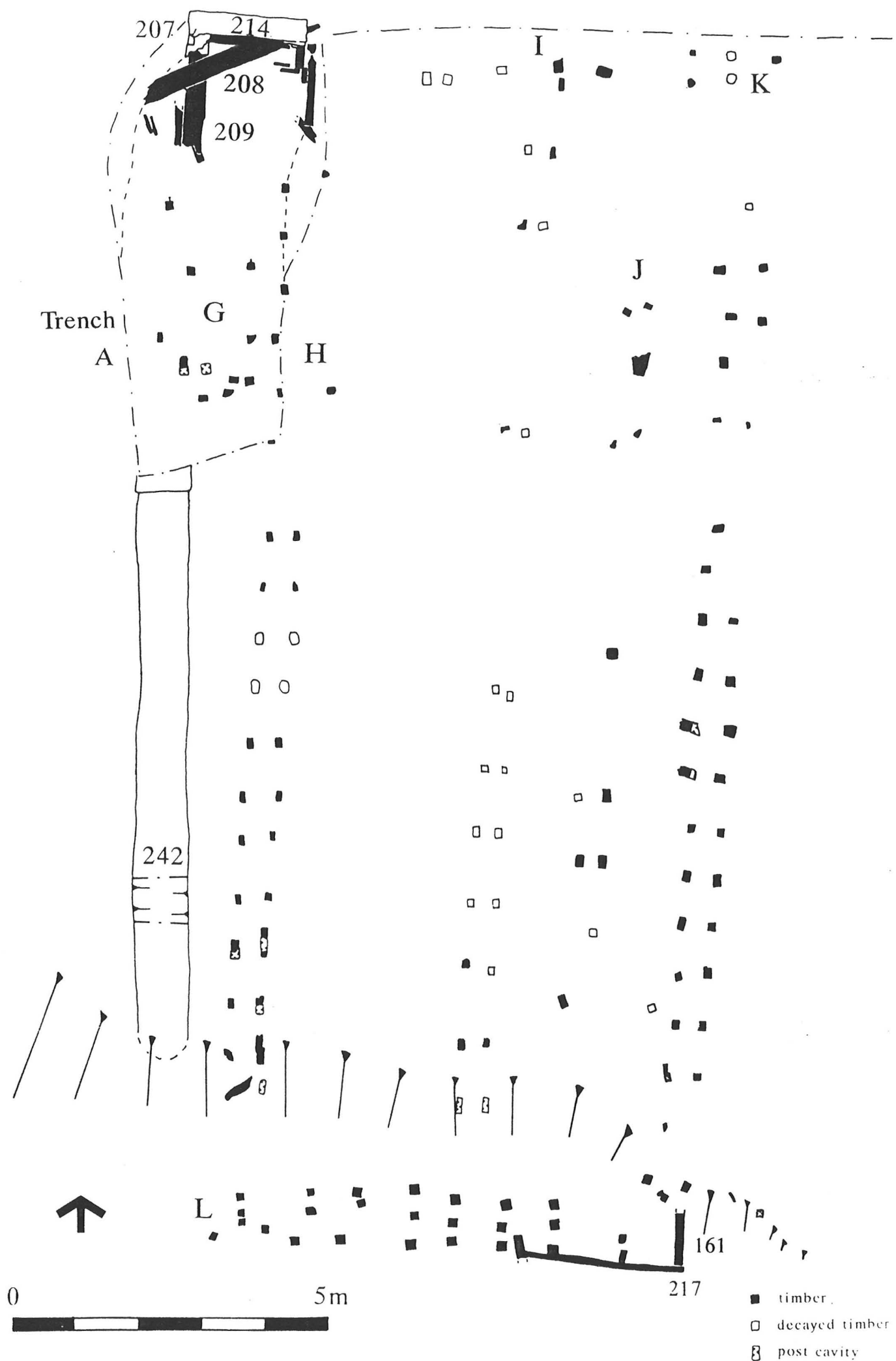


Fig.4 Structure '83'

attachment between the uprights and the horizontal timbers was identified, and no posts were found on the outside of timber 161 (although at this point the timbers were almost totally obscured by mud). Timbers 161 and 217 abutted neatly suggesting that they had not been moved from their original positions.

A similar pattern of timbers is seen in Trench A (Fig.4), where deeper machining revealed 11 timber posts similarly sawn off and reaching a height of 16.93m OD, 0.60m below the height at which the timber alignments are seen. They are fairly small, having dimensions ranging between 0.09 x 0.12m and 0.12 x 0.14m, generally squarish. They do not appear to form any coherent layout, but are associated with the north-south oriented timbers (209 and 208) on top of which was built the brick structure 214. Iron nails surviving in the tops of two upright posts suggests the attachment to boards, beams or planks, similar to 209 and 208.

