

*THE
ROYAL GUNPOWDER FACTORY
WALTHAM ABBEY*

MILLHEAD STREAM AREA AND ISLAND SITE

ARCHAEOLOGICAL REPORT

JANUARY 1995

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

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- Report area location.

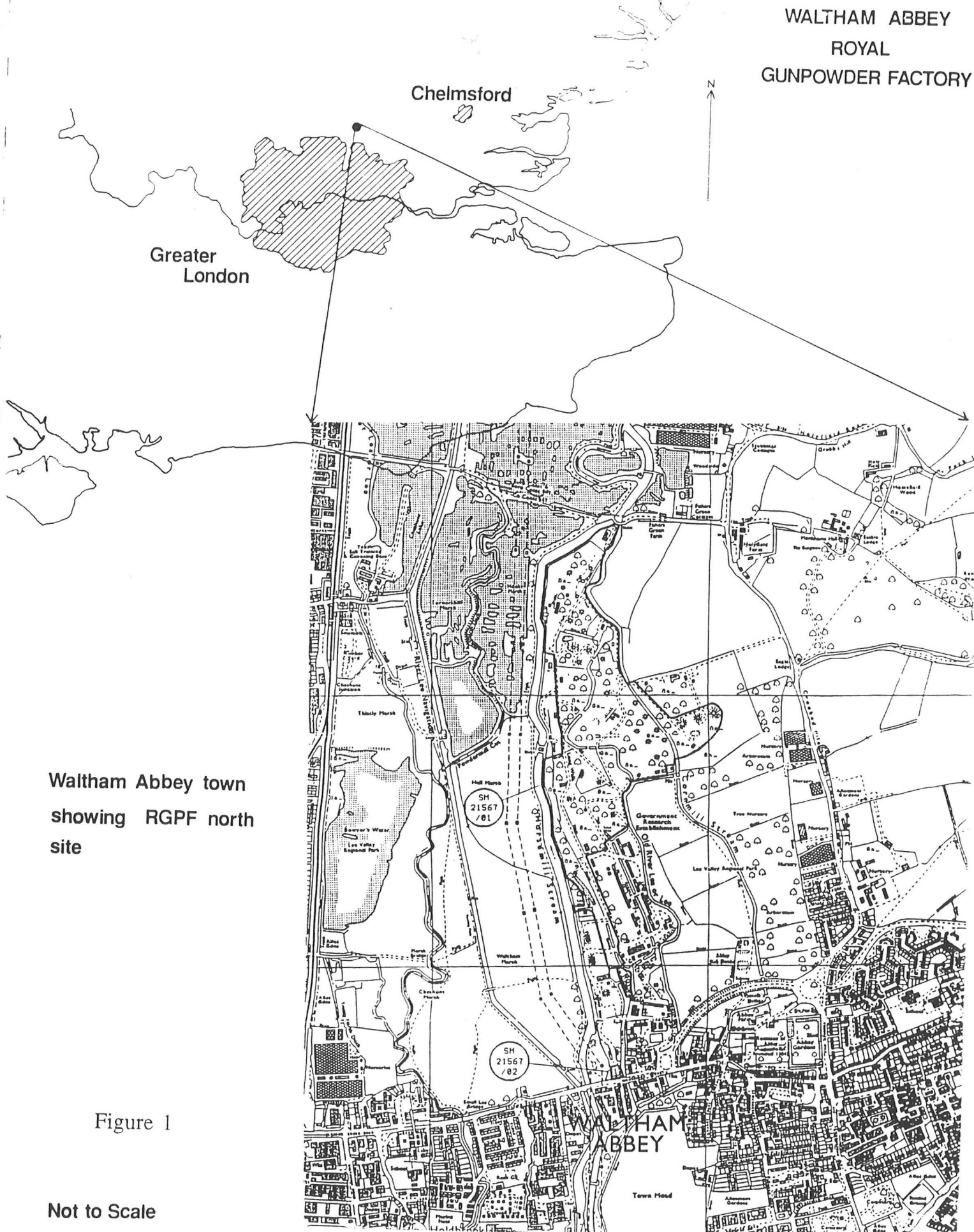
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WALTHAM ABBEY
ROYAL
GUNPOWDER FACTORY

Chelmsford

Greater
London



Waltham Abbey town
showing RGPF north
site

Figure 1

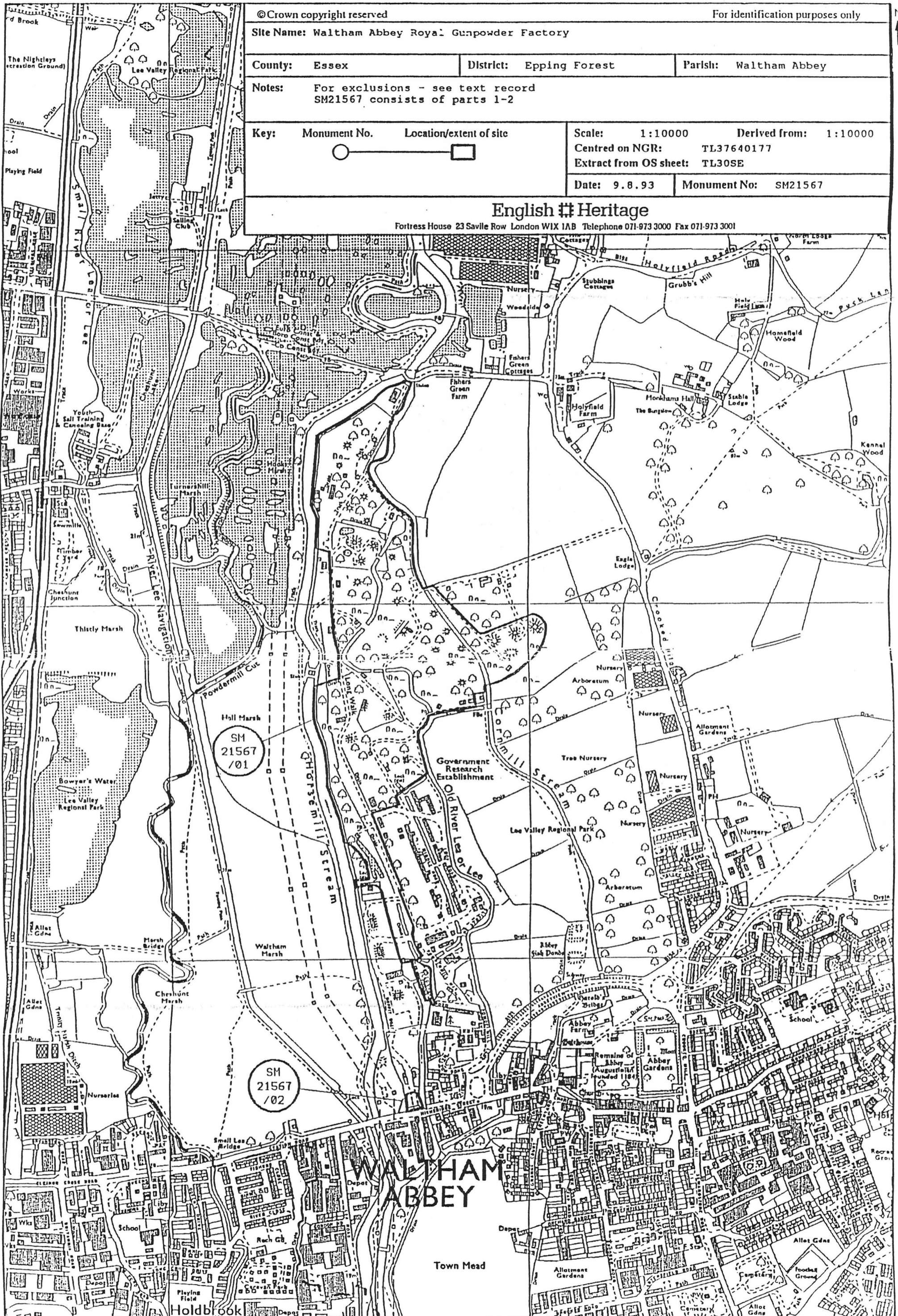
Not to Scale

WALTHAM
ABBAY

Town Moor

Scheduling Proposal

Figure 2



© Crown copyright reserved		For identification purposes only	
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

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

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.

Report Area Location.

National Grid Reference TL 37550 01150.

The area described as Millhead and the Island covers the location of the first gunpowder factory of the 17th and 18th Centuries.

Millhead

This area includes the now redundant section of Millhead Stream and its two associated tail races to the east and west from Hoppit Pool, north to the intersection of Millhead Stream (earthwork thereof) and Horsemill Stream.

The west is defined by Horsemill Stream, to the north an arbitrary line has been drawn from the Millhead/Horsemill Streams intersection point ENE to Long Walk opposite building L119.

The eastern boundary is defined by the western edge of Long Walk down to the roundabout. South of the roundabout the line follows the eastern bank of the tail race to Bridge 3. The southern extent is identified by the brick gullies at the Millhead on the northern side of Hoppit Pool and across the 'neck' of the island (please refer to figures 3a and 3b).

Island Site

Although not an island but a tongue of land surrounded by waterways, the area will be referred to as the Island Site in keeping with its historical references.

The area is bounded by water on three sides: Millhead and Hoppit Pool to the west and by Middle Stream to the east and south. To the north a line has been drawn across the 'neck' of the island to separate it from the Millhead area (refer to figures 3a and 3b).

