

***WALTHAM ABBEY ROYAL GUNPOWDER FACTORY  
(FORMER RARDE NORTH SITE)***

***NORTH P AREA***

***ARCHAEOLOGICAL REPORT***

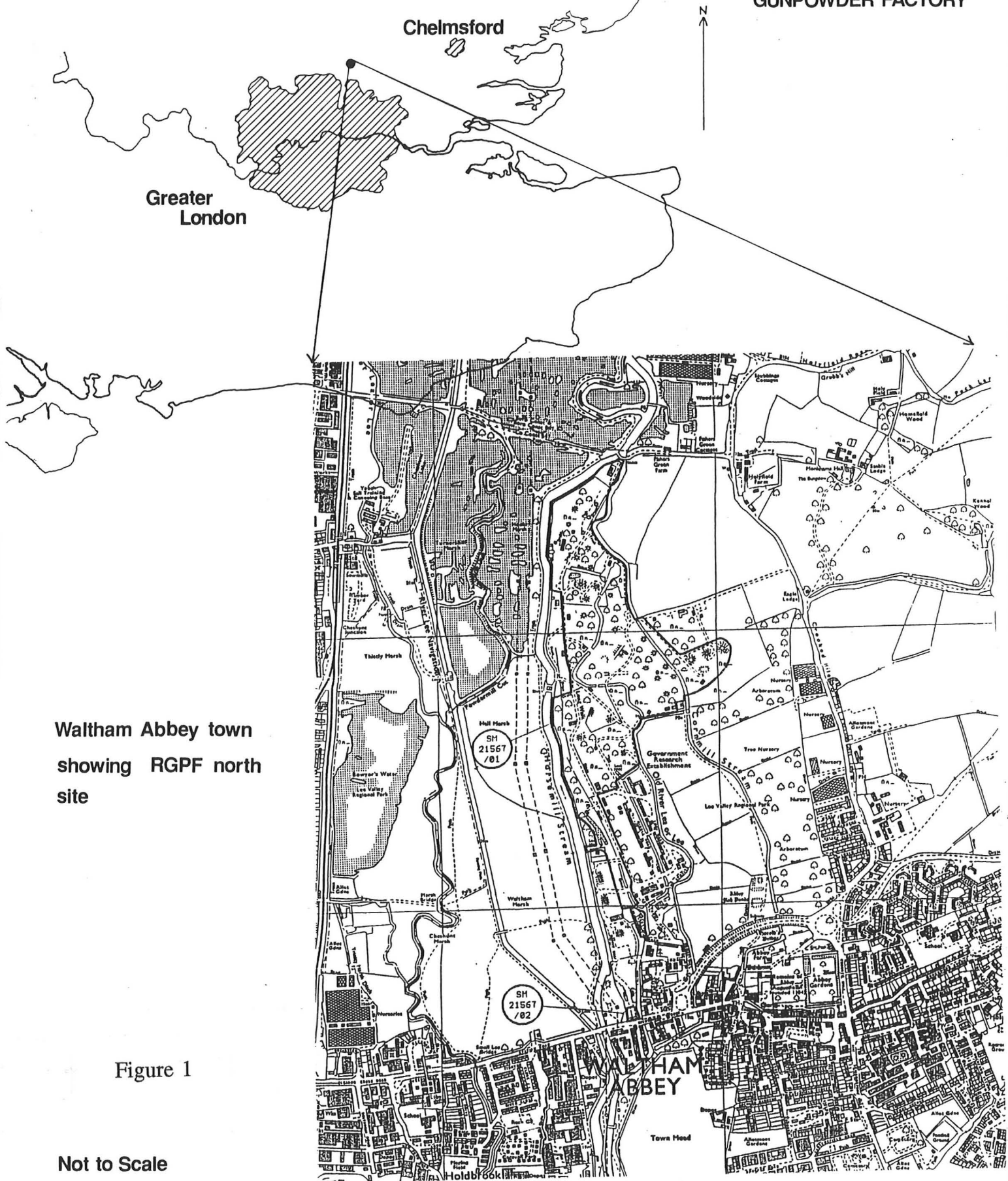
***JANUARY 1995***

***SUBMITTED BY ADAM FORD  
CONSULTANT ARCHAEOLOGIST TO  
MINISTRY OF DEFENCE***

## Contents.

- Site Location.
  
- Report Area Location.
  
- Brief History of the RGPF.
  
- History of North P Area.
  
- Archaeological Assessment.

**WALTHAM ABBEY  
ROYAL  
GUNPOWDER FACTORY**



**Waltham Abbey town  
showing RGPF north  
site**

**Figure 1**

**Not to Scale**

## 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.

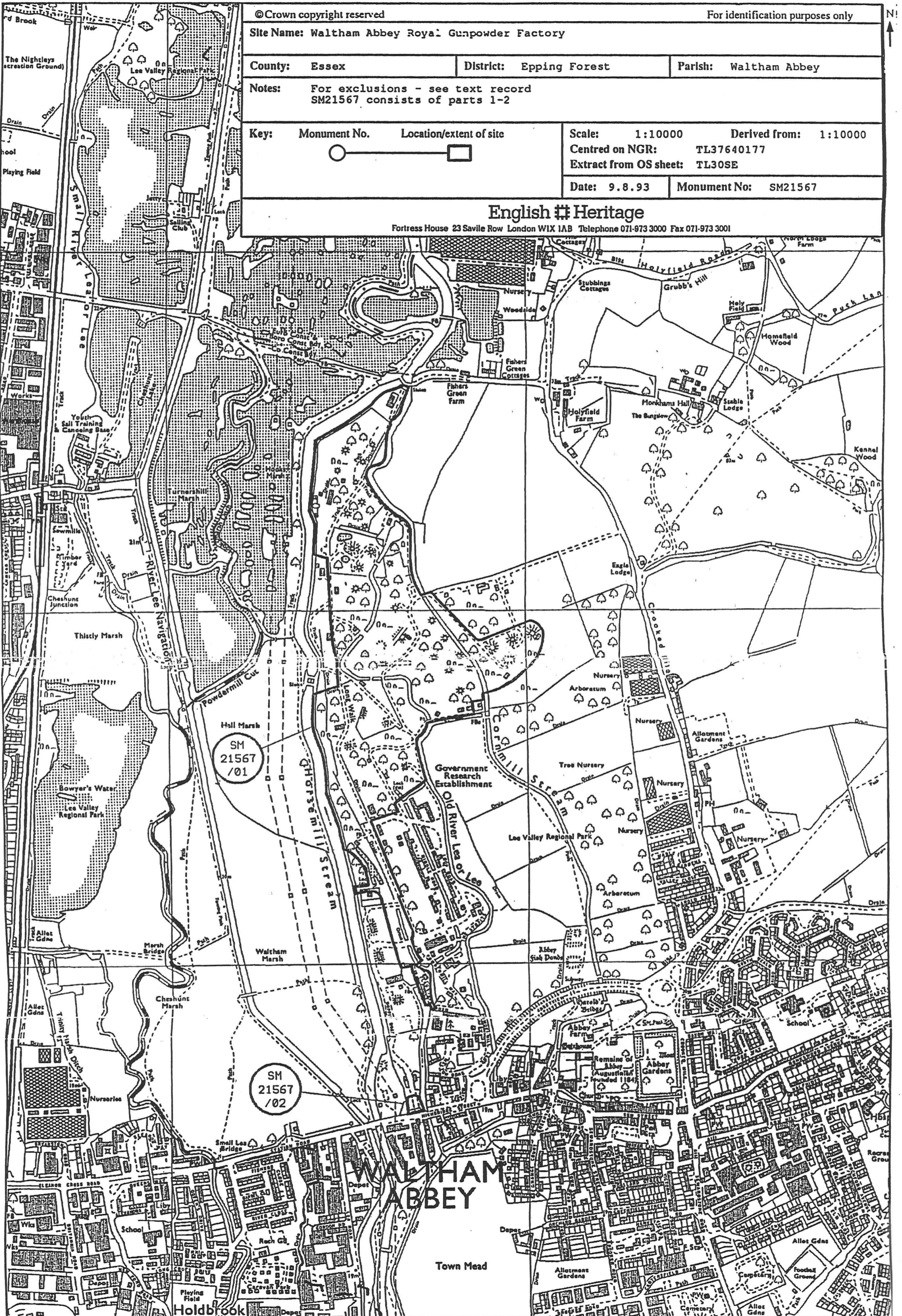
The North Site stretches for nearly two kilometres from Highbridge Street north/south along the Lea Valley to Fishers Green in the north. The perimeter fence encompasses almost 75 hectares (190 acres). The factory is bounded on three sides by waterways; the Horsemill Stream to the north and west and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

# Scheduling Proposal



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Site Name: Waltham Abbey Royal Gunpowder Factory			
County: Essex	District: Epping Forest	Parish: Waltham Abbey	
Notes: For exclusions - see text record SM21567 consists of parts 1-2			
Key: Monument No.	Location/extent of site	Scale: 1:10000	Derived from: 1:10000
○	□	Centred on NGR: TL37640177	Extract from OS sheet: TL30SE
		Date: 9.8.93	Monument No: SM21567

