


**THE ROYAL GUNPOWDER FACTORY**

**WALTHAM ABBEY**

Area L




## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L100	OLD SERIES	RCHME NUMBER	N.G.R. TL 37531 01670
NAME/FUNCTION Remote Detonator Disposal		START DATE	END DATE
			
<b>CARTOGRAPHIC DEPICTION</b>  c1960    WASC 900/94 c1963    WASC 900/97 1972    WASC 900/102 1972    WASC 900/104 1976    WASC 900/113		<b>DOCUMENTARY REFERENCES</b>  Plan; L100    B01 - 26/4/1973 ; Incinerator Detonator Destruction  1991    Mott McDonald survey 1992    RARDE List ; Remote Detonator Disposal	
<b>PHOTOGRAPHY HISTORIC</b>		<b>PHOTOGRAPHY RCHME</b> 1) 206/P/1 Concrete floor slab from West	
<b>RELATIONSHIPS WITH OTHER MONUMENTS</b>  ASSOCIATED WITH: Burning ground			
CONDITION      Demolished			
<b>DESCRIPTION</b> 1)            CONSTRUCTIONAL MATERIAL Concrete  4)            DIMENSIONS i) L 6.1 ii) W 3.05  5)            The building has been demolished a concrete floor slab remains			




## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L101	OLD SERIES 105a	RCHME NUMBER	N.G.R. TL 37606 01676
NAME/FUNCTION No.1 Paste Store No.7 Mixing House Workshop/Office Burning Ground		START DATE 1908-14 by 1923 1945	END DATE by 1923 1945?
			
<p>CARTOGRAPHIC DEPICTION</p> <p>1917 WASC 900/70 ; Paste Store No.1          1917 WASC 900/72 ; 105a          1919 WASC 900/74 ; 105a          c1920 WASC 900/80 ; 105a          1923 WASC 900/84 ; 105a No7 Mixing House          &gt; 1940 WASC 900/91A ; L101          1954 A - B.34 ; L101          c1960 WASC 900/94 ; L101          c1963 WASC 900/97 ; L101          1972 WASC 900/102 ; L101          1972 WASC 900/104 ; L101          1976 WASC 900/113 ; L101</p>		<p>DOCUMENTARY REFERENCES</p> <p>Plans;          L101 B01 - B03 ; Plans and Elevations 1914 to 1985</p> <p>1972 ERDE List ; Workshop/ Office Burning Ground          1991 Mott McDonald survey          1992 RARDE List ; Workshop/ Office Burning Ground</p>	
PHOTOGRAPHY HISTORIC		PHOTOGRAPHY RCHME 1) 206/F/4 From North East 206/F/5 From North West	
RELATIONSHIPS WITH OTHER MONUMENTS  ASSOCIATED WITH: RCHME 294, L105,L108			
CONDITION Good			

DESCRIPTION

- 1) CONSTRUCTIONAL MATERIAL  
Brick in english bond
- 2) ROOF MATERIALS AND STRUCTURE  
Felt
- 3) POWER SOURCE  
Steam Electricity
- 4) DIMENSIONS i) L 10.54 ii) W 8.6
- 5) The building is surrounded on three sides by an earthen traverse the fourth side, northern, lies parallel to canal RCHM 294. The store is a single storey building with gabled ends and a timber outshot on the northern side forming an L shaped plan. Each of the gables has two blind panels, they have all been pierced by later windows with concrete sills. The southern wall has three blind panels with a large central window with a red brick arch over. The northern wall also has three blind panels with a central door. The timber outshot contains a wash room.

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L102	OLD SERIES 100	RCHME NUMBER	N.G.R. TL 37542 01714
NAME/FUNCTION Moulding House Magazine No. 2 Paste Store No. 1 Paste Store Lead store burning ground	START DATE 1878 1908? 194?	END DATE 1908? 194?	
			