Figure 3a

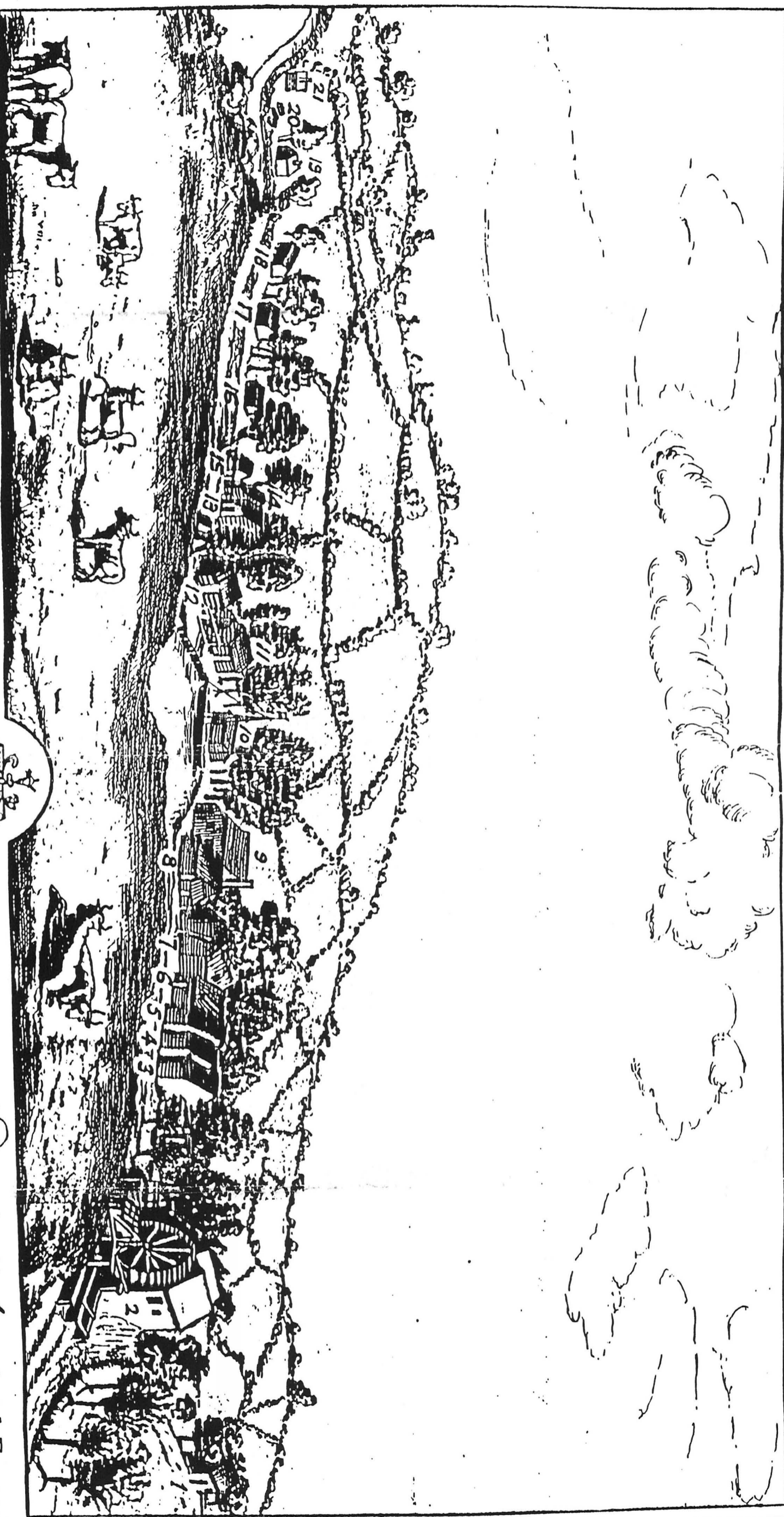


Figure 3b

MILLHEAD AND ISLAND AREAS



1. The Forge Mill
2. The Cornig and Glazing Engine
3. } Three Horse Mills
4. }
5. } The Stables
6. }
7. The Boal Still and Compoition Houfe
8. The Carpenters and Millwrights work houfe
9. The Carnt's Counting houfe and the Watch houfe
10. The Loading houfe
11. } Two Stamping Mills
12. }
13. } Two Quarr Mills
14. }
15. The Charging houfe
16. The old Compoition houfe
17. The Store houfe
18. The Drying houfe
19. The Little Store
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.
Geo. Munnick sculps

R. White delin. 1735

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

From Simmons M.H. 1963.

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 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

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.

BRIEF HISTORY OF MILLHEAD AND THE ISLAND SITE.

(Including the area historically known as Little Hoppit).

The areas described as Millhead and the Island Site define the original position of the first gunpowder factory of the 17th and 18th Centuries.

A complete history of this area can be found within the RCHME Survey Report. A brief history will be outlined here.

The earthworks known as Millhead Stream and the associated tail races to the east and west predate the creation of Waltons gunpowder factory.

It is suggested that this feature was built by the Abbey to provide a head of water for the powering of their Corn and Fulling Mills during the first half of the 16th Century.

By the 1660's the site was an established Gunpowder factory owned by John Walton. At this time almost all the process and ancillary buildings were positioned on or adjacent to the Millhead waterway. This is clearly illustrated in the earliest known depiction of the factory, the Farmers Engraving of 1735 (figure 4).

Over the years the design of the gunpowder incorporating mills changed from stamp mills, where the gunpowder mix was ground and beaten by large mortars, to the edge running mills where the mix was 'incorporated' by vertically mounted mill wheels. Both types were powered by water.

Horse mills, referred to in Farmers engraving and the late 18th Century maps, were used to crush charcoal and sulphur but not the explosive mixture (see figures 4 and 5)

Other processes were also powered by the Millhead such as granulating, sieving and glazing.

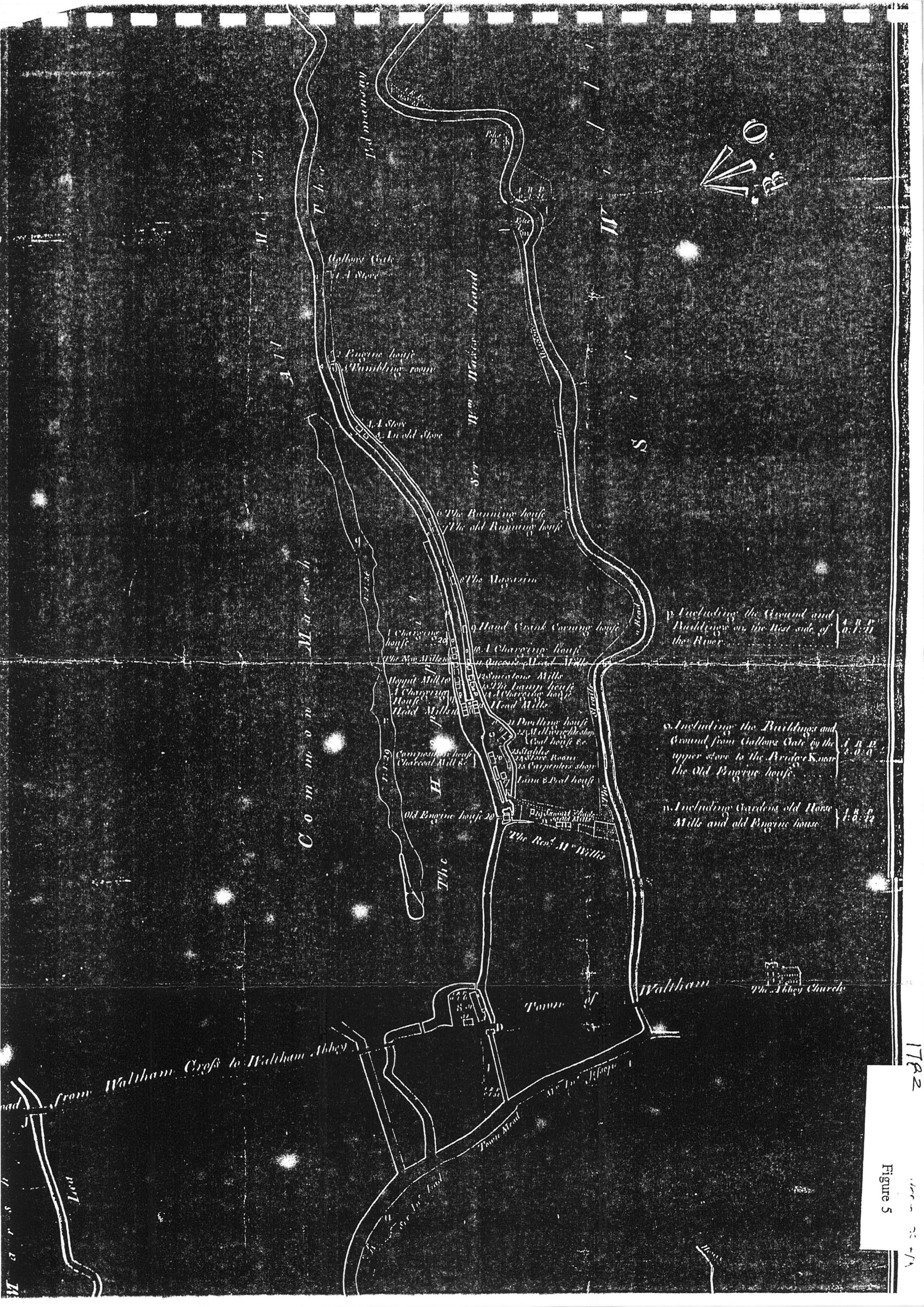
Apart from the development of the engineers yard to the south east and the

construction of a steam powered drying stove and Grand magazine to the north, the layout of the factory remained the same until the mid 19th Century when the large steam powered incorporating mills were built to the east.

Even with these new facilities the Millhead complex still formed an important part of gunpowder manufacture.

With the invention and refined production of nitroglycerine, guncotton and especially cordite at the end of the 19th Century , the ancient mills became obsolete. Most had been abandoned by the First World War, and only a small plant continued to produce specialised gunpowder based fuse powders until 1941 when a German parachute mine destroyed the plant. The facility was never rebuilt.

The Island Site continued in use, the buildings were converted to offices and the site surgery. They remained with these functions until the final closure of the site in 1991.



1782
Figure 5

RECENT DEVELOPMENTS AND ARCHAEOLOGY.

Since 1991 the site has undergone an intensive decontamination operation. With the demolition of the Old Administration Block in Area P the site offices, housing Royal Ordnance and the various messing and toilet facilities for the site workers were transferred to buildings A201, A202 and the modern building A203. These buildings were fitted out and occupied by June 1993.

All original internal features were retained. Externally the guttering to A201/2 was replaced with similar formed cast iron sections in the Spring of 1994.

In the Summer of 1994 two portakabins were sited to the north of A200 and a boot washing facility was erected together with the necessary drainage system immediately to the north of A200.

To the north of bridge 1 (Flagstaff bridge) a bollard was removed and a small pit was dug to gain access to a water main which crossed the river at this point.

Just to the north of the island to the east of Millhead sluices (see figure 6), the remains of 211a, one of the gunpowder 'Head' mills was uncovered and damaged. This incident occurred in June 1993 during the excavation of a solvent store floor.

At present the remains require final cleaning, photographic and graphic recording and backfilling.