## English Heritage

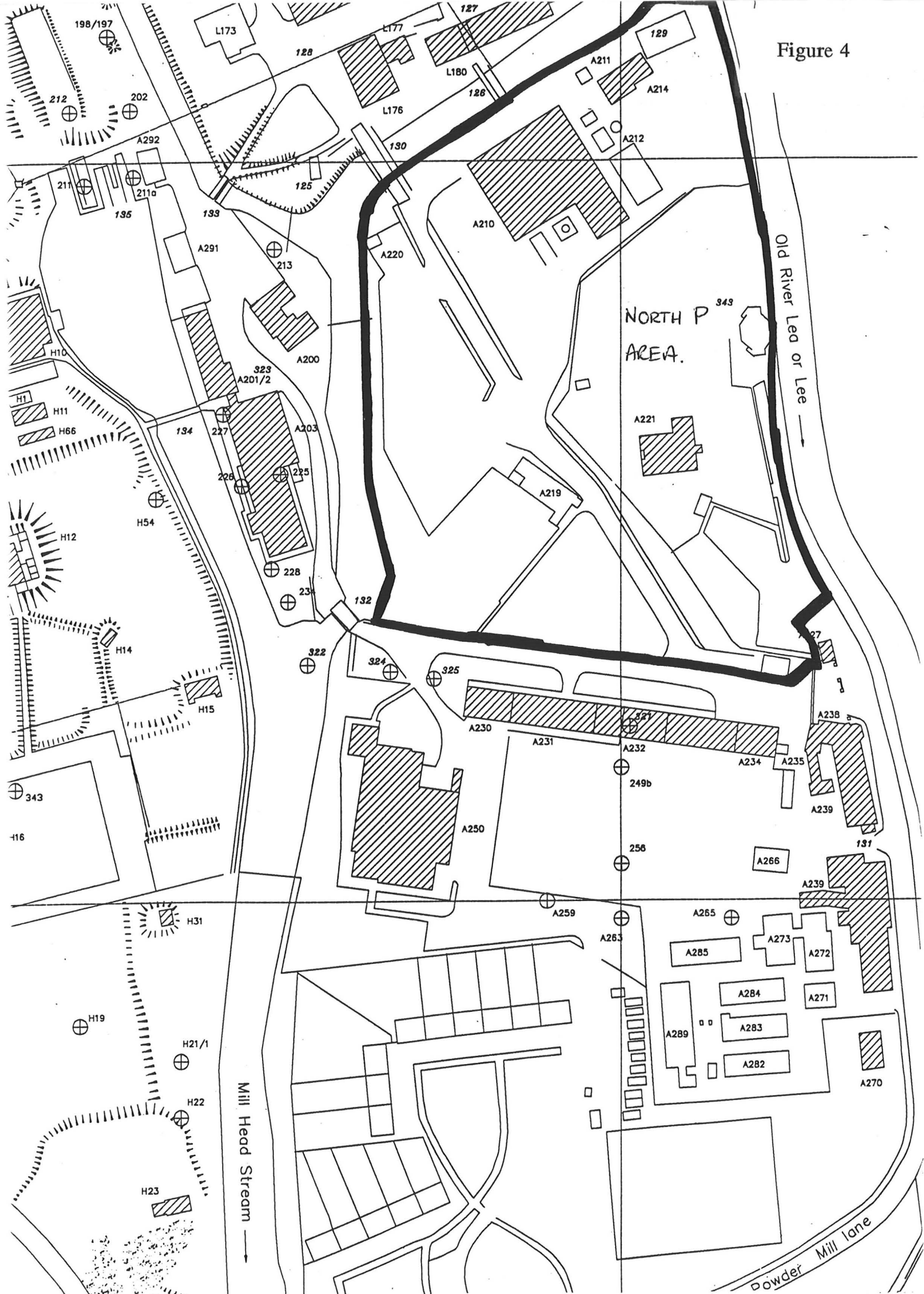
Fortress House 23 Savile Row London W1X 1AB Telephone 071-973 3000 Fax 071-973 3001

Figure 2



Figure 3

Figure 4



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.

#### North P Area Location.

National Grid Reference TL37760 00950

North P Area is effectively an island, bounded by the Old River Lea to the east by Middle Stream to the west and north and by Canal RCHM356 to the south.

This area designation is a comparatively recent invention previously this part of the site was included into the administration area, as indicated by the letter A prefix to the building numbers (see figure 4).



## 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.

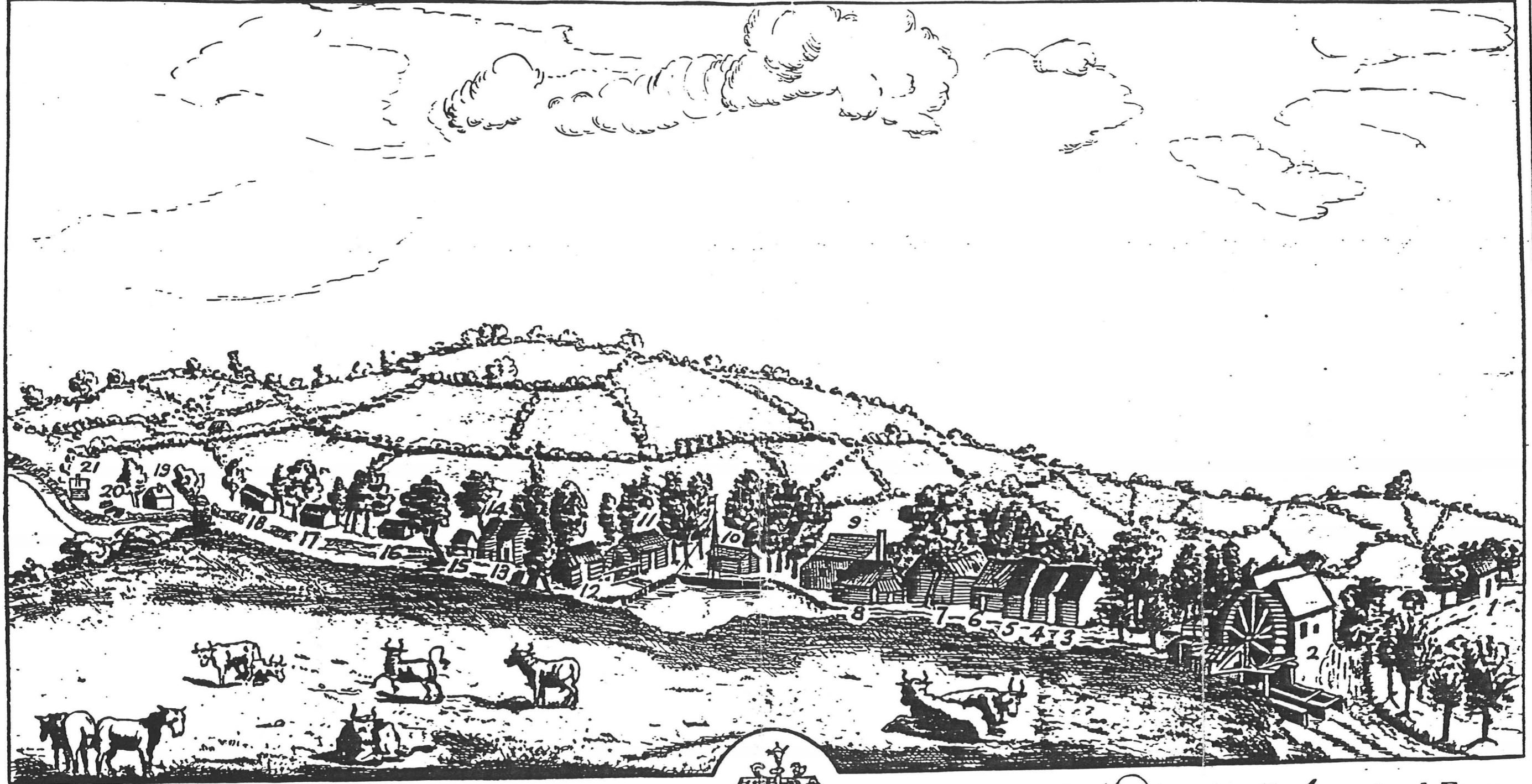
The early factory, based around a former fulling mill, probably situated to the south of the island site, quickly expanded to form the well established works depicted on the engraving by Farmer in 1735 (figure 5). The site continued to develop and became one of the principle suppliers of gunpowder to 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 Mill-wrights 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 FARMER'S "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.

## THE HISTORY OF NORTH P AREA.

The area outlined in the location description has never been a discrete portion of the site, identifiable with a particular group of buildings or function. It has been outlined and recorded in this report as a direct result of the decontamination activities which have occurred between 1993 and 1995. There is also a possibility that this area may be redeveloped in the future and therefore warrants closer inspection.

This part of the site never contained any of the processes of the manufacture of explosives. As a result the written documentation, which focused on the production of explosives, does not cover this area. There are some architectural drawings but by far the most informative source for piecing together the history is the collection of maps and plans of the site. It is from these that this history has been compiled.

The earliest, reliable map of the site is a Board of Ordnance map of 1783, drawn six years after the acquisition of the site by William Congreve (figure 6).

It shows a well established gunpowder factory concentrated around Millhead Stream. Surrounding this the land was still privately owned and used as pasture.

A road is shown passing through the area now known as North P Area called 'The Straits' and described as 'a road that leads to the meadows'.

This is the only feature depicted on the maps of the site until 1806. Between 1801 and 1806 a narrow waterway and two buildings were constructed in the area. The waterway, probably a drainage ditch branched from the eastern tail race of Millhead Stream near Flagstaff bridge, following the line of the later canal RCHM356. Approximately 20m to the west of the Old River Lea the ditch swings to the north and proceeds to parallel the line of the Old River Lea (see figure 8).