<b>CARTOGRAPHIC DEPICTION</b>  1865 WASC 900/38 + SUPP5 975 ; Moulding House Magazine 1865 WASC 900/41A ; Moulding House Magazine 1865 WASC 900/42 1897 WASC 900/53C c1910 WASC 900/65 ; No.1 Paste Store c1910 WASC 900/79 ; No.1 Paste Store 1917 WASC 900/70 ; No.2 Paste Store 1917 WASC 900/72 ; 100 1919 WASC 900/74 c1920 WASC 900/80 ; 100 1923 WASC 900/84 ; 100 > 1940 WASC 900/91A ; 100 1954 A - B.34 ; L102 c1960 WASC 900/94 ; L102 c1963 WASC 900/97 ; L102 1972 WASC 900/102 ; L102 1972 WASC 900/104 ; L102 1976 WASC 900/113 ; L102		<b>DOCUMENTARY REFERENCES</b>  1908 RGPF Ledger WASC 1509 + WASC 1764 ; Paste Store built 1883 p10 c1925 RGPF Ledger WASC 1680 ; Paste Store c1945 RGPF Ledger WASC 1508 ; Paste Store  Plan; L102 B01 - 1894 ; General Layout Details  1972 ERDE List ; Lead Store Burning Ground & Workroom 1991 Mott McDonald survey 1992 RARDE List ; Lead Store Burning Ground & Workroom  1992 FBRC ; Chemical Store	
<b>PHOTOGRAPHY HISTORIC</b> WASC 788 Gunpowder Press House No1 1972 x2 WASC 789 Gunpowder Press House No1 1940 x10 WASC 1517 General Views x3		<b>PHOTOGRAPHY RCHME</b> 1) 206/F/6 From North East 206/F/7 From North West 206/R/15 Magazine from South West 4) 4786/37 06.05.1993	
<b>RELATIONSHIPS WITH OTHER MONUMENTS</b>  ASSOCIATED WITH: L103, 107, 108, S31, RCHM 289			
<b>CONDITION</b> Good			



DESCRIPTION

1) CONSTRUCTIONAL MATERIAL  
Brick in English bond

2) ROOF MATERIALS AND STRUCTURE  
Brick Vault covered in felt

3) POWER SOURCE  
Steam Electricity

4) DIMENSIONS i) L 8.95 ii) W 5.1 iii) HT 3.95

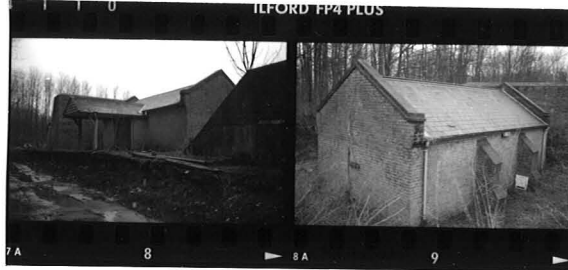
5) The magazine is a single storey building with gabled ends, T shape in plan. It was entered through a covered porch on the western side served by canal RCHM 289. On the northern side is a small blocked window with a red brick arch. On the Eastern elevation are two buttress and a stone plaque with the following inscription 'RGPF VR 1878'. The magazine is protected by a lightning conductor.

The magazine is separated from its neighbour L103 by a mass concrete traverse.

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L103	OLD SERIES 101	RCHME NUMBER	N.G.R. TL 37535 01700
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NAME/FUNCTION Moulding House Magazine No. 3 Paste Store No. 2 Paste Store Magazine burning ground	START DATE 1885 1908? 194? 195?	END DATE 1908? 194? 195?
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### CARTOGRAPHIC DEPICTION

1865 WASC 900/38 + SUPP5 975 ; Moulding House Magazine  
 1865 WASC 900/41A ; Moulding House Magazine  
 1865 WASC 900/42  
 1897 WASC 900/53C  
 c1910 WASC 900/65 ; No.2 Paste Store  
 c1910 WASC 900/79 ; No.2 Paste Store  
 1917 WASC 900/70 ; No.3 Paste Store  
 1917 WASC 900/72 ; 101  
 1919 WASC 900/74 ; 101  
 c1920 WASC 900/80 ; 101  
 1923 WASC 900/84 ; 101  
 > 1940 WASC 900/91A ; 101  
 1954 A - B.34 ; L103  
 c1960 WASC 900/94 ; L103  
 c1963 WASC 900/97 ; L103  
 1972 WASC 900/102 ; L103  
 1972 WASC 900/104 ; L103  
 1976 WASC 900/113 ; L103

### DOCUMENTARY REFERENCES

1908 RGPF Ledger WASC 1509 + WASC 1764 ; Paste Store built 1885 p10  
 c1925 RGPF Ledger WASC 1680 ; Paste Store  
 c1945 RGPF Ledger WASC 1508 ; Paste Store  
 1972 ERDE List ; Magazine Burning Ground  
 1991 Mott McDonald survey  
 1992 RARDE List ; Magazine Burning Ground  
 1992 FBRC ; Class 1 Explosives Magazine