The areas of Millhead and the Island are the most important for buried archaeological information and therefore the most sensitive areas on site. Work has been strictly controlled.

Since March 1994 work has been ongoing to re-excavate the canals of Millhead and the western tail race. These had been filled by demolition rubbish and general waste since the early 1960's.

Under close archaeological supervision both waterways have been

excavated successfully, uncovering remarkably well preserved brick and timber revetment walls and mill wheel sluices.

The southern 30m section of Millhead canal is yet to be excavated as the main access to the island site runs over the filled canal at this point.

The eastern tail race has been dredged and cleared of vegetation. No attempt has been made to investigate the banks on which the mills sat.

Approximately 90% of the fill removed was late 20th Century rubble and demolition arisings. Archaeologically uninteresting it did pose a number of questions from the decontamination side. From the amount of material recovered it seemed clear that the canals had been filled with material from off site, origin unknown. A practice known as 'Fly Dumping'.

A number of millstones were recovered from the canals. It appears that they were simply pushed into the waterways when the mills were demolished finally in the 1950's.

To the east running parallel to Long Walk a number of Alder trees were planted to reinstate the Alder Avenue.

To the west H7 remains at present as the site magazine and is ear marked for the main site entrance building once the site is open to the public.

To the north of H7 the complex of 1950's laboratories and ancillary structures (see figure 7 and Appendix A) were demolished in the Summer/Autumn of 1993.

No further work is planned in this area after the final section of Millhead is removed and the east/west section of the western tail race is excavated. (See figure 7).

The canals will be left open and the standing structures will hopefully house the first phase of the visitor attraction.

No further ground works should be carried out unless undertaken by

trained archaeologists, a point which should be recognised by any prospective developer of the site.

References.

1994 Royal Commission on the Historical Monuments of England, Keele office. Synthesis report and component sheets of the 1993 RCHME Field Survey of Waltham Abbey Royal Gunpowder Factory.

1994 Carden and Godfrey, Condition Survey of Waltham Abbey RARDE (North Site).

APPENDIX A.

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

**BUILDING COMPONENT SHEETS REFERRING TO
MILLHEAD STREAM AREA AND ISLAND SITE.**

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THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER A291	OLD SERIES	RCHME NUMBER	N.G.R. TL 37840 00812
NAME/FUNCTION Central Acid Store		START DATE 1952	END DATE
NO PHOTOGRAPHY AVAILABLE			
CARTOGRAPHIC DEPICTION c1960 WASC 900/94 ; A291 c1963 WASC 900/97 ; A291 1972 WASC 900/102 ; A291 1972 WASC 900/104 ; A291 1976 WASC 900/113 ; A291		DOCUMENTARY REFERENCES Plans; A291 B01 - B09 ; Plans and Elevations 1950 to 1974 1972 ERDE List ; Central Acid Store 1991 Mott McDonald survey 1992 RARDE List ; Central Acid Store	
PHOTOGRAPHY HISTORIC		PHOTOGRAPHY RCHME	
RELATIONSHIPS WITH OTHER MONUMENTS ASSOCIATED WITH: A292			
CONDITION Demolished			
DESCRIPTION 1) CONSTRUCTIONAL MATERIAL Brick 2) ROOF MATERIALS AND STRUCTURE - 3) POWER SOURCE - 4) DIMENSIONS i) L 9.45m ii) W 5.93m 5) The building was demolished in 1992, a concrete floor slab covered by linoleum tiles remains. The slab was broken up and removed in april 1993.			

THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER A292	OLD SERIES	RCHME NUMBER	N.G.R. TL 37840 00812
----------------	------------	--------------	--------------------------

NAME/FUNCTION Central Solvent Store	START DATE 1952	END DATE
--	--------------------	----------

NO PHOTOGRAPHY
AVAILABLE

CARTOGRAPHIC DEPICTION

c1960 WASC 900/94 ; A292
c1963 WASC 900/97 ; A292
1972 WASC 900/102 ; A292
1972 WASC 900/104 ; A292
1976 WASC 900/113 ; A292

DOCUMENTARY REFERENCES

1972 ERDE List ; Solvent Store
1991 Mott McDonald survey
1992 RARDE List ; Solvent Store

**PHOTOGRAPHY
HISTORIC**

**PHOTOGRAPHY
RCHME**

1)206/E/9 Foundations from South

RELATIONSHIPS WITH OTHER MONUMENTS

ASSOCIATED WITH: A291 Overlies: 211a?

CONDITION Demolished

DESCRIPTION

- 1) CONSTRUCTIONAL MATERIAL
Brick
- 2) ROOF MATERIALS AND STRUCTURE
-
- 3) POWER SOURCE
-
- 4) DIMENSIONS i) L 9.45 ii) W 5.92
- 5) The building was demolished in 1992, a brick floor with a sump in the centre now filled.

The slab was broken up and removed in april 1993 revealing a loose brick rubble fill, probably the remains of mill 211a

THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER	OLD SERIES 155	RCHME NUMBER	N.G.R. TL 37542 01312
NAME/FUNCTION Magazine		START DATE pre 1861	END DATE 1960? 1993(exists as ruins)
NO PHOTOGRAPHY AVAILABLE			
<p>CARTOGRAPHIC DEPICTION</p> <p>1865 WASC 900/38 + SUPP5 975 ; Magazine 1865 WASC 900/41A ; Magazine 1865 WASC 900/42 ; Magazine 1897 WASC 900/53C c1910 WASC 900/65 ; 155 c1910 WASC 900/79 ; 155 1917 WASC 900/70 ; 155 1917 WASC 900/72 ; 155 1919 WASC 900/74 ; 155 c1920 WASC 900/80 ; 155 1923 WASC 900/84 ; 155 1932 WASC 900/87 ; 155 > 1940 WASC 900/91A ; 155 1954 A - B.34 ; L129 c1960 WASC 900/94 ; 155 c1963 WASC 900/97 1972 WASC 900/102 1972 WASC 900/104 1976 WASC 900/113</p>		<p>DOCUMENTARY REFERENCES</p> <p>1908 RGPF Ledger WASC 1509 + WASC 1764 ; Magazine built pre 1860 p18 c1925 RGPF Ledger WASC 1680 ; Magazine(L129) c1945 RGPF Ledger WASC 1508 ; Magazine(L129)</p>	
<p>PHOTOGRAPHY HISTORIC</p>		<p>PHOTOGRAPHY RCHME</p> <p>1) 206/N/21 12 Mar 1993 Detail of barge porch 206/N/22 12 Mar 1993 From South West</p>	
<p>RELATIONSHIPS WITH OTHER MONUMENTS</p> <p>ASSOCIATED WITH: Millhead Stream RCHME 296</p>			
CONDITION	Fair		

DESCRIPTION

1) CONSTRUCTIONAL MATERIAL
Brick in English bond

2) ROOF MATERIALS AND STRUCTURE
Hipped, slate over brick vault

3) POWER SOURCE
Steam heating

4) DIMENSIONS i) L 7.4m ii) W 7.1m iii) HT Eave 3.2m

5) The magazine is single storeyed with a T shaped ground plan, there is a single buttress on the east elevation. Its only entrance was from a covered porch served from Millhead stream RCHME 296 the porch is in brick and is an integral part of the structure. The porch had a timber floor covered by leather fixed by copper nails part of which remains. The magazine was entered through a door with a cambered brick head. floor of the magazine was also timber supported on sub floor brick piers. The magazine has a brick vaulted hipped roof covered by slates.

The magazine was heated by steam pipes close by the magazine and probably derived from the building was a cast iron steam trap 'No.3 trap syphonia Royles Limited'.

Historic artifacts - section of leather floor and steam trap

THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L123	OLD SERIES	RCHME NUMBER	N.G.R. TL 37510 01342
NAME/FUNCTION Magazine solvent store		START DATE 1952	END DATE 198?
NO PHOTOGRAPHY AVAILABLE			
CARTOGRAPHIC DEPICTION c1963 WASC 900/97 1972 WASC 900/102 1972 WASC 900/104 1976 WASC 900/113		DOCUMENTARY REFERENCES 1972 ERDE List - Solvent Store 1952 1992 RARDE List - Magazine solvent store	
PHOTOGRAPHY HISTORIC		PHOTOGRAPHY RCHME 1) 206/N/18 From southwest	
RELATIONSHIPS WITH OTHER MONUMENTS ASSOCIATED WITH: L128			
CONDITION Good			
<p>DESCRIPTION</p> <p>1) CONSTRUCTIONAL MATERIAL Brick</p> <p>2) ROOF MATERIALS AND STRUCTURE Corrugated asbestos</p> <p>3) POWER SOURCE Steam heating and electricity</p> <p>4) DIMENSIONS i) L 4.7m ii) W 2.3m iii) HT 2.75m</p> <p>5) The building is single storeyed with a rectangular ground plan it has gabled walls east and west. The building is divided into two by a centre partition wall. The northern room was entered through metal grilled doors on the west and east elevations the southern room through double doors on the southern elevation. Attached to the north of the building was an open sided gas bottle store covered by a veranda. The building was protected by a lightning conductor.</p>			

THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L128	OLD SERIES 150A	RCHME NUMBER	N.G.R. TL 37520 01335
NAME/FUNCTION Fuse powder magazine no.2 Radio Chemistry		START DATE 1915 1961	END DATE
NO PHOTOGRAPHY AVAILABLE			
<p>CARTOGRAPHIC DEPICTION</p> <p>1917 WASC 900/70 ; Fuse Powder Magazine No.2 1917 WASC 900/72 ; 150a 1919 WASC 900/74 ; 150a c1920 WASC 900/80 ; 150a 1923 WASC 900/84 ; 150a > 1940 WASC 900/91A ; 150a 1954 A - B.34 ; L128 c1960 WASC 900/94 ; L128 c1963 WASC 900/97 ; L128 1972 WASC 900/102 ; L128 1972 WASC 900/104 ; L128 1976 WASC 900/113 ; L128</p>		<p>DOCUMENTARY REFERENCES</p> <p>1972 ERDE List - Radio Chemistry Laboratory, 1915, 1961 1992 RARDE List - Radio Chemistry Laboratory</p>	
<p>PHOTOGRAPHY HISTORIC</p> <p>PRO Supply 5/862 M83 neg A107 June 1930 view from west</p>		<p>PHOTOGRAPHY RCHME</p> <p>1) 206/N/19 From south 206/N/20 From west showing blocked barge porch</p>	
<p>RELATIONSHIPS WITH OTHER MONUMENTS</p> <p>ASSOCIATED WITH: L123 OVERLIES: RCHME 274</p>			
<p>CONDITION Good</p>			

DESCRIPTION

1) CONSTRUCTIONAL MATERIAL
Brick in English bond

2) ROOF MATERIALS AND STRUCTURE
Corrugated asbestos

3) POWER SOURCE
Electricity and steam heating

4) DIMENSIONS i) L 14.6m ii) W 9.3m iii) HT 5m

5) The building is a single storey structure T shaped in plan, its north and south ends are gabled. The building is set on a raised concrete raft supported by concrete piers. the building was originally a magazine served by Millhead Stream RCHME 296 from a porch on the west side. Subsequent to its conversion to laboratories windows have been inserted and the canal side entrance blocked. The building is now entered through a door on the north side of the porch. On the north and south elevations are single windows while on the west elevations are two windows, the north elevation is blank. The interior has been subdivided to create laboratory accommodation. The building is protected by a lightning conductor.