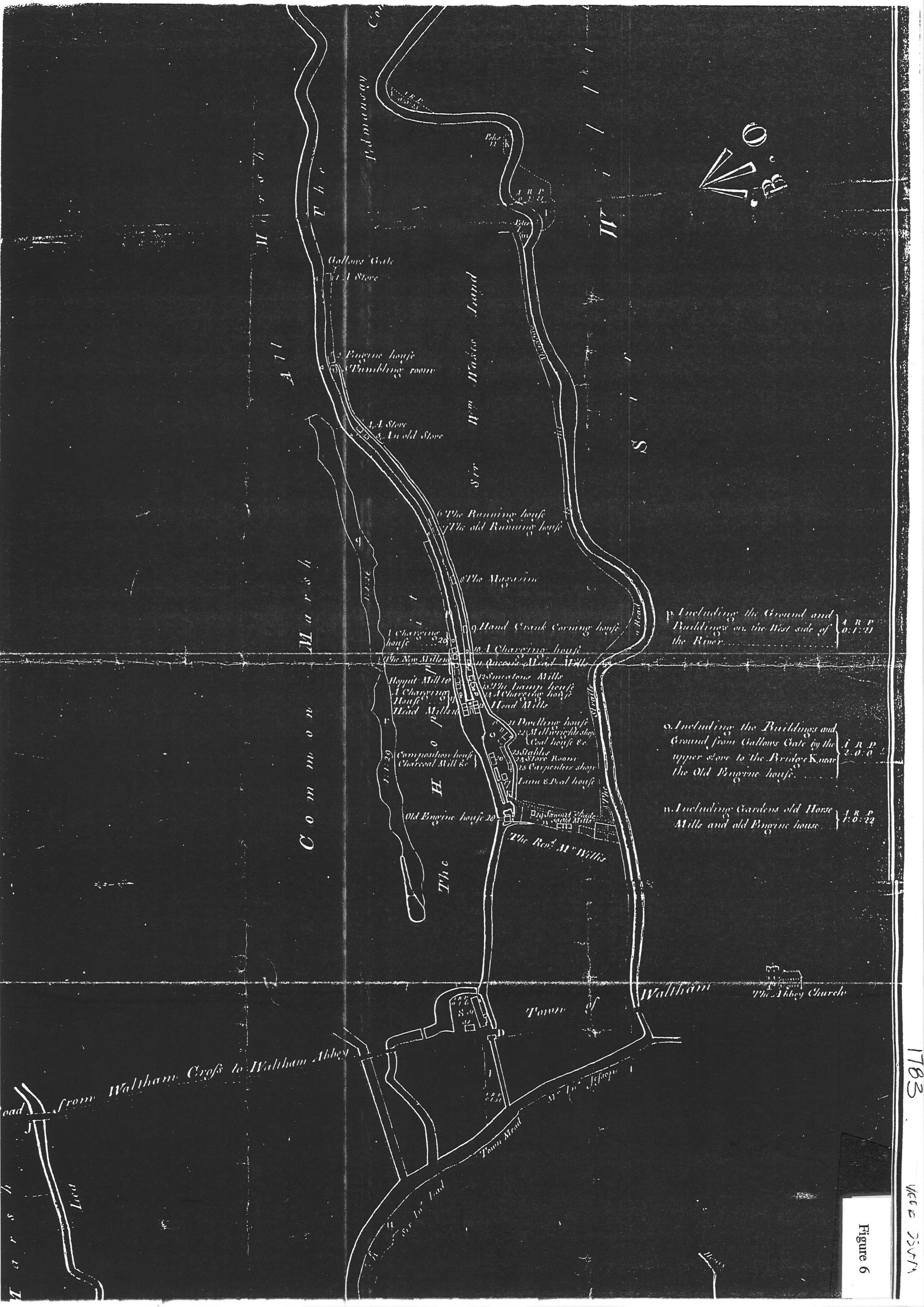
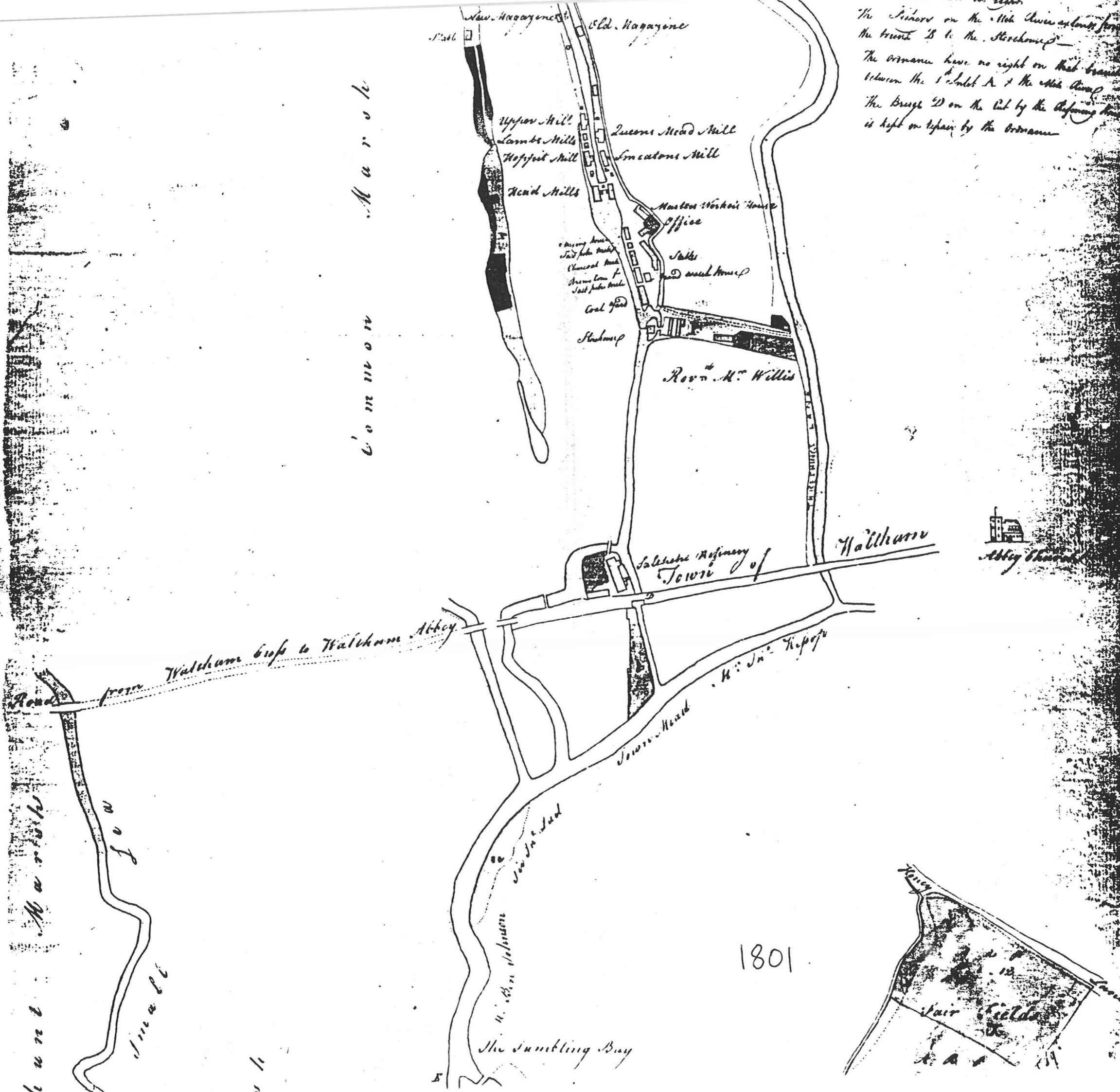


Figure 6

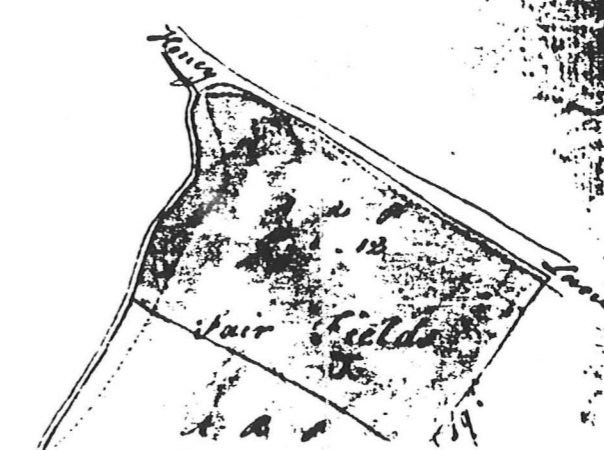
1783

WCC 257M

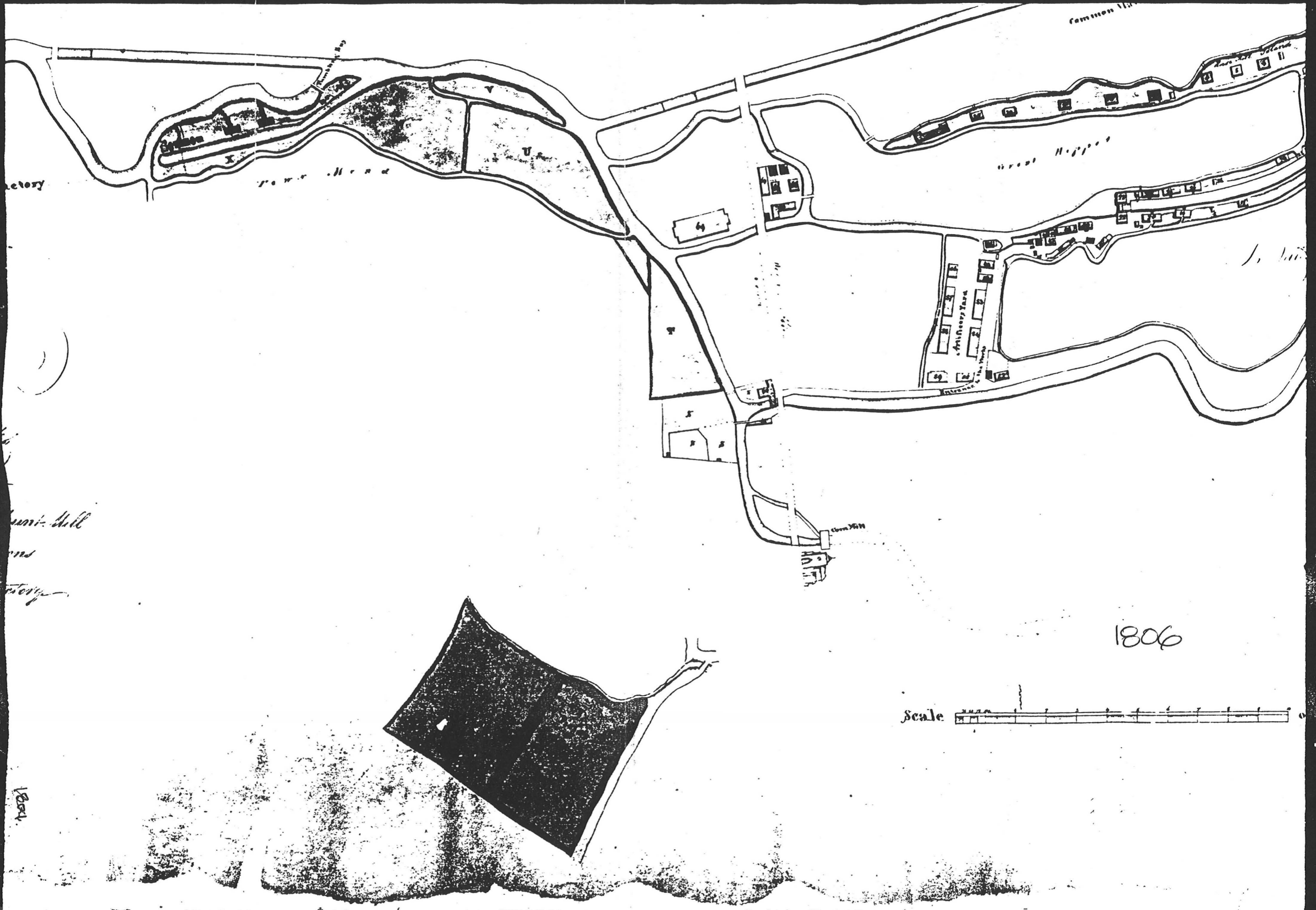
Reference: **MR 580** (1801)  
 PFM/SSS  
 Copyright - NOT TO BE REPRODUCED PHOTOGRAPHICALLY WITHOUT PERMISSION



The Sinner on the side of the river from the front B to the Storehouse  
 The Ordnance have no right on that branch between the 1<sup>st</sup> inlet A & the side of the river  
 The bridge D on the left by the Refinery is kept on repair by the Ordnance



1801



Common Hill

West Hill

Factory

Lower Hill

Artillery Yard

Anti-Hill

and

Factory

1806

Scale

1804

Figure 8

MR 580  
1806  
P. J. S. S.  
Reference:-  
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As outlined in the site history the first two decades of the 19<sup>th</sup> Century saw a great expansion on the North Site.