### PHOTOGRAPHY

HISTORIC  
 WASC 1517 General Views x3

### PHOTOGRAPHY

RCHME  
 1) 206/F/8 From South West  
 206/R/14 From South West  
 4) 4786/37 06.05.1993

### RELATIONSHIPS WITH OTHER MONUMENTS

ASSOCIATED WITH: L102, 107, 108, RCHM 289

CONDITION      Good

DESCRIPTION

1) CONSTRUCTIONAL MATERIAL  
Brick in English bond

2) ROOF MATERIALS AND STRUCTURE  
Slate over Brick vault

3) POWER SOURCE  
Steam Electricity

4) DIMENSIONS i) L 9.5 ii) W 4.95 iii) HT 4.3

5) The magazine is a single storey building with gabled ends, T shape in plan. It was entered through a covered porch on the west side served by canal RCHM 289. On the southern elevation is a small blocked window with a red brick arch. A steam pipe also formerly entered the building on this side. To the North steam pipe 15cm diameter. To the East two buttresses. To the South a blocked window and red brick arch and steam pipe. To the west a canal side porch and lightning conductor. The lower front is of grey brick in English bond with the upper in cement render. Includes concrete structure 10.6m by 2.55m by 4.6m which forms a traverse between L102 & 3.



## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L104	OLD SERIES	RCHME NUMBER	N.G.R. TL 37505 01642
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NAME/FUNCTION Shelter	START DATE 1940?	END DATE
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NO PHOTOGRAPHY  
AVAILABLE

### CARTOGRAPHIC DEPICTION

> 1940 WASC 900/91A ; L104  
 1954 A - B.34 ; L104  
 c1960 WASC 900/94 ; L104  
 c1963 WASC 900/97 ; L104  
 1972 WASC 900/102 ; L104  
 1972 WASC 900/104 ; L104  
 1976 WASC 900/113 ; L104

### DOCUMENTARY REFERENCES

Plan;  
 L104 B01 - 19/11/1940 ; A.R. Shelter 20 Men  
  
 1972 ERDE List ; Shelter PAD  
 1991 Mott McDonald survey  
 1992 RARDE List ; Shelter

### PHOTOGRAPHY HISTORIC

PHOTOGRAPHY  
 RCHME  
 1) 206/F/9 From South East

### RELATIONSHIPS WITH OTHER MONUMENTS


ASSOCIATED WITH:

CONDITION Demolished

### DESCRIPTION

- 1) CONSTRUCTIONAL MATERIAL  
Concrete
  
- 4) DIMENSIONS i) L 7m ii) W 4.2m
  
- 5) The building has been demolished a concrete floor slab remains. The walls were 0.5m thick set on a slate damp course.

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L105	OLD SERIES 111A	RCHME NUMBER	N.G.R. TL 37500 01610
NAME/FUNCTION Paste Store No.5 Paste Store Magazine		START DATE 1908-14	END DATE
			
<p><b>CARTOGRAPHIC DEPICTION</b></p> <p>1917 WASC 900/70 ; Paste Store No.5          1917 WASC 900/72 ; 111a          1919 WASC 900/74 ; 111a          c1920 WASC 900/80 ; 111a          1923 WASC 900/84 ; 111a          &gt; 1940 WASC 900/91A ; 111a          1954 A - B.34 ; 111a          c1960 WASC 900/94 ; L105          c1963 WASC 900/97 ; L105          1972 WASC 900/102 ; L105          1972 WASC 900/104 ; L105          1976 WASC 900/113 ; L105</p>		<p><b>DOCUMENTARY REFERENCES</b></p> <p>c1925 RGPF Ledger WASC 1680 ; Paste Store No.5          c1945 RGPF Ledger WASC 1508 ; Paste Store No.5            1972 ERDE List ; Magazine          1991 Mott McDonald survey          1992 RARDE List ; Paste Store Magazine</p>	
<p><b>PHOTOGRAPHY</b> HISTORIC</p>		<p><b>PHOTOGRAPHY</b> RCHME 1) 206/F/21 From North West 206/F/22 From South West</p>	
<p><b>RELATIONSHIPS WITH OTHER MONUMENTS</b></p> <p>ASSOCIATED WITH: RCHM 179, L101, L108</p>			
<p><b>CONDITION</b> Fair</p>			