The photograph in Supply 5/862 shows the original structure as windowless entered through the western porch from the canal and a door on the north side of the porch.

THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER A200	OLD SERIES 219	RCHME NUMBER	N.G.R. TL 37710 00958
NAME/FUNCTION Waltons House Master Workers House Store Keepers Office Store Keepers and Assistant Inspectors Office Ordnance Office Superintendents Office Main Office Safety Office	START DATE 1787 by 1807 by 1841 by 1851 by 1865 by 1908 by 1972	END DATE by 1807 by 1841 by 1851 by 1865 by 1908 by 1972	

NO PHOTOGRAPHY
AVAILABLE

CARTOGRAPHIC DEPICTION	DOCUMENTARY REFERENCES
1827 WASC 900/04 + MPHH 271 ; 110	Plans;
1830 WO55 2694	A200 B01 - B09 ; Plans and Elevations 1857 to 1985
1830 WASC 900/05	
c1830 WASC 900/06	1807 WO55/2351;51 Storekeepers Offices
c1835 WASC 900/07	1830 WO55/2694;110 Storekeepers Offices
1861-1868 WASC 900/10A ; 21	1841 WO55/2856;110 Storekeepers Offices and Assistant Inspectors Office
1865 WASC 900/13	1851 WO55/3027;26 Ordnance Office
1865 WASC 900/14	1908 RGPF Ledger WASC 1509 + WASC 1764 ; Main Office built pre 1860 p24
1871 SUPP5 682	c1925 RGPF Ledger WASC 1680 ; Main Office
1865 WASC 900/38 + SUPP5 975 ; Superintendents Offices	1936 WASC 901/41A/1 14 May 1936 Main Office
1865 WASC 900/41A ; Superintendents Office	c1945 RGPF Ledger WASC 1508 ; Main Office
1865 WASC 900/42 ; Superintendents Office	
1897 WASC 900/53C ; Superintendents Office	1972 ERDE List ; Walton House/Safety Office
c1910 WASC 900/65	1991 Mott McDonald survey
c1910 WASC 900/79	1992 RARDE List ; ; Walton House/Safety Office
1917 WASC 900/70 ; Main Offices	
1917 WASC 900/72 ; 219	1992 FBRC ; Book Store
1919 WASC 900/74 ; 219	
c1920 WASC 900/80 ; 219	1993 RCHME NBR No. 91455
1923 WASC 900/84 ; 219	
> 1940 WASC 900/91A ; A200	
1954 A - B.34 ; A200	
c1960 WASC 900/94 ; A200	
c1963 WASC 900/97 ; A200	
1972 WASC 900/102 ; A200	
1972 WASC 900/104 ; A200	
1976 WASC 900/113 ; A200	

PHOTOGRAPHY
HISTORIC

WASC 1211 John Waltons sundial Millstone base
to sundial
WASC 1231 Waltons House memorial plaque to F
M Smith
WASC 1232 &/1-5 Waltons House
WASC 1524/1-2 Waltons House
WASC 1543/26-31 Waltons House

PHOTOGRAPHY
RCHME

- 1) 206/E/10 From South West
- 2) BB92/26065 A200 Cast Iron Bridge over Mill Head
stream from East
BB92/26067 A200 Waltons House from South East
BB92/26068 A200 Detail of Plaque from West
BB92/26231 A200 Ground floor North West room,view
from North East.
- 4) 4788/13 06.05.1993

RELATIONSHIPS WITH OTHER MONUMENTS

ASSOCIATED WITH: A201,A202

CONDITION Good

DESCRIPTION

- 1) CONSTRUCTIONAL MATERIAL
Brick
- 2) ROOF MATERIALS AND STRUCTURE
Slate
- 3) POWER SOURCE
Electricity and gas
- 4) DIMENSIONS i) L 15.9m ii) W 11.27m iii) HT estimate 6m
- 5) See Attached Threatened Buildings Record report

ROYAL COMMISSION ON THE HISTORICAL MONUMENTS OF ENGLAND

MOD Building No. A200
Office
The Royal Gunpowder Factory
Waltham Abbey
Essex

NBR No: 91455
NGR: TL 37710 00958

One of the few surviving eighteenth-century buildings on the site, the original structure was a relatively simple two-storeyed office building of two bays by one bay, constructed of red brick laid in Flemish bond.

Subsequent additions have taken place in at least five further phases of construction, from the late eighteenth century to the late nineteenth century. Some time before 1821 it was extended on the north side to create a third bay of two storeys. Around 1860, a two-storeyed wing was built at the north end of the east elevation. Following this, a two-storeyed addition of two bays by two bays was built at the west end of the south elevation. In c1888-9 another two-storeyed wing was added at the south end of the east elevation. A service tower had been added in the re-entrant angle of the latter south-east wing by c1895.

-oo0oo-

One of the few surviving eighteenth-century buildings on the site at the Royal Gunpowder Factory, the original structure was a relatively simple two-storeyed building of two bays by one bay. With a rectangular plan, aligned north to south,¹ it contained two rooms on each floor with a staircase at the eastern side.

Now surrounded by later additions, its original western side and part of its eastern side form part of the present west and east elevations. It is constructed of red brick laid in Flemish bond, with a stepped brick cornice, and has rubbed red-brick flat arches to the two windows on each floor of both the west and east elevations. The windows were sash, except on the east elevation where they may have been blind from the start.² At the north end of the west elevation is a stone shield carved with foliage and cherubs flanking a ?lion head and a winged angel-head. It is eighteenth-century in style and may belong to the original building, although presently it is only screwed to the brickwork.

Interior features which may belong to this original phase include ?fireplaces on the former south wall, six-panelled doors, and skirting.

The roof was hipped and the original trusses, which are pegged and have carpenter's marks for assembly, survive as part of the present hipped roof. It has two trusses which were central, approximately one metre apart, and which each consists of a tie beam, a king post with expanded head and foot, and raking struts. On the south side of the southern central truss and on the north side of the northern central truss, a further strut projects from the tie beam and lower feet of the king posts to support a purlin for the hips at either end. There are diagonally-set staggered butt purlins.

As a two-celled unit, the original building would not have been substantial enough to function as a dwelling. Rather, it appears to have been a purpose-built office building. The offices may have been for inspectors who kept watch, for example, on buildings such as the former Wash Up House, Powder Store and Barrel Store (A201, A202) situated opposite, approximately 15 metres west of the building. There may have been a number of such small office buildings on the site.³

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

Alternatively, the windows on the east elevation may have been blocked at a later date. They were blind by 1856, as they are shown as such in plans "showing the present offices and proposed alterations for Master Workers Quarters," signed J. Randell, Clerk of Works, 7th November 1856, cat. A200.B.05 (MOD Central Disposals Unit, Chessington).

For example, at the entrance to the Royal Gunpowder Factory site, approximately 200 metres south-east of the building A200, is a former police station (A233/A238) which appears to have

By c1821 the building had been extended on the north side by the addition of a further bay, marked by a straight joint and brick closers on the west elevation. Its brickwork, laid in Flemish bond, is very similar to that in the original block. The original hip at the north end of the roof became redundant. It was enclosed by the extension to the roof, which consists of a single truss with a tie beam, king post with expanded head and foot, and raking struts which are slightly narrower than the raking struts of the earlier roof. Its purlins are clasped between the principal and upper edge of the raking strut.

The extra rooms created by the additional northern bay resulted in a slight change of layout in the building. The two rooms on the ground and first floors of the original two-celled unit were each converted into one room. An entrance doorway at the east side of the new north elevation led to a lobby and to a small room on the north-west side, both of which were heated by corner fireplaces sharing the same stack on the north wall. A plan showing the uses of the rooms in 1856⁴ describes the main two-bay room on the ground floor as Master Worker and Captain Instructors Office, the adjacent north-west room as a Messenger's Room, with Lobby on the north-east side. For the first floor, the main room is described as Clerk's Office and a single room in the northern bay in Superintendent's Office.

A site plan of c1821 labels the building as "Inspectors Office".⁵ The site plan also shows another rectangular structure, aligned parallel at approximately 10 metres on the north-east side of the building, which is labelled "Grand Watch House" at its south end and "Master Worker's Office" at its north end. The rectangular building was still used as a watch house in 1856.⁶

The next building phase is stated to have been around 1860.⁷ Presumably it was then that the two-storeyed wing at the north end of the east elevation was added. It is of yellow brick in English bond. There are drawings, dated 1856, for a two-storeyed addition in this position which were part of a proposal to convert the office building into Master Worker's Quarters.⁸ However, although the present north-east wing may relate directly to those drawings, it is not clear whether the actual proposed conversion to living quarters ever took place. According to the proposal drawings, there was to be, in the existing three-bay building, a sitting room and a living room on the ground floor and two bedrooms on the first floor. A new addition on the north side of the east elevation was to be a kitchen on the ground floor, with a bedroom above, and there was to be a single-storey pantry, coal/wood house, wc and ashpit on its east side. It may be that the building was used as a dwelling for a short period from c1860 and then was converted back to offices, or that the addition was carried out merely to provide extra office-related

been built in the early nineteenth century originally as a two-celled unit of two storeys.

Plans "showing the present offices and proposed alterations for Master Workers Quarters, signed J. Randell, Clerk of Works, 7th November 1856, cat. A200.B.05 (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" (PRO, Hayes Repository).

Plans "showing the present offices and proposed alterations for Master Workers Quarters", signed J. Randell, Clerk of Works, 7 November 1856, cat. A200.B.05 (MOD Central Disposals Unit, Chessington).