Between 1806 and 1827 the drainage ditch was widened forming the canal RCHM356. The north return which ran parallel with the Old River Lea was partially filled and replaced with another drainage ditch which curved back to the north west almost to the Middle Stream (also recently constructed). It then returned sharply east to rejoin the southerly section of the old ditch. The two buildings, constructed between 1801 and 1806 were still in use in 1827 and were situated in the extreme south east corner of the area. The function of these buildings is unknown for this time.

A new building was constructed at this time together with formal gardens to the north and east. This was constructed for and continued to be the chief administrators residence. It is now a Grade 2 listed building (A221).

To the north another narrow ditch was excavated across Queens Mead meadow from the east tail race of Millhead Stream to the drainage ditch to the west of the Old River Lea. (See figure 9).

The only change in North P Area between 1827 and 1886 was the widening and re-routing of this ditch. It no longer joined the eastern drainage channel but turned north, past the new Incorporating Mills and became known as Middle Stream (figure 10).

By the First World War the ditch which bisected the area and the canal (RCHM356) to the south had been filled. To the north of A221 (numbered 229 in figure 11) a new large boiler house, chimney and associated buildings had been constructed. Around the same time a remote accumulator tower (A214) was constructed to the east of the boiler house. This building supplied the Incorporating Mills to the north with hydraulic energy.

These buildings remained as the core structures until the site closure. A number of ancillary buildings such as bicycle sheds, stores and offices were

1827  
PRO MPH 271

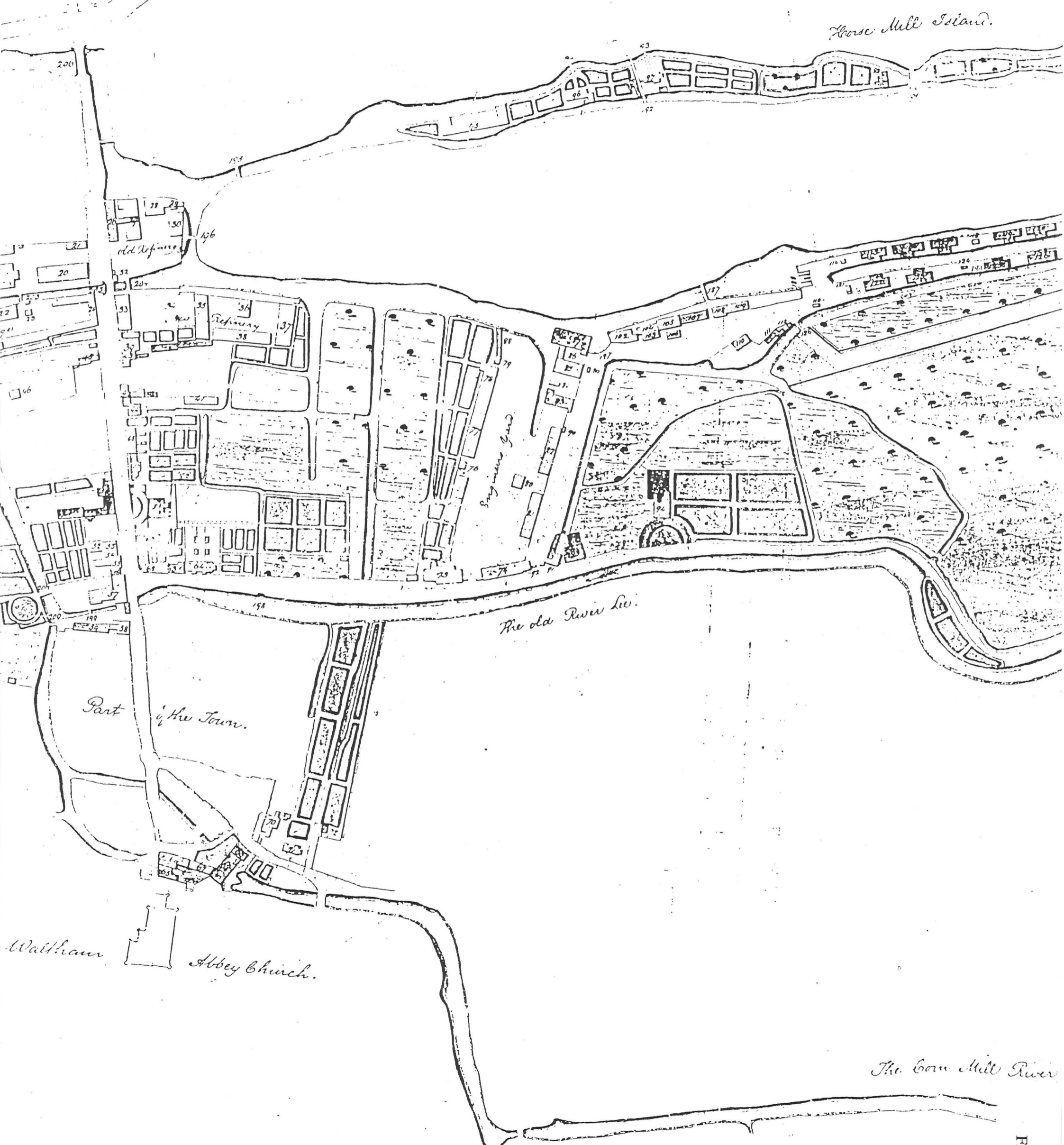
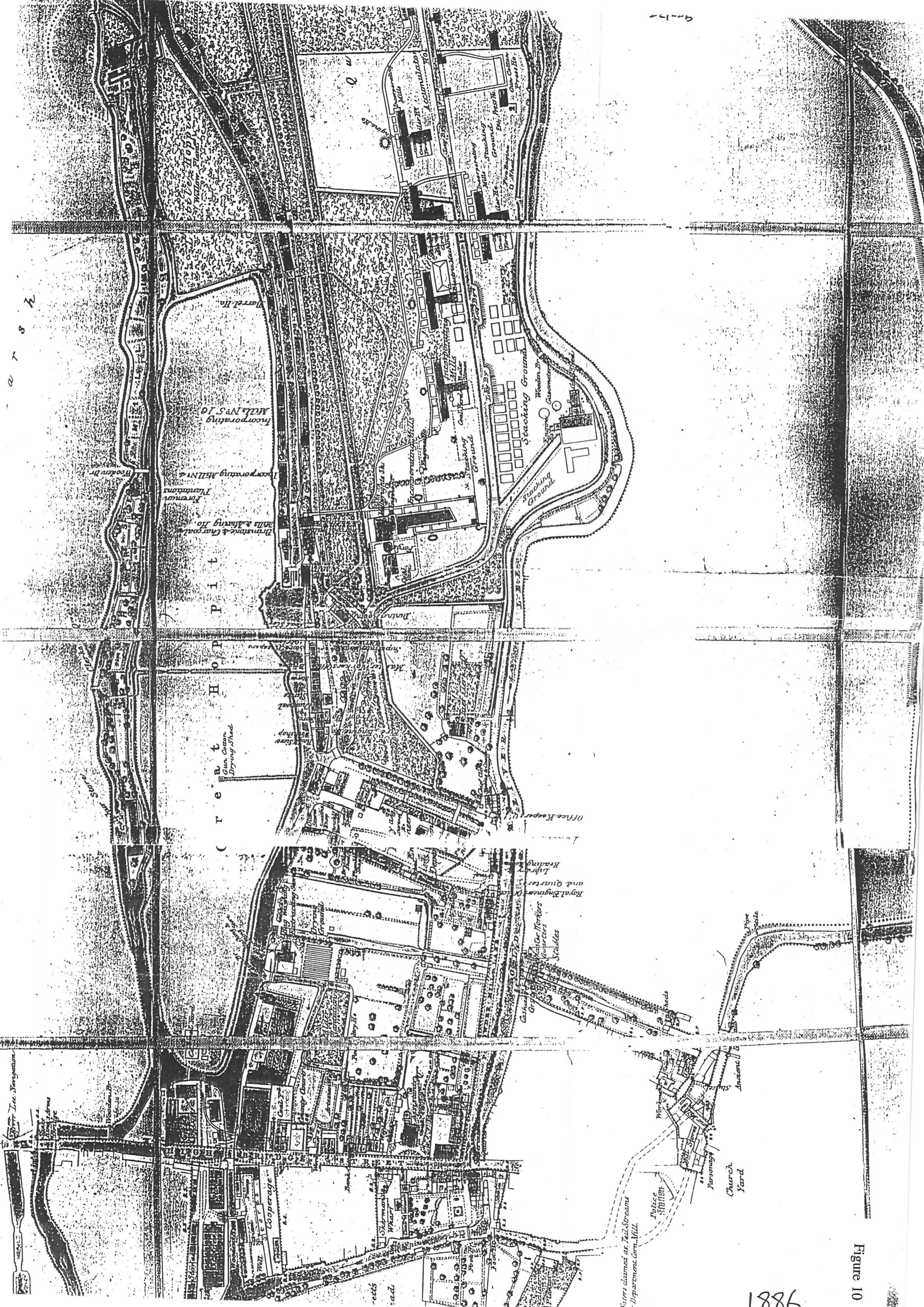


Figure 9



2782

4-11-0

C R E A T H O P I T

Incorporating Mills, Nos. 10  
Incorporating Mills, Nos. 11  
Incorporating Mills, Nos. 12  
Incorporating Mills, Nos. 13  
Incorporating Mills, Nos. 14  
Incorporating Mills, Nos. 15  
Incorporating Mills, Nos. 16  
Incorporating Mills, Nos. 17  
Incorporating Mills, Nos. 18  
Incorporating Mills, Nos. 19  
Incorporating Mills, Nos. 20  
Incorporating Mills, Nos. 21  
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Incorporating Mills, Nos. 45  
Incorporating Mills, Nos. 46  
Incorporating Mills, Nos. 47  
Incorporating Mills, Nos. 48  
Incorporating Mills, Nos. 49  
Incorporating Mills, Nos. 50

Creathopt  
Gun Cotton  
Drying Shed

Office Keeper U.  
Royal Engineers  
and quarters  
Library  
Reading  
Royal Engineers  
quarters  
Stables  
Cattle  
Grass  
Sheds  
Police Station  
Department Corn Mill

Church  
Yard  
Parsonage  
Wentworth  
Anson

1881

Figure 10



Figure 11

constructed during the 1930's, 40's and 50's. All these have been demolished since the mid 1980's.