The horizontal timbers were large, regularly cut beams, measuring 0.07 x 0.29 x >2.16m. On top of these two was an east-west oriented timber (207) which formed a cross beam between the previous two. These three timbers provided a framework on top of which brick components 214, 216 and 215 sat. 215 and 216 were north-south aligned returns which had all but been destroyed. They were bonded with component 214, the east-west running 'back wall', of which remained eight courses standing 1.1m high (Fig.5). It is built in English bond, from a purplish London Stock dating to the first half of the 19th century (identified by D.Andrews, ECC Planning Department, Historic Buildings section).

Several pieces of timber were found in the silts beneath this sequence, but they cannot be tied in to the construction.

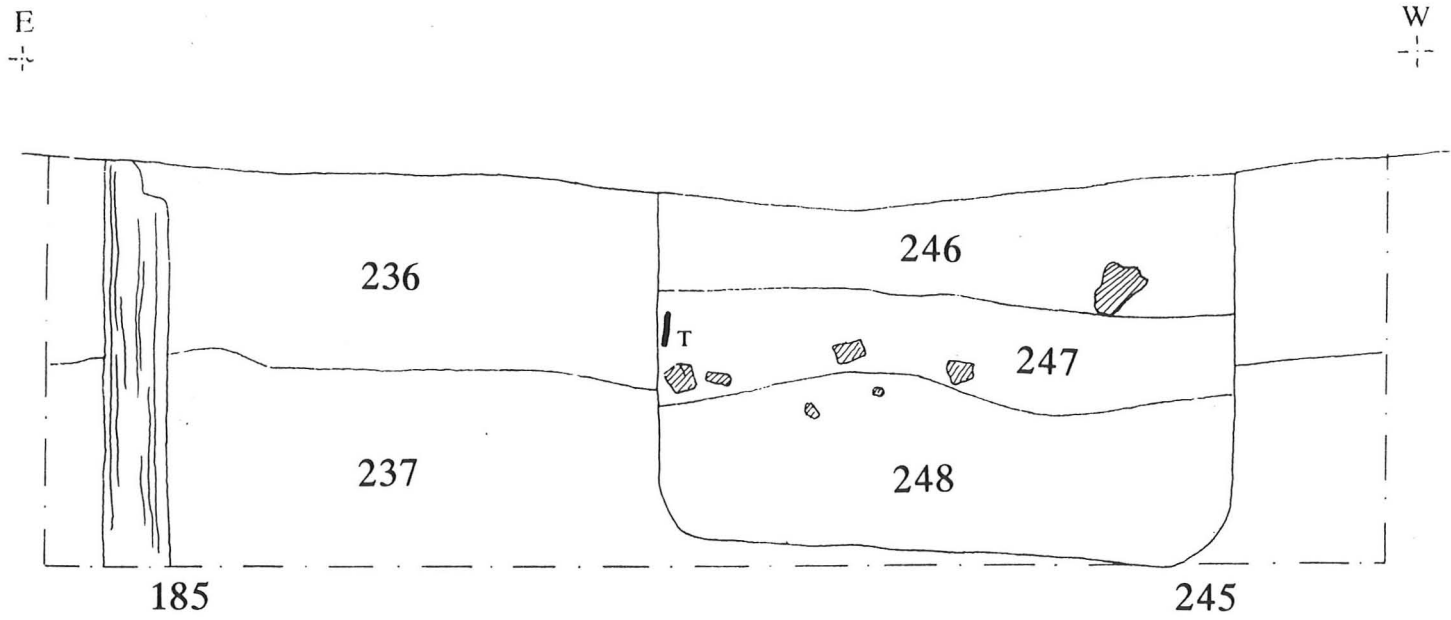
Running north-south from Trench A to the edge of the canal is a shallow gully (242) measuring 0.7m wide by 0.2m deep (Fig.4 and 6). It was filled by silty clay which contained charcoal, fragments of wood and leather, and brick bats, dating variously to the early 19th century and 18th century. The orientation is the same as the timber alignment to its east, and its projected course northwards meets masonry component 216. This was cut at the north end by a regular feature, 245 (subsequently truncated by the excavation of Trench A), which measured 0.95m wide and 0.55m deep (Fig.5). This was filled by three similar clayey fills, each containing fragments of brick. The purpose of this feature is unknown.

The area of rubble at X (Fig.2) was investigated by a machine cut trench to locate any surviving brick structures. None were found, and the rubble appears to be infilling a clearly delineated robbed out area. The rubble mostly comprised roof tile.

## 6. CONCLUSIONS

The location of the timber alignments clearly shows that they are part of buildings documented from 1806 onwards, although there may be connections with earlier documented buildings of 1801.

(Fig.6 shows the development of the site, from cartographic sources dating from 1801 to 1827. For purposes of comparison, each section of map was enlarged to the same scale. Slight discrepancies occur between the three because of original variations in accuracy, but the concordance of Fig.6,C with the site plan is reliable.)