The Ledger of c1908 states that the building was extended in 1860, cat. WASC 1509 (PRO, Hayes Repository).

Plans "showing the present offices and proposed alterations for Master Workers Quarters", signed J. Randall, Clerk of Works, 7 November 1856, cat. A200.B.05 (MOD Central Disposals Unit, Chessington).

space. The building was still described as a Superintendent's Office in the mid 1860s,⁹ and in the 1880s.¹⁰

Some time after 1856, but before 1888, another two-storeyed addition was built at the west side of the south elevation, set back from the west elevation of the original building by approximately half a metre.¹¹ Like the north-east wing it is constructed of yellow brick but is laid in Flemish- rather than English-bond. Its roof abuts the lower part of the south hip of the main roof and itself is hipped at the south side. Of two bays by two bays, it had a pair of sash windows on the ground and first floors on its west elevation, and another sash window on the ground floor of the south elevation. There was a single-storeyed projection, with a flat roof, at the east side of its south elevation which may have been built at the same time.¹² This projection functioned as a lobby leading to a doorway in the south wall.

In c1888-9 a further wing was added on the east side of this south addition, giving the building a U-shaped plan. Of two storeys and of a size similar to the two-storeyed north-east wing, this south-east wing is built of yellow brick laid in English bond. The sills below the sash windows are plainer than the sills of the north-east wing. It has a bay window, rising through both storeys, on the south elevation.

Even though, with this further addition, the building was now over double its original size, it is not clear whether it functioned as living quarters or only as offices. The proposal drawings of 1888-9 for the south-east addition describe the whole building still as "Superintendent's Office" and, more specifically, detail the south-west room on ground floor as being for Clerks, and the south-west room on the first floor for the Assistant Superintendent. The former Watch House, north-east of the building, is labelled as "Dining Room" at this date and was presumably used as the eating place for the workers on this part of the site.¹³

Before 1895, less than a decade after the south-east wing was built, a service tower of just over one metre square, was added in the re-entrant angle of the south-east wing and the west side of the original building.¹⁴ Of mixed bond, its yellow brickwork is not bonded into the rest of the building. Also around the same time, a single-storeyed structure, with a lean-to roof, was

OS 1:2500 map, Sheets 1 & 2 "Royal Powder Factory, Waltham Abbey General Plan", 1865 (surveyed 1863, corrected February 1866).

Drawings for Superintendent's Office, Proposed Extension, Item 126, Part 2, 1888-9, cat. A200.B.03 (MOD Central Disposals Unit, Chessington).

It is not represented on the plans of 1856 (cat. A200.B.05) but is shown as being built by 1888-9 (cat. A200.B.03) (MOD Central Disposals Unit, Chessington).

Certainly the projection existed by 1888, as it is shown as built in proposed extension plans of that date, cat. A200.B.03 (MOD Central Disposals Unit, Chessington).

RGPF Waltham Abbey, Superintendents Office, Proposed Extension, Item 126, Part 2, 1888-9, cat. A.200.B.03 (MOD Central Disposals Unit, Chessington).

The Ledger of c1908 describes the Dining Room, then disused, as a two-storeyed building (51' x 19'6") of brick, lath and plaster, with a tiled gable roof. It had three main rooms on the ground floor. It is noted in the Ledger that the Dining Room is to be demolished in 1908-9.

It is represented in a block plan of the building 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.

added on the north elevation of the building (A200).¹⁵ Joining with a lean-to addition on the west side of the building on the north-east side which was then used as the Dining Room, this addition may have been a kitchen.

The building is described as the Main Office at this time¹⁶, in c1908 and again in 1923, by which time the south lobby projection, the northern lean-to and the north-east "Dining Room" building had all gone.¹⁷

Various other minor alterations to the building include the addition of a new sash window on the south side of the original east elevation, the insertion of a door in place of the southernmost sash window on the ground floor of the south-west addition, the blocking of the sash window on the south elevation of the south-west addition, the blocking of the door between the two southern rooms on the ground floor and of the door in the central front room. The stairs have been replaced in the mid to late twentieth century.

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

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

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

The northern and lobby additions were probably removed in c1908-9, at the same time as the Dining Room.

THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER A201	OLD SERIES 221,222,223	RCHME NUMBER	N.G.R. TL 37688 00950
NAME/FUNCTION Mixing House/Composition Mill Washing up House, Store Workers Office, Laboratory Storekeepers Office, Master Drawing Office, W.A.s Office, Lab/ Stores. Surgery		START DATE 1787/8 by 1865 by 1886 by 1908 196?	END DATE by 1865 by 1908 196?

NO PHOTOGRAPHY
AVAILABLE

CARTOGRAPHIC DEPICTION	DOCUMENTARY REFERENCES
1801 WASC 900/58	Plans;
1806 WO78/1352 Mixing House	A201/2 B01 - B04 ; Plans and Elevations 1957 to 1977
1827 WASC 900/04 + MPH 271 ; 108,109	1787/8 Dec.13th 'New Mixing and Saltpetre Mill to be erected opposite the Master worker's (Winters 1887, 29), new Mixing House £239 13s 6 3/4d (Winters 1887, 119)
1830 WO55 2694	
1830 WASC 900/05	1807 WO55/2351;53 Master Mixing House
c1830 WASC 900/06	1830 WO55/2694;109 Mixing House
c1835 WASC 900/07	1841 WO55/2856;109 Mixing House
1861-1868 WASC 900/10A ; 18,19,20	1851 WO55/3027;27 Mixing House
1865 WASC 900/13 ; Washing up House	1858 WASC 901/126 27 Sept 1858 Plan & Section showing proposed alterations to Nos 13 & 15 stores
1865 WASC 900/14 ; Washing up House	1908 RGPF Ledger WASC 1509 + WASC 1764 ; Visitors Danger Building Office, Drawing Office, Laboratory built pre 1850 p25
1865 WASC 900/38 + SUPP5 975 ; Washing up House	c1925 RGPF Ledger WASC 1680 ; Visitors Danger Building Office, Drawing Office, Laboratory
1865 WASC 900/41A ; Storekeepers Office, Master Workers Office, Laboratory.	c1945 RGPF Ledger WASC 1508 ; Visitors Danger Building Office, Drawing Office, Laboratory
1886 WASC 900/42 ; Storekeepers Office, Master Workers Office, Laboratory.	
1897 WASC 900/53C	1972 ERDE List ; Old Library Reading Room
c1910 WASC 900/65 ; 221,222,223	1991 Mott McDonald survey
c1910 WASC 900/79 ; 221,222,223	1992 RARDE List ; Surgery
1917 WASC 900/70 ; 221,222,223	1992 FBRC Book Store
1917 WASC 900/72 ; 221,222,223	1993 RCHME NBR No.91462
1919 WASC 900/74 ; 221,222,223	
c1920 WASC 900/80 ; 221,222,223	
1923 WASC 900/84 ; 221,222,223	
> 1940 WASC 900/91A ; A201/2	
1954 A - B.34 ; A201/2	
c1960 WASC 900/94 ; A201/2	
c1963 WASC 900/97 ; A201/2	
1972 WASC 900/102 ; A201/2	
1972 WASC 900/104 ; A201/2	
1976 WASC 900/113 ; A201/2	

PHOTOGRAPHY
HISTORIC

WASC 1271 various views 03.1978
WASC 1543/32-34 various views
WASC 1272 Original beams
WASC 1289-/11 NG section

PHOTOGRAPHY
RCHME

- 1) 206/E/11 18 Jan 1993 From South East
206/E/12 18 Jan 1993 From South East
- 2) BB92/26066 A201 Surgery view from South East
BB92/26232 A201 Interior Ground floor view from
South East.
BB92/26233 A201 Interior ground floor view of Crown
Post from South East.
- 3) 225/C/17-8 Exterior
- 4) 4788/13 06.05.1993

RELATIONSHIPS WITH OTHER MONUMENTS

ASSOCIATED WITH: A200, A202

CONDITION Good

DESCRIPTION

- 1) CONSTRUCTIONAL MATERIAL
 Brick
- 2) ROOF MATERIALS AND STRUCTURE
 Slate
- 3) POWER SOURCE
 Latterly electricity
- 4) DIMENSIONS i) L 15.15m ii) W 6.82m iii) HT eave 2.9m
- 5) See Attached Threatened Buildings Record report

ROYAL COMMISSION ON THE HISTORICAL MONUMENTS OF ENGLAND

MOD Building No. A201
Mixing House
The Royal Gunpowder Factory
Waltham Abbey
Essex

NBR No: 91462
NGR: TL 37688 00950

This single-storeyed building has a rectangular plan and is constructed of red brick laid in Flemish bond. It has two main phases of construction.

The original phase, built between 1787 and 1800, is the main part of the building which has a tall hipped roof. It functioned as a Mixing House for combining the gunpowder ingredients before the incorporating process.

Immediately to its south is a similar-looking structure (A201), of contemporary date, which functioned as a Saltpetre Mill. (Melting 16.)

Probably in the early nineteenth century, before 1830, A201 was extended on the north side by a single storeyed addition with a lower hipped roof. At the same time, a narrow addition was probably built on the south side of the main structure. The building continued to function as a Mixing House at this time.

By the mid nineteenth century, the original part of the building functioned as a Powder Store and the north addition was a Barrel Store. A coal cover was added on the north side in 1887. By c1908 it was a Drawing Office, Visitors Danger Building Office and Laboratory.

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Building A201 was constructed between 1787 and 1800.¹⁸ It was used as a Mixing House for combining the ingredients of gunpowder, namely sulphur, saltpetre and charcoal before that mixture was taken to gunpowder mills some 50-250 metres to the north and north-east on the site.¹⁹ It functioned in conjunction with a contemporary similar-looking building immediately to its south, which was a Saltpetre Mill, and a later flat-roofed block presently links the two buildings. It is situated approximately 15 metres to the west of an eighteenth century office building (A200), and approximately 25 metres south west of the former site of a watch house. A water course flows on its west side. The earliest part of the building has a tall hipped roof, 22' (6.7 m) in height.²⁰ It has a rectangular plan, aligned north to south, and is constructed of red brick laid in Flemish bond. There are three sash windows on the west elevation and originally there would have been windows and probably a doorway on the east elevation. Rubbed red-brick flat arches for the windows and closers for the windows and doorway remain. Below the eaves is a stepped brick cornice.