## ARCHAEOLOGICAL ASSESSMENT.

The three main buildings described in the previous section are and will remain standing, as will the formal gardens attached to building A221.

The boiler house or power house (A210) was stripped out prior to the closure of the site in 1991 as was A214.

Some minor repairs have been carried out to these buildings but the fabric and original features remain intact.

Over 90% of the North P Area has been excavated to a depth of 1.5m or more as part of the decontamination exercise.

No significant archaeological features were uncovered during this work that had not been anticipated.

A number of large pits were discovered to the east and south of the boiler house, but these features together with the various services are recorded on archive architectural drawings.

Similarly no artifacts of any significance were unearthed.

Recording of any features has been photographic only.

**APPENDIX A.**

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

**BUILDING COMPONENT SHEETS REFERRING TO  
NORTH P AREA.**

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**THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY**

NUMBER A210 a,b,c,d	OLD SERIES	RCHME NUMBER	N.G.R. TL 37780 01000
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NAME/FUNCTION Power House Main Structure,Bunkers,Welding Shop	START DATE 1908-15?	END DATE
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NO PHOTOGRAPHY  
AVAILABLE

<p><b>CARTOGRAPHIC DEPICTION</b></p> <p>1917 WASC 900/70 ; Power House          1917 WASC 900/72 ; 213a          1919 WASC 900/74 ; 213a          c1920 WASC 900/80 ; 213a          1923 WASC 900/84 ; 213a          &gt; 1940 WASC 900/91A ; 213a          1954 A - B.34 ; A210          c1960 WASC 900/94 ; A210          c1963 WASC 900/97 ; A210          1972 WASC 900/102 ; A210          1972 WASC 900/104 ; A210          1976 WASC 900/113 ; A210</p>	<p><b>DOCUMENTARY REFERENCES</b></p> <p>Plans;          A210 B01 - B69 ; Plans and Elevations 1915 to 1986          c1925 RGPf Ledger WASC 1680 ; Power House          1972 ERDE List ; Boiler House and Machine Shop          1991 Mott McDonald survey          1992 RARDE List ; Boiler House and Welding Shop          1992 FBRC ; Storage          1993 RCHME NBR No.91451</p>
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<p><b>PHOTOGRAPHY HISTORIC</b></p> <p>WASC 325 Steam pipe runs 1946          WASC 1450 Views mid/late 1940s          WASC 1454 Views x2          WASC 1582 interior view from NE corner of crane          RCHME Neg No.BB92/16742 (PRO Supply 5/861 237)          Power Station view from north east corner of crane 1908          PRO Supply 5/861 235-7 Interior (not dated but          sequence in album suggests circa 1908)</p>	<p><b>PHOTOGRAPHY RCHME</b></p> <p>1) 206/R/35 Power House from East          206/R/36 Power House South elevation          206/E/1 From South West</p> <p>2) BB92/26070 A210 Power House view from South          West          BB92/26071 A210 Power House view from North East          BB92/26072 A210 Power House North section interior          from South          BB92/26073 A210 Power House South section interior          from South East          BB92/26349 A210 Drawing A.210.B.17 Layout of          Number 5 Boiler House 29.July.1947 (Chessington)          BB92/26359 A210 Drawing a.210.B.16 Proposed          Machine Shop and Offices April 1950 (Chessington)          BB92/26376 A210 Drawing A210.B.04 Power House          21 Jun 1916 (Chessington)</p> <p>3) 225/A/15 East bay Engine House          225/A/16 Detail of crane North end of Engine House          225/B/25 Exterior view</p> <p>4) 4788/3 06.05.1993          4788/6 06.05.1993          4788/11 06.05.1993</p>
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RELATIONSHIPS WITH OTHER MONUMENTS

ASSOCIATED WITH: A211, A212, A213, A214

CONDITION      Good

DESCRIPTION

- 1)      CONSTRUCTIONAL MATERIAL  
        Brick
- 2)      ROOF MATERIALS AND STRUCTURE  
        Slate over timber boards supported on steel trusses with central glass clerestories
- 3)      POWER SOURCE  
        Steam
- 4)      DIMENSIONS i) L 36m ii) W 29.4m iii) HT estimate 9m
- 5)      See Attached Threatened Buildings Record report

ROYAL COMMISSION ON THE HISTORICAL MONUMENTS OF ENGLAND

MOD Building No. A210a,b,c,d  
Power House  
The Royal Gunpowder Factory  
Waltham Abbey  
Essex

NBR No: 91451  
NGR: TL 37780 01000

Built by 1915 as a Power House, this brick building was originally a single-storeyed rectangular structure of nine bays by six and two half-bays. It has a triple-pile plan, with gables aligned north to south.

A single large room beneath the two westernmost gables was the Boiler House. A brick wall on the east side of the room separated it from the Engine House which was beneath the eastern gable. Central to the south elevation was a round chimney shaft of steel on an octagonal base.

In 1916 the eastern gabled end was extended to the south by an additional three and a half bays.

-oo0oo-

Situated approximately 30 metres south of a mid-nineteenth century boiler house (L176) which powered building no. L168 only, building no. A210 was constructed by 1915 as a New Power House comprising a boiler room and an engine room.<sup>39</sup> The building was a central power system and served at least the accumulator in building A214 which is situated approximately 20 metres to its north-east.

Resting on concrete foundations, the building is constructed of yellow brick laid in English bond. Its triple gable roof has angle iron trusses with timber purlins, and iron and timber gablets with louvres. The roof covering is slate. Steel stanchions support the gully between the western and central gabled roofs, and a brick wall supports the gully between the central and eastern gabled roofs. The chimney shaft was steel on a concrete base.

Rising to a height of approximately nine metres, the building is single-storeyed and has a triple-pile plan, with three gables which are aligned north to south.<sup>40</sup> Originally it was a rectangular structure of nine bays by six and two half-bays, approximately 80' x 95'7 1/2" (24.4 x 29.2 m).<sup>41</sup> At the centre of the south elevation was a round chimney shaft, 7'6" (2.3 m), on an octagonal base. Immediately to the east of the building there was a detached Oil Separating Tank, with a diameter of 20' (6 m), as well as a platform for condensers of 25' x 10' (7.6 x 3 m).

A single large room beneath the two westernmost gables was the Boiler House and contained three boilers which were aligned east to west. A room beneath the eastern gable was the Engine House and carried three engines with dynamos.<sup>42</sup> The Engine

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Record Drawings of Plan and Elevation for New Power House, dated 9/1/1915, cat. A210.B.01. The building was not built by c1908, as it is not documented in the Ledger of c1908, and therefore appears to have been constructed between c1908 and early 1915 (cat. WASC 1509, PRO, Hayes Repository).

The building is aligned north-north-west to south-south-east but for clarity in this report it is described as if it was aligned north to south.

Plans and elevation of New Power House, dated 9/1/1915, cat. A210.B.01 (MOD Central Disposals Unit, Chessington).

There is a photograph of this room, complete with dynamos made by Bruce Peebles & Co., which is labelled "Power Station: View from NE Corner of Crane, circa 1908" (RCHME Neg. No. BB92/16742; a print from this neg. appears in PRO Supply 5/861 (Photo no. 237, neg. no. C/48). The date on this photograph may be incorrect, however, since the building is not shown in the Ledger of c1908, cat. WASC 1509 (PRO, Hayes Repository).

House has a travelling crane which is dated 1915<sup>43</sup> and, at the northern end of the room was a switchboard and platform.

Recessed panels form the bays of the east and west elevations whereas the brickwork of the north and south elevations is flush. The west, north and south walls have internal brick buttresses. The Boiler House was entered by six doorways between the main bays on the west elevation and another doorway below the westernmost window of the north elevation. The Engine House had two doorways on its original south front and another in the northernmost of the main bays of the east elevation, below a window. Typical of a boiler/engine house structure, the building was lit, on the north, south and east elevations, by tall semi-circular headed windows. Below each gable on the north elevation was a central window, 6' (1.8 m) wide, flanked by a pair of narrower windows, 3' (0.90 m) in width. Above these windows, in each gable itself, is a round opening, with louvres, for ventilation. On the south elevation, the arrangement for the fenestration on the westernmost gable was similar. The central gable had a pair of narrow windows flanking a doorway to the flue for the chimney shaft. The east elevation originally had six windows in each of its six main bays.

The Boiler House and Engine House were connected by a doorway at both north and south ends of the internal brick wall.

In 1916 the New Power House underwent alteration.<sup>44</sup> The Engine House was extended to the south by a further three and a half bays (approximately 11 m), presumably to carry another engine and dynamo. This secondary form of the Power House appears to have been used as the basic design for at least one of the buildings on the "south site" of the Royal Gunpowder Works at Waltham Abbey.<sup>45</sup>

A series of drawings show the layout of the Boiler House and its machinery in 1947.<sup>46</sup> There were three Danks boilers, aligned east to west, which had steel hoppers on the west side. The boilers connected with a flue on the eastern side. At the north-east side of the room was a feed water tank. In the north-west corner was a meterboard with CO<sub>2</sub> recorder, steam meter, pyrometer, lighting switches and power switches. There was a Hodgkinsons Patent Coking Type Stoker, MS Electric Welded Smokebox, Sootblowers and Pipework to go with the Boilers, and check feed valves and cope's regulator. The chimney is

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"Babcock and Wilson, London & Renfrew, Contractors, 1915" is cast into the crane.

Drawing of plan and section of "Extension to Power House, Upper Works", dated June 1916, cat. A210.B.04 (MOD Central Disposals Unit, Chessington).

There are no obvious straight joints on the east elevation to show that the south-east bays are additional and it is probable that this extension was carried out very soon after the drawings for the extension were made. Certainly the south-east extension existed by the early 1920s, as it is shown in a 1:2500 site plan of the Royal Gunpowder Factory at Waltham Abbey, revised March 1923. Curiously, another site plan dated 25/6/1948 does not show the extension, but this appears to be an incorrect representation of the building, cat. A210.B.13 (MOD Central Disposals Unit, Chessington).

For example, drawing of "Boiler House for 17 Boilers, Quinton Hill", cat. WASC 901/224A (PRO, Hayes Repository).