- T tile
- ▨ brick
- # charcoal

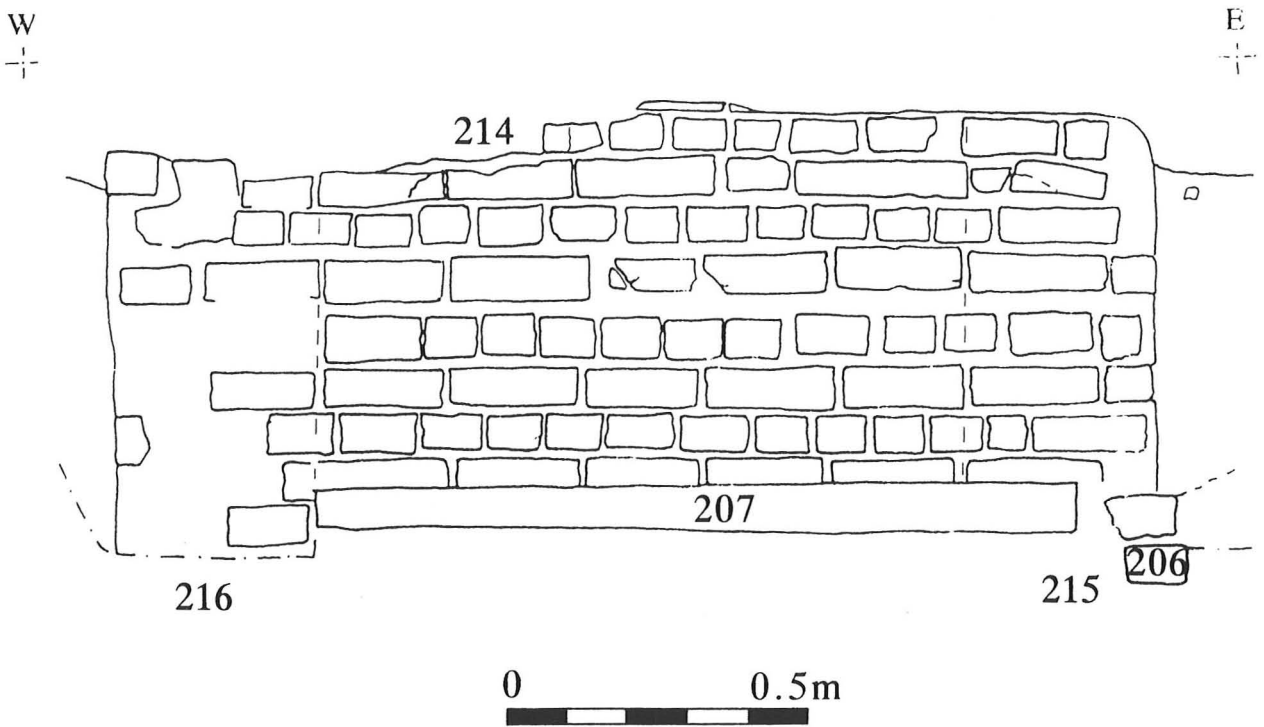
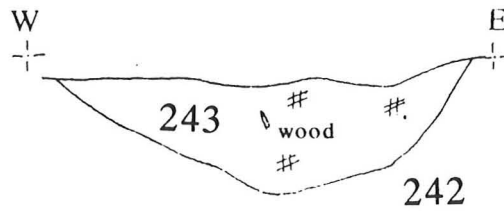


Fig. 5 Sections and elevation

The following alignments and groups of timbers can be assigned to the following buildings, labelled on the 1827 map (Fig.4, C).

Alignments: H, I, J, K, L	Building: 83
F	84
A, B, C, E,	85

The schedule of the 1827 map describes the buildings in detail and gives their function.

83	Storekeepers store house Brick foundations, boarded and tiled 60' x 24' (18.29m x 7.32m)
84	?oil house (unclear) brick foundations, tiled 24' x 13' (7.32m x 3.96m)
85	Storekeepers store house brick foundations, boarded and tiled 60' x 24' (18.29m x 7.32m)
86	Shed boarded and tiled 29' x 20' (8.84m x 6.1m)
87	Barge house boarded and tiled 81' x 31' (24.7m x 9.45m)

This suggests that all the timber alignments are set in or on brick foundations, similar to the brick structure 233, which, as this structure has demonstrated, probably required timber floats for stability in the silts at this level. No construction cuts were identified, and so it is likely that a large area was opened up for levelling, and to provide a stable base for brick foundations. The timbers at L also represent the lowest levels of this process.

Clay pipes dating to the late 17th century which were found on the machined surface around this building are therefore probably residual.

Comparing dimensions on the schedule with those found on the ground suggests that the two outer alignments (K and H) formed the outer walls of 83 (Fig.4). The brick structure 214 is therefore not featured, although it is obviously structurally related, and dated by the brick type as contemporary. It is not certain whether this structure was made redundant soon after construction and was never recorded, or whether the foundation plan does not reflect the exact plan of above-ground walls. This latter is likely, as the extending wings to the north-east and south-west which appear on the 1827 map (Fig.6,C) were not identified on the ground.

The length recorded on the schedule is also matched on site, and so the very poorly preserved timbers to the east of 214 probably formed the north wall of the building.

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