The two roof trusses of the original part of the building are of timber and each comprises a tie beam, king post with a pyramidal expanded base, and raking struts extending from three sides of that pyramidal base. The apex of the roof is presently obscured by a ceiling which has later been inserted. The roof has slate coverings.

Probably in the early nineteenth century, the building was extended on the north side by a single storeyed addition, of one bay, with a lower hipped roof, 16' (4.9 m) in height.²¹ It is secondary to the main building, as indicated by a straight joint on the east elevation and by the fact that it encloses the stepped brick cornice of the north elevation. At the same time a narrow one-bay addition, with an even lower hipped roof, was probably added on the south elevation at this time.

Historical Survey by Purcell Miller Tritton & Partners, 64 Bury Walk, London, SW3 6QA, produced in 1985 (2.5.2).

F Drayson, Drawing No. 37: "Plan of a New Mill Head and Tail Streams proposed to be made in Queens Meads, shewing the Position of the 5 Gunpowder Mills proposed to be retained on the Old Mill Head, the Situation of the Cylinder House for making Charcoal and the Site of the Composition Mills over the Gullies", 1830, cat. PRO MP 11.15 (Kew)

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

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

No. 10

A set of drawings dated 1830 show a detailed perspective, section and plan of a Mixing House.²² The drawings are similar to the secondary appearance of building A201, that is, with low wings on either side of a main structure which has a tall hipped roof, and are likely to be a survey record of this particular building A201. As such, they provide an indication of the layout of a Mixing House and the utensils used therein. In the drawings a main room is empty, except for a stand in one corner which looks like a wash stand, and is open to the roof. Smaller side rooms contain bins, presumably for holding the gunpowder ingredients. Utensils shown in the drawing include a barrel and fork-like tool for mixing.

Later alterations include an extension westward of the north addition, the replacement of the original windows and doorway on the east elevation, the insertion of a ceiling approximately 1.5 metres above the tie beams of the trusses in the main part of the building, and the addition of a gabled porch to the entrance door on the east front. The porch, which was 5' x 9'3" (16.4 x 2.8 m), has later been removed but a scar remains in its position against the east wall.²³ The present link block between A201 and A202 is of later brick and has a flat roof and is likely to be a replacement of a narrow single-bay addition on the south side of A201, as shown in the 1830 drawing.²⁴ A coal cover, constructed of corrugated iron, had been built against the north side of the north addition in 1887 but was demolished in 1907-8.²⁵

Around the mid-nineteenth century, the original part of the building had functioned as a Powder Store and the northern addition was a Barrel Store.²⁶ By c1886 it was a Storekeepers Office and Store.²⁷ In 1908 and in 1923 it is shown in plans as being a Drawing Office, with a Laboratory Store in the flat-roofed room on the south side and a Visitors Danger Building Office in the north room.²⁸

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F Drayson, Drawing No. 10, "Drawings of the Mixing House and of the utensils used therein", 1830, cat. PRO MP 11.15 (Kew).

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

F Drayson, Drawing No. 10, "Drawings of the Mixing House and of the utensils used therein", 1830, cat. PRO MP 11.15 (Kew).

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

"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 1850s-60s, (PRO, Hayes Repository).

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

Ledger c1908, cat. WASC 1509 (PRO, Hayes Repository) and site plan of "Royal Gunpowder Factory, 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	OLD SERIES	RCHME NUMBER	N.G.R.
A202	224		TL 37688 00950

NAME/FUNCTION	START DATE	END DATE
Saltpetre melting House	1787/8	by 1827
Sulphur Mill	by 1827	by 1865
Washing up House, Store	by 1865	by 1886
Workers Office, Laboratory	by 1886	
Storekeepers Office, Master		by 1898
Drawing Office, W.A.s Office, Lab/Stores		by 1945
Cordite Formans Office & Store	by 1898	by 1972
Old Library Reading Room	by 1972	by 198?
Surgery	by 198?	

NO PHOTOGRAPHY
AVAILABLE

CARTOGRAPHIC DEPICTION	DOCUMENTARY REFERENCES
1801 WASC 900/58	1787 'saltpetre mill to be erected opposite the Master Workers House' (Winters 1887, 29), new Saltpetre Mill £130 3s 6d
1806 WO78/1352; Saltpetre	1807 WO55/2351;
1827 WASC 900/04 + MPH 271 ; 108,109	1830 WO55/2694; 108 Sulphur Mill
1830 WO55 2694	1841 WO55/2856; 108 Sulphur Mill
1830 WASC 900/05	1851 WO55/3027; 28 Sulphur Mill
c1830 WASC 900/06	1908 RGPF Ledger WASC 1509 + WASC 1764 ; Cordite Formans Office and Store built pre 1850 p25
c1835 WASC 900/07	c1925 RGPF Ledger WASC 1680 ; Cordite Formans Office and Store
1861-1868 WASC 900/10A ; 18,19,20	c1945 RGPF Ledger WASC 1508 ; Cordite Formans Office and Store
1865 WASC 900/13 ; Washing up House	1972 ERDE List ; Old Library Reading Room
1865 WASC 900/14 ; Washing up House	1991 Mott McDonald survey
1865 WASC 900/38 + SUPP5 975 ; Storekeepers Store, Store, Washing Up House.	1992 RARDE List ; Surgery
1865 WASC 900/41A ; Storekeepers Store, Store, Washing Up House.	1992 FBRC Book Store
1886 WASC 900/42 ; Storekeepers Office, Master Workers Office, Laboratory.	1993 RCHME NBR No.91463
1897 WASC 900/53C	
c1910 WASC 900/65 ; 224	
c1910 WASC 900/79 ; 224	
1917 WASC 900/70 ; 224	
1917 WASC 900/72 ; 224	
1919 WASC 900/74 ; 224	
c1920 WASC 900/80 ; 224	
1923 WASC 900/84 ; 224	
> 1940 WASC 900/91A ; A202	
1954 A - B.34 ; A202	
c1960 WASC 900/94 ; A202	
c1963 WASC 900/97 ; A202	
1972 WASC 900/102 ; A202	
1972 WASC 900/104 ; A202	
1976 WASC 900/113 ; A202	

<p>PHOTOGRAPHY HISTORIC</p> <p>WASC 1271 various views 03.1978 WASC 1543/32-34 various views</p>	<p>PHOTOGRAPHY RCHME</p> <p>1) 206/E/12 18 Jan 1993 From South East</p>
<p>RELATIONSHIPS WITH OTHER MONUMENTS</p> <p>ASSOCIATED WITH: A201</p>	
<p>CONDITION Good</p>	
<p>DESCRIPTION</p> <ol style="list-style-type: none"> 1) CONSTRUCTIONAL MATERIAL Brick 2) ROOF MATERIALS AND STRUCTURE Slate 3) POWER SOURCE Latterly electricity 4) DIMENSIONS i) L 8.4m ii) W 6.82m iii) HT eave 2.9m 5) See Attached Threatened Buildings Record report 	

ROYAL COMMISSION ON THE HISTORICAL MONUMENTS OF ENGLAND

MOD Building No. A202
?Saltpetre Melting House
The Royal Gunpowder Factory
Waltham Abbey
Essex

NBR No: 91463
NGR: TL 376 009

202?
Building A201 was built between 1787 and 1800, probably as a Saltpetre Melting House. It is single-storeyed and has a tall pyramidal roof. The plan is square and the construction is of red brick laid in Flemish bond.

There appears to have been a Saltpetre Boiling House immediately to its south but this has been replaced. Immediately to its north is a similar-looking structure (A201), of contemporary date, which functioned as a Mixing House.

By the mid nineteenth century, the building was a Wash Up House. It was a Master Workers Office by 1886 and by c1908 it was a Cordite Foreman's Office and Store.

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Building A202 was constructed between 1787 and 1800.²⁹ A set of drawings dated 1830 show a detailed perspective, section and plan of a Saltpetre Boiling and a Melting House.³⁰ The square Melting House in the drawings is similar to building A202 and is likely to be a representation of the structure at that date. The building represented in the drawing has a partition wall at the northern end and contains four vat-like containers and several ?wash stands.

The building is likely to have functioned in conjunction with a contemporary Saltpetre Boiling House which was immediately to its south but which has since been replaced. Immediately to its north is a similar-looking building which was a Mixing House for combining the ingredients of gunpowder, namely sulphur, saltpetre and charcoal before that mixture was taken to gunpowder mills some 50-250 metres to the north and north-east on the site.³¹ A later flat-roofed block presently links A202 with A201. It is situated approximately 15 metres to the west of an eighteenth century office building (A200), and approximately 25 metres south west of the former site of a watch house. A water course flows on its west side.

Building A202 has a square plan, 27'6" x 27'6" (8.4 x 8.4 m) and is constructed of red brick laid in Flemish bond.³² There would have been two sash windows on the west elevation and two windows and a doorway on the east elevation.³³ The windows themselves have been replaced but the rubbed red-brick arches for the windows survive on the east elevation. Below the eaves is a stepped brick cornice.

The roof is pyramidal and is 23'6" (7.2 m) to the apex.³⁴ As such it is slightly taller than the tall hipped roof of the adjacent

Historical Survey by Purcell Miller Tritton & Partners, 64 Bury Walk, London, SW3 6QA, produced in 1985 (2.5.2).

F Drayson, Drawing No. 1, "Drawings of a Saltpetre Boiling and a Melting House", 1830, cat. PRO MP 11.15 (Kew).

F Drayson, Drawing No. 37: "Plan of New Mill Head and Tail Streams proposed to be made in Queens Meads, shewing the Position of the 5 Gunpowder Mills proposed to be retained on the Old Mill Head, the Situation of the Cylinder House for making Charcoal and the Site of the Composition Mills over the Gullies", 1830, cat. PRO MP 11.15 (Kew).

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

F Drayson, Drawing No. 1, "Drawings of a Saltpetre Boiling and a Melting House", 1830, cat. PRO MP 11.15 (Kew).

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

building A201 which is 22' (6.7 m) in height.³⁵ The roof trusses are of timber and each comprises a tie beam, king post with an expanded head and a pyramidal expanded base, and raking struts extending from three sides of that pyramidal base. The apex of the roof is obscured by an early plaster ceiling above a later ceiling. The roof has slate coverings.