Drawings of plan and sections for "Layout of No. 5 Boiler House", dated 29/7/1947, cat. A210.B.17; Hodgkinsons Patent Coking Type Stoker, 17/7/1947, cat. A210.B.24, MS Electric Welded Smokebox, 17/7/1947, cat. A210.B.23; Danks Boilers, Sootblowers and Pipework, 3/7/1947, cat. A210.B.22; Arrangement of check feed valves and cope's regulator, 3/7/1947, cat. A210.B.21. (MOD Central Disposals Unit, Chessington).

described as being present still at this date.<sup>47</sup>

In c1951 the Engine House was converted to a Machinery Shop and a new building was constructed adjoining its south-east side.<sup>48</sup> In the northernmost one and a half bays of the former Engine House, a pre-cast floor was inserted to create a Tool Store, Component and Gauge Store on the ground floor, with three Offices and a corridor on the first floor. To light these new rooms, the fenestration at the northern end was altered. The northernmost window on the east elevation and the three windows below the eastern gable on the north elevation were all blocked and replaced, on the north elevation, by two rows of three square-headed windows (approximately 1.3 x 1.4 m) and, on the east side, by a matching square-headed window on the ground floor only. Of the remaining windows on the east elevation, those in the third, fifth, sixth, seventh and eighth main bays from the south had additional square-headed windows (approximately 1.3 x 0.97 m) inserted immediately below the original window sills, and below those in the second and ninth main bays from the south a pair of double-doors were inserted. The two windows on the projecting west elevation of the former Engine House also appear to have had square-headed windows inserted immediately below the sills. On the south elevation, the sills of the three semi-circular headed windows were raised to allow for the heightening and widening of the western of the two doorways, while the eastern doorway was blocked. The two doorways from the former Boiler house to the former Engine House were also blocked at this time.

The machinery proposed to be in the Machinery Shop in 1951 included two power saws, a 3 HP shaping machine, a 5 HP town radial drill, a pallas mill, a centre mill, a 5 HP archdale hor mill, a 5 HP vertical mill (new), a 5 HP Landis universal grinder, a D/E Grinder Tungstun Carbide (+ HP?), a 2 HP Drill Sharpener, a cutter grinder and lathes.<sup>49</sup>

The detached Oil Separating Tank and platform on the eastern side of the building was removed by this time. A new rectangular building, of 49'10 1/2" x 26'3" (approximately 14.97 x 7.95 m) was built at the south end of the east side of the building, in place of an existing shed. A lobby, projecting from fourth bay from the south of the east elevation of the Machinery Shop linked the two buildings. The new building was probably of brick construction and had, like the lobby, a flat pre-cast roof. Divided into four rooms, it comprised a Plating Shop, Sand Blasting and Metal Spraying Shop, Pipe Fitting Shop, and Instrument Shop.

The Boiler House also appears to have undergone alteration around the same time as the former Engine House. The semi-circular headed windows on its west elevation were shortened by raising the sills, and new square-headed windows were inserted below them, except in the second and third main bays from the south where a wide doorway was inserted. On the south elevation, the two semi-circular headed windows which flanked the chimney shaft were also shortened; that on its west side had its sill raised approximately one metre and that on the east side had its sill raised to the springing of the semi-circular-head and a tall rectangular opening was inserted.

More recent alterations to the building include the narrowing of the doorway in the ninth bay from the south on the east elevation and the insertion of a new doorway in the adjacent tenth bay, the blocking of two doorways and two hatches to the end rooms at the northern end of the Machine Shop, after 1960 the demolition of the chimney and of the building and lobby

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A note on drawing cat. A210.B.17 gives details of the stack as at 1947 (MOD Central Disposals Unit, Chessington).

Drawings of plans and sections of Proposed Machinery Shop & Offices, dated April 1950 and July 1951, cats A.210.B.16 and A.210.B.29 (MOD Central Disposals Unit, Chessington).

Drawing of proposed machine shop and offices, dated 6/7/1951, cat. A.210.B.29 (MOD Central Disposals Unit, Chessington).

which had been added on the east side in c1951, and the blocking of the doorway from the Machinery Shop to that lobby.<sup>50</sup> Two doorways and a pair of windows on the south elevation of the former Boiler House may be part of a c1951 phase but are probably later.<sup>51</sup>

Surveyed March 1993  
Report by R L Burgess

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Both chimney and south-east addition are shown on a Record Survey of the site at 1:500, July 1960, Land Survey Branch, MOW, London, Drg No. LSG/8.

The doorway in the re-entrant angle of the south elevation, for example, is not shown on the plans for the proposed machine shop and offices, April 1950, cat. A.210.B.16 (MOD Central Disposals Unit, Chessington).

**THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY**

NUMBER A211	OLD SERIES	RCHME NUMBER	N.G.R. TL 37790 01023
NAME/FUNCTION Water softening filter plant Control room		START DATE 1959	END DATE
NO PHOTOGRAPHY AVAILABLE			
CARTOGRAPHIC DEPICTION  1954     A - B.34 ; A211 c1960    WASC 900/94 ; A211 c1963    WASC 900/97 ; A211 1972     WASC 900/102 ; A211 1972     WASC 900/104 ; A211 1976     WASC 900/113 ; A211		DOCUMENTARY REFERENCES  1972     ERDE List ; Water softening Filter Plant 1991     Mott McDonald survey 1992     RARDE List ; Control Room	
PHOTOGRAPHY HISTORIC		PHOTOGRAPHY RCHME  1) 206/E/4 From South  4) 4788/6 06.05.1993 4788/11 06.05.1993	
RELATIONSHIPS WITH OTHER MONUMENTS A212, A213, A214			
ASSOCIATED WITH:    A210			
CONDITION            Demolished			
DESCRIPTION 1)        CONSTRUCTIONAL MATERIAL Brick  2)        ROOF MATERIALS AND STRUCTURE -  3)        POWER SOURCE -  4)        DIMENSIONS i) L 4.75m ii) W 3.7m  5)        The structure was demolished in 1992, the concrete floor slab remains.			

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER A212	OLD SERIES AE212	RCHME NUMBER	N.G.R. TL 37796 01006
NAME/FUNCTION Water Softening		START DATE 1942	END DATE
NO PHOTOGRAPHY AVAILABLE			
<b>CARTOGRAPHIC DEPICTION</b>  > 1940    WASC 900/91A ; AE212 1954      A - B.34 ; A212 c1960     WASC 900/94 ; A212 c1963     WASC 900/97 ; A212 1972      WASC 900/102 ; A212 1972      WASC 900/104 ; A212 1976      WASC 900/113 ; A212		<b>DOCUMENTARY REFERENCES</b>  Plans; L212      B01,B02 ; Plans and Elevations 1942  1972      ERDE List ; Water Softening 1991      Mott McDonald survey 1992      RARDE List ; Water Softening	
<b>PHOTOGRAPHY HISTORIC</b>		<b>PHOTOGRAPHY RCHME</b>  1) 206/E/6 From South	
RELATIONSHIPS WITH OTHER MONUMENTS A213, A214  ASSOCIATED WITH: A210, A211			
<b>CONDITION</b> Demolished			
<b>DESCRIPTION</b> 1)          CONSTRUCTIONAL MATERIAL Brick  2)          ROOF MATERIALS AND STRUCTURE -  3)          POWER SOURCE -  4)          DIMENSIONS i) L 7m ii) W 3.9m  5)          The structure was demolished in 1992, the concrete floor slab remains.			

**THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY**

NUMBER A213	OLD SERIES AE213	RCHME NUMBER	N.G.R. TL 37799 01008
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NAME/FUNCTION Tanks	START DATE 1942	END DATE
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NO PHOTOGRAPHY  
AVAILABLE

<p>CARTOGRAPHIC DEPICTION</p> <p>&gt; 1940 WASC 900/91A ; AE213          1954 A - B.34 ; A213          c1960 WASC 900/94 ; A213          c1963 WASC 900/97 ; A213          1972 WASC 900/102 ; A213          1972 WASC 900/104 ; A213          1976 WASC 900/113 ; A213</p>	<p>DOCUMENTARY REFERENCES</p> <p>Plan;          A213 B01 - 4/5/1942 ; Foundatio to Reaction Tank</p> <p>1972 ERDE List ; Tanks          1991 Mott McDonald survey          1992 RARDE List ; Tanks</p>
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<p>PHOTOGRAPHY HISTORIC</p>	<p>PHOTOGRAPHY RCHME</p> <p>1) 206/E/5 From South East</p>
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RELATIONSHIPS WITH OTHER MONUMENTS A214

ASSOCIATED WITH: A210, A211, A212

CONDITION Demolished

DESCRIPTION

- 1) CONSTRUCTIONAL MATERIAL  
-
- 2) ROOF MATERIALS AND STRUCTURE  
-
- 3) POWER SOURCE  
-
- 4) DIMENSIONS i) L 4.6m ii) W 4.57m
- 5) The structure was demolished in 1992, an octagonal concrete slab remains.



**THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY**

NUMBER A214	OLD SERIES AE214	RCHME NUMBER	N.G.R. TL 37800 01020
NAME/FUNCTION Accumulator Tower and Engine House Shift House / Water Tower		START DATE c1915 1950?	END DATE 1950?
NO PHOTOGRAPHY AVAILABLE			
<p>CARTOGRAPHIC DEPICTION</p> <p>&gt; 1940 WASC 900/91A ; AE214          1954 A - B.34 ; A214          c1960 WASC 900/94 ; A214          c1963 WASC 900/97 ; A214          1972 WASC 900/102 ; A214          1972 WASC 900/104 ; A214          1976 WASC 900/113 ; A214</p>		<p>DOCUMENTARY REFERENCES</p> <p>Plans;          A214 B01 - B04 ; Plans and Elevations 1950 to 1953</p> <p>1972 ERDE List ; Shift House / Water Tower          1991 Mott McDonald survey          1992 RARDE List ; Shift House / Water Tower</p> <p>1993 RCHME NBR No.91465</p>	
<p>PHOTOGRAPHY HISTORIC</p>		<p>PHOTOGRAPHY RCHME</p> <p>1) 206/E/3 1993 From South          206/N/9 12 Mar 1993 From South East</p> <p>2) BB92/26074 A214 Shift House/Water Tower from North East          BB92/26075 A214 Accumulator Tower from North East          BB92/26076 A214 Accumulator Tower Interior looking up</p> <p>3) 255/C/33-4 Water Tower          255/C/35 Bottom of Water Tower          255/C/36 North West</p>	
<p>RELATIONSHIPS WITH OTHER MONUMENTS</p> <p>ASSOCIATED WITH: A210, A211, A212, A213</p>			
<p>CONDITION      Good</p>			

DESCRIPTION

- 1) CONSTRUCTIONAL MATERIAL  
Brick
- 2) ROOF MATERIALS AND STRUCTURE  
Slate
- 3) POWER SOURCE  
Formerly steam
- 4) DIMENSIONS i) L 14m ii) W 7.4m
- 5) See attached Threatened Buildings Record Report

ROYAL COMMISSION ON THE HISTORICAL MONUMENTS OF ENGLAND

MOD Building No. A214  
Accumulator House & Pump House  
The Royal Gunpowder Factory  
Waltham Abbey  
Essex

NBR No: 91465  
NGR: TL 37800 01020

Built of yellow brick, this building has an L-shaped plan which comprises a single-storeyed wing of three bays by two bays, with a tower on its east side.