By the mid nineteenth century, it was a Wash Up House. It was a Master Workers Office by 1886³⁶ and by c1908³⁷ and in 1923 it was a Cordite Foreman's Office and Store.³⁸

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

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

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

Site plan of "Royal Gunpowder Factory, 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 A203	OLD SERIES AS203	RCHME NUMBER	N.G.R. TL 37700 00920
NAME/FUNCTION Library/Lecture Theatre		START DATE 1966	END DATE
NO PHOTOGRAPHY AVAILABLE			
<p>CARTOGRAPHIC DEPICTION</p> <p>> 1940 WASC 900/91A ; AS203 1954 A - B.34 ; A203 c1960 WASC 900/94 ; A203 c1963 WASC 900/97 ; A203 1972 WASC 900/102 ; A203 1972 WASC 900/104 ; A203 1976 WASC 900/113 ; A203</p>		<p>DOCUMENTARY REFERENCES</p> <p>Plans A203 B01 - B60 ; Plans and Elevations 1962 to 1968 WASC 176 Brick structures beneath present building discovered Dec 1963 1972 ERDE List ; Library/Lecture Theatre 1991 Mott McDonald survey 1992 RARDE List ; Library/Lecture Theatre 1992 FBRC Bookstore</p>	
<p>PHOTOGRAPHY HISTORIC</p> <p>WASC 176 Demolition Dec 1963 WASC 917 Explosives handtruck 12.9.1967 WASC 745 Opening of lib 1966 x6 WASC 918 Lib & Lecture gen views 12.9.1967 x10 WASC 1224 Lib & Lecture theatre 10.11.1976 WASC 1225 New Library entrance 1966 WASC 1226 Dem of stores for cons of library Dec 1963 WASC 1227 Library under cons 1965 WASC 1228 Library & Lecture theatre 7.8.1978 WASC 1233/5 Looking south towards canteen 12.12.1978 WASC 927 Gen views WASC 927/4 View of BWD, old store & fire station G/2007/3 Lecture theatre and tramway wagon G/2007/4 Lecture Theatre interior 12.09.1967 G/2007/5 Lecture Theatre interior 12.09.1967 G/2007/6 View from south east 12.09.1967 G/2007/7 View from south east 12.09.1967 G/2007/8 View from north west 12.09.1967 G/2007/9 Library interior 12.09.1967 G/2007/10 View from south west 12.09.1967 G/2007/11 Library interior 12.09.1967 G/2007/12 Conference room 12.09.1967 G/2007/13 Conference room 12.09.1967 G/2007/14 Main staircase 12.09.1967 G/2007/15 Main entrance 12.09.1967</p>		<p>PHOTOGRAPHY RCHME</p> <p>1) 206/R/37 Lecture Hall from South East 206/S/13 16 Mar 1993 Lecture Theatre from South West 206/E/23 Lecture hall from South</p> <p>4) 4788/13 06.05.1993</p>	

RELATIONSHIPS WITH OTHER MONUMENTS

ASSOCIATED WITH: A231/2, 233, 234 Overlies 225, 226, 227, 228

CONDITION Good

DESCRIPTION

- 1) CONSTRUCTIONAL MATERIAL
Brick
- 2) ROOF MATERIALS AND STRUCTURE
Sheet copper cladding
- 3) POWER SOURCE
Electricity
- 4) DIMENSIONS i) L 42.36m ii) W 15.24m iii) HT estimate 8m
- 5)

THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER H72	OLD SERIES	RCHME NUMBER	N.G.R. TL 37590 01166
NAME/FUNCTION Compressor house for H67		START DATE 1960	END DATE 1992
NO PHOTOGRAPHY AVAILABLE			
CARTOGRAPHIC DEPICTION c1960 WASC 900/94 ; H72 c1963 WASC 900/97 ; H72 1972 WASC 900/102 ; H72 1972 WASC 900/104 ; H72 1976 WASC 900/113 ; H72		DOCUMENTARY REFERENCES Plan; H72 B01 - 13/11/1959 ; Proposed Building for Nitrogen Compressor 1972 ERDE List ; Compressor House for H67 1992 RARDE List ; Compressor House for H67	
PHOTOGRAPHY HISTORIC		PHOTOGRAPHY RCHME 1) 206/H/13 02 Feb 1993 From South East 206/L/3 09 Mar 1993 From South East	
RELATIONSHIPS WITH OTHER MONUMENTS ASSOCIATED WITH: H67			
CONDITION Good			
DESCRIPTION 1) CONSTRUCTIONAL MATERIAL Brick 2) ROOF MATERIALS AND STRUCTURE Flat timber boards covered by roofing felt. 3) POWER SOURCE Electricity 4) DIMENSIONS i) L 3.8m ii) W 3.15m iii) HT 2.75m 5) A small brick building entered from the north side through double yellow painted doors. Externally on the south wall are two pressure gauges by Budenburg Broadheath Manchester housed in a protective casing. Demolished August 1993.			

THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER H67a,b,c	OLD SERIES	RCHME NUMBER	N.G.R. TL 37560 01165
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NAME/FUNCTION Ballistics Laboratory Mechanical testing areas	START DATE 1955	END DATE
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NO PHOTOGRAPHY
AVAILABLE

CARTOGRAPHIC DEPICTION

c1960 WASC 900/94 ; H67
c1963 WASC 900/97 ; H67
1972 WASC 900/102 ; H67
1972 WASC 900/104 ; H67
1976 WASC 900/113 ; H67

DOCUMENTARY REFERENCES

Plans;
H67 B01 - B58 ; Plans and Elevations 1955 to 1968

1972 ERDE List ; Mechanical Testing Areas (a,b,c)
1992 RARDE List ; Mechanical Testing Areas (a,b,c)

**PHOTOGRAPHY
HISTORIC**

**PHOTOGRAPHY
RCHME**

1) 206/H/14 02 Feb 1993 Labs from South East
206/H/15 02 Feb 1993 West end blast wall
206/Q/30 16 Mar 1993 Front Elevation from South
206/Q/37 16 Mar 1993
2) BB92/26054 H67 Mechanical Testing Ballistics Lab
from North West
BB92/26055 H67 Mechanical Testing Interior West
chamber from North East
BB92/26056 H67 Mechanical Testing Test Bed from
North East

RELATIONSHIPS WITH OTHER MONUMENTS

ASSOCIATED WITH: H68, H69, H70, H72

CONDITION FAIR

DESCRIPTION

- 1) CONSTRUCTIONAL MATERIAL
Brick
- 2) ROOF MATERIALS AND STRUCTURE
Flat concrete slab covered by roofing felt
- 3) POWER SOURCE
Electricity and steam heat
- 4) DIMENSIONS i) L 58.4m ii) W 12.8m iii) HT 3.8m
- 5) H67 is a single storey laboratory with a central corridor giving access to rooms on either side. At the western end of the building is a firing bay formerly closed by double metal doors protected by a breeze block blast wall. Demolished August 1993.

THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER H68	OLD SERIES	RCHME NUMBER	N.G.R. TL 37554 01192
NAME/FUNCTION Test bed		START DATE 1956	END DATE
NO PHOTOGRAPHY AVAILABLE			
CARTOGRAPHIC DEPICTION		DOCUMENTARY REFERENCES	
c1960	WASC 900/94 ; H68	Plans;	
c1963	WASC 900/97 ; H68	H68	B01 - B06 ; Plans and Elevations 1955 to 1975
1972	WASC 900/102 ; H68		
1972	WASC 900/104 ; H68	1972	ERDE List ; Test Bed
1976	WASC 900/113 ; H68	1992	RARDE List ; Test Bed
PHOTOGRAPHY HISTORIC		PHOTOGRAPHY RCHME	
		1) 206/H/16 02 Feb 1993 From South East 206/H/17 02 Feb 1993 From East 206/Q/34 16 Mar 1993 From East 206/Q/35 16 Mar 1993 From South East 206/Q/36 16 Mar 1993 From South West	
		2) BB92/26057 H68 Firing Point from South West BB92/26058 H68 Firing Point from North East BB92/26059 H68 Interior of Firing Point South West chamber from South West BB92/26060 H68 Interior of Firing Point South West chamber detail North wall & floor	
RELATIONSHIPS WITH OTHER MONUMENTS			
ASSOCIATED WITH: H67, H69, H70, H72			
CONDITION Good			
DESCRIPTION			
1)	CONSTRUCTIONAL MATERIAL Reinforced Concrete		
2)	ROOF MATERIALS AND STRUCTURE Concrete slab		
3)	POWER SOURCE Electricity		
4)	DIMENSIONS i) L 11.45m ii) W 8.35m iii) HT 2.9m		
5)	The Test Bed has a central control room with two firing bays to the west and a single bay to the east. Small apertures in the northern wall of the building are protected by baffle walls constructed from railway sleepers and breeze block. Demolished August 1993.		

THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER H68a	OLD SERIES	RCHME NUMBER	N.G.R. TL 37544 01212
NAME/FUNCTION Firing Tunnel		START DATE 1958?	END DATE
NO PHOTOGRAPHY AVAILABLE			
CARTOGRAPHIC DEPICTION		DOCUMENTARY REFERENCES	
		1972 ERDE List ; Firing Tunnel/PCC Pipe 1992 RARDE List ; Firing Tunnel/PCC Pipe	
PHOTOGRAPHY HISTORIC		PHOTOGRAPHY RCHME 1) 206/H/18 02 Feb 1993 From 206/Q/33 16 Mar 1993 Firing tube from East	
RELATIONSHIPS WITH OTHER MONUMENTS			
ASSOCIATED WITH: H67, H68, H69, H70, H72			
CONDITION FAIR			
DESCRIPTION			
1) CONSTRUCTIONAL MATERIAL Pre-cast concrete			
3) POWER SOURCE None			
4) DIMENSIONS i) L 14.86m ii) W - iii) HT - iv)DIA 0.93m			
5) The firing tunnel is constructed from twelve segments of pre-cast concrete pipe set on breeze block and timber supports. Fragments of breeze block base indicate that it once extended further westwards. Demolished August 1993.			

THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER H69	OLD SERIES	RCHME NUMBER	N.G.R. TL 37576 01189
NAME/FUNCTION Magazine (Cordite Store)		START DATE 1958	END DATE
NO PHOTOGRAPHY AVAILABLE			
CARTOGRAPHIC DEPICTION c1960 WASC 900/94 ; H69 c1963 WASC 900/97 ; H69 1972 WASC 900/102 ; H69 1972 WASC 900/104 ; H69 1976 WASC 900/113 ; H69		DOCUMENTARY REFERENCES 1972 ERDE List ; Magazine 1992 RARDE List ; Magazine	
PHOTOGRAPHY HISTORIC		PHOTOGRAPHY RCHME 1) 206/H/20 02 Feb 1993 From West 206/Q/31 16 Mar 1993 From South West	
RELATIONSHIPS WITH OTHER MONUMENTS ASSOCIATED WITH: H67, H68, H70, H72			
CONDITION Poor			
DESCRIPTION 1) CONSTRUCTIONAL MATERIAL Brick 2) ROOF MATERIALS AND STRUCTURE Corrugated asbestos 3) POWER SOURCE Electricity 4) DIMENSIONS i) L 5.25m ii) W 3.25m iii) HT 2.8m 5) The magazine was fired in 1992. The magazine was entered through a single red steel door on the west side. Demolished August 1993.			

THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER H70	OLD SERIES	RCHME NUMBER	N.G.R. TL 37573 01200
NAME/FUNCTION Solvent store		START DATE 1958	END DATE 1992
NO PHOTOGRAPHY AVAILABLE			
CARTOGRAPHIC DEPICTION		DOCUMENTARY REFERENCES	
c1960	WASC 900/94 ; H70	1972	ERDE List ; Solvent Store
c1963	WASC 900/97 ; H70	1992	RARDE List ; Solvent Store
1972	WASC 900/102 ; H70		
1972	WASC 900/104 ; H70		
1976	WASC 900/113 ; H70		
PHOTOGRAPHY HISTORIC		PHOTOGRAPHY RCHME 1) 206/H/19 02 Feb 1993 From West 206/Q/32 16 Mar 1993 From South West	
RELATIONSHIPS WITH OTHER MONUMENTS			
ASSOCIATED WITH: H67, H68, H68a, H69, H72			
CONDITION		Good	
DESCRIPTION			
1)	CONSTRUCTIONAL MATERIAL Brick		
2)	ROOF MATERIALS AND STRUCTURE Flat concrete slab		
3)	POWER SOURCE Electricity		
4)	DIMENSIONS i) L 2.6m ii) W 2m iii) HT 2.78m		
5)	The store is a single storey brick building with a flat concrete roof. It is entered by a single yellow door on the west side with brass furniture. The interior is shelved and lit by electric lights. Demolished August 1993.		

THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER H7	OLD SERIES 186	RCHME NUMBER	N.G.R. TL 37560 01100
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NAME/FUNCTION Cordite Reel drying stove Laundry Magazine	START DATE 1904 1916?	END DATE 1916?
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NO PHOTOGRAPHY
AVAILABLE

CARTOGRAPHIC DEPICTION

c1910 WASC 900/65 ; Reel Drying Stove No.1
c1910 WASC 900/79 ; Reel Drying Stove No.1
1917 WASC 900/70 ; Reel Drying Stove No.1
1917 WASC 900/72 ; 186
1919 WASC 900/74 ; 186
c1920 WASC 900/80 ; 186
1923 WASC 900/84 ; 186
1932 WASC 900/87 ; 186
> 1940 WASC 900/91A ; 186
1954 A - B.34 ; H7
c1960 WASC 900/94 ; H7
c1963 WASC 900/97 ; H7
1972 WASC 900/102 ; H7
1972 WASC 900/104 ; H7
1976 WASC 900/113 ; H7

DOCUMENTARY REFERENCES

1908 RGPF Ledger WASC 1509 + WASC 1764 ; Reel Drying Stove,Truck Porch,Traverse.built 1904 p20
c1925 RGPF Ledger WASC 1680 ; Reel Drying Stove,Truck Porch,Traverse H7
c1945 RGPF Ledger WASC 1508 ; Reel Drying Stove,Truck Porch,Traverse H7

Plan:
H07 B01 - B08 ; Plans and Elevations ? to 1961

1972 ERDE List ; Magazine and Store 1916
1992 RARDE List ; Magazine
1992 FBRC Class 1 Explosives
1993 RCHME NBR No 91448

**PHOTOGRAPHY
HISTORIC**

**PHOTOGRAPHY
RCHME**

1) 206/H/12 02 Feb 1993 From South East
206/T/6 17 Mar 1993 From South West
206/T/7 17 Mar 1993 Cordite Reel drying stove in traverse
206/T/32 17 Mar 1993 Expense Magazine from South East
2) BB92/26052 H7 Cordite Reel Magazine view from South East
BB92/26248 H7 Entrance view from West showing Toe Board between Dirty and Clean Area
BB92/26343 H7 RGPF Drawing H7 B.06 Proposed Reel Stove

RELATIONSHIPS WITH OTHER MONUMENTS

ASSOCIATED WITH: H8, H10, H12

CONDITION Good

DESCRIPTION

- 1) CONSTRUCTIONAL MATERIAL
Brick in English bond
- 2) ROOF MATERIALS AND STRUCTURE
Roofing felt over timber boards and single aisle Fink truss
- 3) POWER SOURCE
Electricity formerly also steam heat
- 4) DIMENSIONS i) L 26.65m ii) W 9.57m iii) HT eave 3.4m
- 5) See attached RCHME Threatened Buildings Section Report

ROYAL COMMISSION ON THE HISTORICAL MONUMENTS OF ENGLAND

MOD Building Nos H7 and H8
Reel Drying Stoves
The Royal Gunpowder Factory
Waltham Abbey
Essex

NBR No: 91448
NGR: TL 37560 001100

These buildings are a matching pair of Reel Drying Stoves which were built in 1904 on the Great Hoppit site of the Royal Gunpowder Factory. They each contained a single large room with racks for drying cordite. Cordite reels were brought here for drying before reeling in a separate building (H10).

Of one storey, they each have a rectangular plan of eight bays and are constructed of yellow brick laid in English bond, with "truck porches" at the north and south ends.

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Situated on the Great Hoppit part of the site of the Royal Gunpowder Factory at Waltham Abbey, these buildings were built in 1904 as a pair of Reel Drying Stoves. Building No. H7 and Building no. H8 to its south were almost identical and were known as Reel Drying Stove 1 and Reel Drying Stove 2 respectively.¹ Cordite would have been pressed in other building such as the former gunpowder mill buildings, then dried in one of these Stoves before it was taken to a Reeling House for winding.

Surrounded by earth traverses on the Great Hoppit site of the Royal Gunpowder Factory, both buildings have overall dimensions of 26.65 x 9.57 metres, with a height to the eaves of 3.4 metres. They have a rectangular plan of eight bays, with "truck porches" at the north and south ends.²

The porches, to which tramways originally ran, each contain the remains of a "barrier board" approximately 200 mm high. As a safety precaution to prevent grit and dust entering the building, the 2 workers had to stand on a special "shoe board" and don leather over-boots before stepping over the barrier board into the building.³ From the porch, each building was entered on the north and south sides through a wide doorway which had a cambered head of brick.

Each building was a single large room containing racks for drying the cordite reels.⁴ When the buildings were first built in 1904, acetone was used in the cordite mixing process. The drying process was to remove the acetone from the cordite. Steam pipes, associated with the drying, entered the building at the north and south ends of the building, as witnessed by blocked round openings at the east and west sides of the north and south elevations.

The buildings are constructed of yellow brick laid in English bond and have plinths of chamfered brick which respect the

Although the buildings are aligned north-north-west to south-south-east, for clarity in this report they are described as if they were aligned north to south.

Ledger c1908, cat. WASC 1509 (PRO, Hayes Repository) and drawings of "Proposed Reel Stove, Great Hoppit, RGPF", undated, cat. H7.B.06 (MOD Central Disposals Unit, Chessington).

Although describing safety precautions on the site some four years before these Reel Drying Stoves were built, the function of shoe boards and barrier boards is outlined in an article "The Deadliest Spot near London" by Alfred Arkas in The Penny Pictorial Magazine, No. 35, Vol. 3, 3 February 1900, cat. WASC 412.

Drawings of "Proposed Reel Stove, Great Hoppit, RGPF", undated, cat. H7.B.06 (MOD Central Disposals Unit, Chessington).

porches. The porches were of corrugated iron.⁵ The roof trusses were of iron. The main roof of each building is hipped and has a zinc covering, and the porch roofs are almost flat.⁶

There were windows at approximately every second bay on the east and west elevations of both buildings. The windows have red-brick arched heads and brick closers and were part of the original phase of construction.⁷ On the outside of each window was an electric light.⁸

Alterations made to Building No. H8 include the replacement of the corrugated iron fabric of the porches with timber fabric, the insertion of a small window with a flat head and closers on the east elevation, the subsequent blocking of all the windows, and the insertion of a partition wall in stretcher-bond brick. A new timber porch on the west elevation.⁹ The doors from the porch are in the position of an earlier window. Interrupting the plinth on both the east and west elevations is a small addition with a lead-lined floor and a lean-to roof.¹⁰

In Building No. H7 double doors with cambered heads at the north and south sides have been replaced by square-headed double doors of steel. A steel door was also added on the east elevation. All the windows were blocked. New roofing was added to both buildings in c1940, following bomb damage.¹¹

At least latterly the buildings have been used as stores. The interiors were not inspected at the time of this survey.

Surveyed March 1993
Report by R L Burgess

Ledger c1908, cat. WASC 1509 (PRO, Hayes Repository) and drawings of "Proposed Reel Stove, Great Hoppit, RGPF", undated, cat. H7.B.06 (MOD Central Disposals Unit, Chessington).

Ledger c1908, cat. WASC 1509 (PRO, Hayes Repository) and drawings of "Proposed Reel Stove, Great Hoppit, RGPF", undated, cat. H7.B.06 (MOD Central Disposals Unit, Chessington).

Drawings of "Proposed Reel Stove, Great Hoppit, RGPF", undated, cat. H7.B.06 (MOD Central Disposals Unit, Chessington).

Drawings of "Proposed Reel Stove, Great Hoppit, RGPF", undated, cat. H7.B.06 (MOD Central Disposals Unit, Chessington).

Drawing of Reel Stove No. 2: "Additional Loading Porch" on west side, with barrier board, shoe box and gunmetal rails, dated 10/1/1941, cat. H8.B.15 (MOD Central Disposals Unit, Chessington).

The interior of the addition on the west side was not inspected.

Bomb damage no. 2 reel store 15/10/1940, cat. WASC 1655/66-68.

Drawing showing details of new roofing, dated 7.12.1940, cat. H7.B.04 (MOD Central Disposals Unit, Chessington).