It was built between c1908 and c1915. The tower was an Accumulator House and the lower wing was a Pump House. There was a low lean-to structure built of timber on the east side of the tower.

The accumulator was removed in c1950 when the building was converted to a changing room and lavatories.

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This building was built between c1908 and c1915 as an Accumulator House and Pump House.<sup>52</sup> It is likely to be contemporary with the "New Power House" building (A210) which is situated approximately 15 metres to its south-west. The former incorporating mill buildings to the north of A214 had originally been powered by steam from their respective boiler houses but a new source of power had to have been established by the end of the first decade of this century since all but one of the tall chimneys for these incorporating mills were demolished at that time. Accordingly both buildings A214 and A210 appears to have formed a central hydraulic system for much of the northern part of the site of the Royal Gunpowder Factory at Waltham Abbey.

L-shaped in plan, the building comprises a tower and, on the west side, a single storeyed wing.<sup>53</sup> It is constructed of yellow brick laid in English bond.

The tower is of two bays by two bays (approximately 7 x 7 m) and is about 12 metres in height. Its lower third, which batters out to be wider than the upper two thirds of the tower, contains a pair of blind square panels on the north, south and east elevations. There was a wide doorway at the centre of its north elevation.<sup>54</sup> The upper part of the tower has, on each elevation, a pair of blind rectangular panels, the north and south of which contain a pair of small windows with semi-circular heads of red brick. The roof is hipped and has slate coverings.

Contained within the tower was the Accumulator.<sup>55</sup> A concrete round bed and iron beams at both roof height and the height at which the tower batters out externally are all that remain of the Accumulator.

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The building is not represented in the Ledger of c1908 (PRO, Hayes Repository) but there are a series of drawings for the building which are dated April and May 1915 (cats AE214/1 and AE214/3 (MOD Central Disposals Unit, Chessington).

The building is aligned north-east to south-west but for clarity in this report it is described as if it was aligned east to west.

Drawing of Building A214, Proposed Cloakroom Accommodation, MOW, London, September 1950, cat. A214.B.04 (MOD Central Disposals Unit, Chessington).

Drawings showing accumulator house and pump house, dated 28/5/1915, cat. ?AE/214? (MOD Central Disposals Unit, Chessington).

On the east side of the tower there was originally there was a single-storeyed outshut built of timber and with a lean-to roof.<sup>56</sup>

The single storeyed wing, which was the Pump House, is of three bays by two bays. Originally its north elevation had a wide doorway in the position of its central bay, the south elevation had a window with a semi-circular head in its central bay, and the west elevation contained a doorway and a pair of windows with semi-circular heads.<sup>57</sup> It has a gabled roof with slate coverings. A doorway connects the wing with the Accumulator House.

The building still functioned as an Accumulator House and Pump House in 1923.<sup>58</sup>

Following the closure of the Royal Gunpowder Factory in 1945, in c1950 the building underwent alteration. The Pump House was converted into a Changing Room and the windows and doors on its north, south and west elevations were blocked and new windows and doors, with square heads and concrete sills, were inserted.<sup>59</sup> The Changing Room contained lockers and new rsjs were added. The accumulator had been removed by c1950 and the tower then had a suspended ceiling inserted and its ground floor was divided to create rooms for lavatories and a calorifier.<sup>60</sup> Two new doorways replaced the single doorway on the north side of the tower and metal windows were added on the south and east sides. The outshut on the east side was removed at this time.

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Report by R L Burgess

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Drawings showing accumulator house and pump house, dated 28/5/1915, cat. ?AE/214? (MOD Central Disposals Unit, Chessington).

Drawing of Building A214, Proposed Cloakroom Accommodation, MOW, London, September 1950, cat. A214.B.04 (MOD Central Disposals Unit, Chessington).

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

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

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

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER A219	OLD SERIES	RCHME NUMBER	N.G.R. TL 37780 00911
NAME/FUNCTION M T Office and North Site Surgery Offices/Telephone Exchange		START DATE 1940	END DATE
NO PHOTOGRAPHY AVAILABLE			
<b>CARTOGRAPHIC DEPICTION</b>  > 1940    WASC 900/91A ; A219 1954     A - B.34 ; A219 c1960    WASC 900/94 ; A219 c1963    WASC 900/97 ; A219 1972     WASC 900/102 ; A219 1972     WASC 900/104 ; A219 1976     WASC 900/113 ; A219		<b>DOCUMENTARY REFERENCES</b>  Plans; A219     B01 - B07 ; Plans and Elevations 1957 to 1960  1972     ERDE List ; MT Office and North Site Surgery 1991     Mott McDonald survey 1992     FARDE List ; Offices/Telephone Exchange 1992     FBRC Office	
<b>PHOTOGRAPHY HISTORIC</b>		<b>PHOTOGRAPHY RCHME</b> 1) 206/E/2 18 Jan 1993 From South 206/J/18 4 Mar 1993 Floor slab rom South	
<b>RELATIONSHIPS WITH OTHER MONUMENTS</b>  ASSOCIATED WITH:			
<b>CONDITION</b> Demolished			
<b>DESCRIPTION</b> 1)        CONSTRUCTIONAL MATERIAL Brick  2)        ROOF MATERIALS AND STRUCTURE -  3)        POWER SOURCE Electricity  4)        DIMENSIONS i) L 21.4m ii) W 7.3m  5)        The building was demolished in 1992, partitions on the surviving floor slab indicate eight former rooms.			

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER A220	OLD SERIES	RCHME NUMBER	N.G.R. TL 37742 00975
NAME/FUNCTION First Aid centre Vehicle Wash Down Garage		START DATE 1939	END DATE 1992
NO PHOTOGRAPHY AVAILABLE			
CARTOGRAPHIC DEPICTION  > 1940    WASC 900/91A ; A220 1954      A - B.34 ; A220 c1960     WASC 900/94 ; A220 c1963     WASC 900/97 ; A220 1972      WASC 900/102 ; A220 1972      WASC 900/104 ; A220 1976      WASC 900/113 ; A220		DOCUMENTARY REFERENCES  Plan; A220      B01 - 25/8/1939 ; Main Dressing Centre, First Aid	
PHOTOGRAPHY HISTORIC		PHOTOGRAPHY RCHME	
RELATIONSHIPS WITH OTHER MONUMENTS  ASSOCIATED WITH:			
CONDITION      Demolished			
DESCRIPTION 1)      CONSTRUCTIONAL MATERIAL Brick  2)      ROOF MATERIALS AND STRUCTURE -  3)      POWER SOURCE -  4)      DIMENSIONS i) L 4.1m ii) W 7.3m  5)      The building was demolished in 1992, the concrete floor slab remains.			

**THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY**

NUMBER A221	OLD SERIES 229/223	RCHME NUMBER	N.G.R. TL 37815 00923
NAME/FUNCTION Dept. of Storekeepers Quarters (94) Chief Clerks Quarters Senior Officers Quarters Directors Residence	START DATE 1807-1827 1865? 1900? 1945	END DATE 1865? 1900? 1945	

NO PHOTOGRAPHY  
AVAILABLE

CARTOGRAPHIC DEPICTION	DOCUMENTARY REFERENCES
1827 WASC 900/04 + MPH 271	Plans;
1830 WO55 2694	A221 B01 - B04 ; Plans and Elevations 1946 yo 1964
1830 WASC 900/05	
c1830 WASC 900/06 ; 94 Dept. of Storekeepers Quarters	1830 Statement of Property WO55 2351
c1835 WASC 900/07	1841 Statement of Property WO55 2856
1861-1868 WASC 900/10A ; 94	1851 Statement of Property WO55 3027
1865 WASC 900/13	1908 RGPF Ledger WASC 1509 + WASC 1764 ; S.O. Quarters
1865 WASC 900/14 ; Chief Clerk Quarters	c1925 RGPF Ledger WASC 1680 ; S.O. Quarters
1865 WASC 900/38 + SUPP5 975 ; Chief Clerks Quarters	c1945 RGPF Ledger WASC 1508 ; S.O. Quarters
1865 WASC 900/41A ; Chief Clerks Quarters	
1865 WASC 900/42 ; Dwelling	1972 ERDE List ; Directors Residence
1897 WASC 900/53C	1991 Mott McDonald survey
c1910 WASC 900/65 ; S.O. Quarters	1992 RARDE List ; House
c1910 WASC 900/79 ; S.O. Quarters	
1917 WASC 900/70 ; S.O. Quarters	
1917 WASC 900/72 ; 229	
1919 WASC 900/74 ; 229	
c1920 WASC 900/80 ; 229	
1923 WASC 900/84 ; 229	
> 1940 WASC 900/91A ; AS221	
1954 A - B.34 ; A221	
c1960 WASC 900/94 ; A221	
c1963 WASC 900/97 ; A221	
1972 WASC 900/102 ; A221	
1972 WASC 900/104 ; A221	
1976 WASC 900/113 ; A221	1993 RCHME NBR No.91470

PHOTOGRAPHY  
HISTORIC

PHOTOGRAPHY  
RCHME

- 1) 206/E/14 21 Jan 1993 The lodge from East
- 2) BB92/26069 A221 House Directors Residence from South East
- 3) 225/C/19 Ground floor stairs  
225/C/20 Detail stair newel  
225/C/21 Front door  
225/C/22 South East front  
225/C/23 North East front  
225/C/24-5 West elevation  
225/C/26 South West  
225/C/27 From South  
225/C/28-9 East front  
225/C/30 North East of A221  
225/C/31 From North East  
225/C/32 Exterior

RELATIONSHIPS WITH OTHER MONUMENTS

ASSOCIATED WITH: RCHME 345, RCHME 357

CONDITION      Good

DESCRIPTION

- 1)      CONSTRUCTIONAL MATERIAL
- 2)      ROOF MATERIALS AND STRUCTURE
- 3)      POWER SOURCE
- 4)      DIMENSIONS i) L      ii) W      iii) HT
- 5)      See Attached Threatened Buildings report



ROYAL COMMISSION ON THE HISTORICAL MONUMENTS OF ENGLAND

MOD Building No. A221  
Dwelling  
The Royal Gunpowder Factory  
Waltham Abbey  
Essex

NBR No: 91470  
NGR: TL 37815 00923

For nearly two centuries, this building has functioned as a dwelling for various senior officers working at the Royal Gunpowder Factory site.

Probably built in the early nineteenth century, its original form appears to have been a rectangular block of two storeys with a pair of single-storeyed service wings projecting on the west elevation. From the ground to the top of the plinth is constructed of red brick laid in English bond, above which the construction is of yellow brick in Flemish bond. The windows are hornless sashes. The roof is hipped with wide overhanging eaves.

Later alterations and extensions have taken place in at least four or five phases. A single-storeyed porch was added on the east front, bay windows were added, in two phases, on the south and east sides and a flat-roofed single-storeyed extension was built on the north side, a projecting wing on the north side of the west elevation was raised from one to two storeys, that north-west wing was then extended to the west, and the two north-west and south-west wings were linked by an infill block.

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Building A221 is situated approximately 100 metres directly north of Building A234, close to the west bank of the River Lee, on the Gunpowder Factory site at Waltham Abbey.

It appears to have been built in the early nineteenth century and has functioned as a dwelling for various senior officers working at the Royal Gunpowder Factory site. It was a Clerk of Checques Dwelling in 1821,<sup>61</sup> a Storekeeper's Dwelling in c1827,<sup>62</sup> Engineer Officers Quarters ?c1850s,<sup>63</sup> a Captain Instructors Quarters in 1859,<sup>64</sup> Chief Clerks Quarters by 1886,<sup>65</sup> Staff Officers Quarters by 1897<sup>66</sup> and 1908,<sup>67</sup> S C [Senior Clerks] Quarters by 1923,<sup>68</sup> and Directors Residence in 1972.<sup>69</sup>

The original form of the building appears to have been a rectangular block of two storeys with a pair of single-storeyed service wing projecting on the west elevation. From the ground to the top of the plinth is constructed of red brick laid in English bond, above which the construction is of yellow brick in Flemish bond. The window openings of the original phase have rubbed yellow-brick flat arches. The windows they contain are hornless sashes with narrow glazing bars and are typical of the early

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Map of "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 c1850s-60s] (PRO, Hayes Repository).

Plan of the Several Works and Buildings of the Royal Gunpowder manufactory at Waltham Abbey, dated on PRO file as 1827 (PRO MPH/271).

Updated map of "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 c1850s-60s] (PRO, Hayes Repository).

Plans and Section shewing in Yellow the Proposed Addition to the Captain Instructors Quarters, dated 1/11/1859, cat. WASC 901/304 (PRO, Hayes Repository).

Royal Gunpowder Factory, Waltham Abbey, General Plan, 1865 corrected 1886, cat. PRO (Kew) SUPP5/975.

OS County Series 1:2500 maps, 2nd ed. 1897 (surveyed 1865-9, revised 1895), sheet refs XLIX.14, XLI.8.12, XLII.5.9).

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

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

ERDE Building Lists 1972. The former Director's widow was residing in the house at the time of this survey.

nineteenth century.<sup>70</sup> The roof is hipped, with wide overhanging eaves, and has a slate and zinc covering.<sup>71</sup> There are a pair of brick stacks, each with four flues, on the north and south hips of the roof.

The main rectangular block contains four rooms and a central entrance hall on the ground floor, with a similar layout for bedrooms on the first floor. A survey plan of the ground floor plan of the house in 1859 shows a pair of drawing rooms on the south side of the hall, a dining room in the north-east room and a library with closet in the north-west room.<sup>72</sup> The single-storeyed wing at the south end of the west elevation of the house contained the kitchen, and a wing at the north end of the west elevation, also originally single-storeyed, was a larder and pantry.<sup>73</sup> There appears to have been a separate wooden building west of the kitchen which was a wash house.<sup>74</sup>

Interior fittings include buffets in the south-east dining room and four-panelled doors. Some of the fireplaces are now obscured. At the west end of the entrance hall, a dog-leg stair with winders has turned newel posts and plain balusters. It may be reset.<sup>75</sup>

The building has been altered and extended in at least four or five phases. At the centre of the east front is a porch, of one storey and built of brick, containing a doorway with a semi-circular head and two square-headed windows. It appears to be secondary to the original structure and was probably added in the mid-nineteenth century.<sup>76</sup>

After 1859 the single-storeyed south-west wing was altered so that the original kitchen was converted into a servants area, the wooden wash house was demolished and a new kitchen was built at the west end, with a scullery (with copper) and larder at its west side.<sup>77</sup> At that time the larder in the north-west wing became a store.<sup>78</sup>

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Except for the window at the east side of the south elevation on the first floor, which is blind or blocked.

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

Plans and Section shewing in Yellow the Proposed Addition to the Captain Instructors Quarters, dated 1/11/1859, cat. WASC 901/304 (PRO, Hayes Repository).

Plans and Section shewing in Yellow the Proposed Addition to the Captain Instructors Quarters, dated 1/11/1859, cat. WASC 901/304 (PRO, Hayes Repository).

Plans and Section shewing in Yellow the Proposed Addition to the Captain Instructors Quarters, dated 1/11/1859, cat. WASC 901/304 (PRO, Hayes Repository).

The present staircase is at the south side of the west end of the entrance hall whereas it is shown at the north side of the west end of the entrance hall in Plans and Section shewing in Yellow the Proposed Addition to the Captain Instructors Quarters, dated 1/11/1859, cat. WASC 901/304 (PRO, Hayes Repository).

The porch is not shown on a block plan of the building in Plan of the Several Works and Buildings of the Royal Gunpowder Manufactory at Waltham Abbey 1827 (PRO MPH/271), nor on a block plan by Frederick Drayson of 1830 (PRO MP 11.15, p37 Kew), nor on Plans and Section shewing in Yellow the Proposed addition to the Captain Instructors Quarters, dated 1/11/1859, cat. WASC 901/304 (PRO, Hayes Repository). Although it is drawn on a Map of "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", this map was updated in the 1850s-60s and the porch is likely to belong to that (PRO, Hayes Repository).

Plans and Section shewing in Yellow the Proposed Addition to the Captain Instructors Quarters, dated 1/11/1859, cat. WASC 901/304 (PRO, Hayes Repository).

Plans and Section shewing in Yellow the Proposed Addition to the Captain Instructors Quarters, dated 1/11/1859, cat. WASC 901/304 (PRO, Hayes Repository).

After 1886<sup>79</sup> and before c1895<sup>80</sup> a single-storey bay window, containing sash windows with horns, was added at the east end of the south elevation and a single-storey projection with a flat roof was built at the east end of the north elevation.

A second bay window, also lighting the south-east dining room and matching the bay window on the south elevation, was added at the south end of the east elevation before c1908.<sup>81</sup> Also by c1908, the north-west wing had been raised to two storeys. This wing was later extended to the west by a single-storeyed projection. An even later infill block connected the two west wings.

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

OS County Series 1:2500 maps, 2nd ed. 1897 (surveyed 1865-9, revised 1895), sheet refs XLIX.14, XLI.8.12, XLII.5.9.

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

**THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY**

NUMBER A222	OLD SERIES	RCHME NUMBER	N.G.R. TL 37742 00975
NAME/FUNCTION Security Lodge Portocabin		START DATE 1948 197?	END DATE 197?
NO PHOTOGRAPHY AVAILABLE			
CARTOGRAPHIC DEPICTION  > 1940 WASC 900/91A ; A222 1954 A - B.34 ; A222 c1960 WASC 900/94 ; A222 c1963 WASC 900/97 ; A222 1972 WASC 900/102 ; A222 1972 WASC 900/104 ; A222 1976 WASC 900/113 ; A222		DOCUMENTARY REFERENCES  Plans: A222 B01,B02 ; Plans and Elevations 1948,1956  1972 ERDE List ; Clocking Station 1991 Mott McDonald survey 1992 RARDE List ; Police Body Search	
PHOTOGRAPHY HISTORIC		PHOTOGRAPHY RCHME  1) 206/R/5 18 Mar 1993 Police Lodge from East	
RELATIONSHIPS WITH OTHER MONUMENTS  ASSOCIATED WITH:			
CONDITION      Good			
DESCRIPTION 1) CONSTRUCTIONAL MATERIAL Fibreglass  2) ROOF MATERIALS AND STRUCTURE Fibreglass  3) POWER SOURCE Electricity  4) DIMENSIONS i) L 3.2m ii) W 2.8m iii) HT 2.25m  5) The modern security may sit on the site of its predecessor.			

**THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY**

NUMBER	OLD SERIES 213	RCHME NUMBER	N.G.R. TL 37706 00976
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NAME/FUNCTION	START DATE	END DATE
Dwelling House	pre1783	1801
Master Workers House	1801	1865?
Dining Room	1865	1923?
EC Coal & Cycle Shed	1923?	195?-6?

NO PHOTOGRAPHY  
AVAILABLE

CARTOGRAPHIC DEPICTION	DOCUMENTARY REFERENCES
1783 WASC 900/01 + MR 593 ; Dwelling	1807 Statement of Property WO55 2694
1783 WASC 900/01A	1830 Statement of Property WO55 2351
1801 WASC 900/58 + MR 580 ; Master Workers House	1841 Statement of Property WO55 2856
1806? WO 78/1352 + MR 580	1851 Statement of Property WO55 3027
1827 WASC 900/04 + MPH 271	1908 RGPF Ledger WASC 1509 + WASC 1764 ; EC pre 1886 p24
1830 WO55 2694	c1925 RGPF Ledger WASC 1680 ; EC
1830 WASC 900/05	c1945 RGPF Ledger WASC 1508 ; EC
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 ; Dining Room	
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	
c1920 WASC 900/80	
1923 WASC 900/84 ; EC Coal/Cycle Shed	

PHOTOGRAPHY HISTORIC	PHOTOGRAPHY RCHME
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RELATIONSHIPS WITH OTHER MONUMENTS

CONDITION Demolished

DESCRIPTION  
  
No Surface Remains