DESCRIPTION

1) CONSTRUCTIONAL MATERIAL  
Brick English Bond

2) ROOF MATERIALS AND STRUCTURE  
Felt over timber board

3) POWER SOURCE  
Steam Electricity


4) DIMENSIONS i) L 10.55 ii) W 8.4 iii) HT Eave 3.4

5) The magazine is surrounded by an earthen traverse on all sides with a narrow entrance passage on the east. The Magazine is a single storey building, rectangular in plan, with gabled ends each with two blind panels. The southern elevation has three blind panel, lit by a window in the central panel. The northern elevation also has three blind panels with a central doorway. The door way is covered by a wooden porch. Within the porch are the sleepers for the 18" railway and a toe board separating the dirty and clean areas. The interior is lined with timber boards covered by painted calico. The magazine was heated by two steam pipes suspended from the roof. The magazine is protected by a lightning conductor




THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY			
NUMBER L106	OLD SERIES 112	RCHME NUMBER	N.G.R. TL 37641 01606
NAME/FUNCTION Drying Stove		START DATE 1904	END DATE 197?
NO PHOTOGRAPHY AVAILABLE			
<b>CARTOGRAPHIC DEPICTION</b>  c1910 WASC 900/65 ; Drying Stove c1910 WASC 900/79 ; Drying Stove 1917 WASC 900/70 ; Drying Stove 1917 WASC 900/72 ; 112 1919 WASC 900/74 ; 112 c1920 WASC 900/80 ; 112 1923 WASC 900/84 ; 112 Drying Stove > 1940 WASC 900/91A ; L106 1954 A - B.34 ; L106 c1960 WASC 900/94 ; L106 c1963 WASC 900/97 ; L106 1972 WASC 900/102 ; L106 1972 WASC 900/104 ; L106 1976 WASC 900/113 ; L106		<b>DOCUMENTARY REFERENCES</b>  1908 RGPF Ledger WASC 1509 + WASC 1764 ; Drying Stove built 1904 p11 c1925 RGPF Ledger WASC 1680 ; Drying Stove c1945 RGPF Ledger WASC 1508 ; Drying Stove  Plan; L106 B01 - 14/12/1949 ; Experimental Stove for Propellants  1972 ERDE List ; Explosive Store House - Climatic Trials 1991 Mott McDonald survey 1992 RARDE List	
PHOTOGRAPHY HISTORIC		PHOTOGRAPHY RCHME	
<b>RELATIONSHIPS WITH OTHER MONUMENTS</b>  ASSOCIATED WITH: Tetryl Factory to the east			
<b>CONDITION</b> Demolished			
<b>DESCRIPTION</b> 1) CONSTRUCTIONAL MATERIAL Concrete  2) ROOF MATERIALS AND STRUCTURE Felt  3) POWER SOURCE Steam  4) DIMENSIONS i) L 4.6 ii) W 3.9  5) The building has been demolished a concrete floor slab with vertical mounting bolts for timber sills remains. The building was earthed by a copper strips.  Linked to Tetryl factory to the east by the light railway system during the second world war.			

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L107	OLD SERIES 139	RCHME NUMBER	N.G.R. TL 37690 01387
NAME/FUNCTION Dough Store No2 Petrol Store		START DATE Pre 1886	END DATE 1945
			
<b>CARTOGRAPHIC DEPICTION</b>  1923 WASC 900/84 ; Dough Store No2 c1960 WASC 900/94 ; L107 c1963 WASC 900/97 ; L107 1972 WASC 900/102 ; L107 1972 WASC 900/104 ; L107 1976 WASC 900/113 ; L107		<b>DOCUMENTARY REFERENCES</b>  1972 ERDE List ; Store 1991 Mott McDonald survey 1992 RARDE List ; Petrol Store	
<b>PHOTOGRAPHY HISTORIC</b>		<b>PHOTOGRAPHY RCHME</b> 1) 206/C/12 From South West  2) BB92/26158 Interior of Magazine cooling system from west BB92/26159 Control panel or Fan & Lighting BB92/26093 View from North West & L143 from North West	
<b>RELATIONSHIPS WITH OTHER MONUMENTS</b>  ASSOCIATED WITH: L135,L137,L138			
<b>CONDITION</b> Good			
<b>DESCRIPTION</b> 1) <b>CONSTRUCTIONAL MATERIAL</b> Brick in English Bond  2) <b>ROOF MATERIALS AND STRUCTURE</b> Slate over Brick Vault  3) <b>POWER SOURCE</b> Steam Electricity  4) <b>DIMENSIONS</b> i) L 4.02 ii) W 3.96 iii) HT Gable 3.7  5)      The magazine is a single storey building, rectangular in plan, with gabled ends. It was formerly served by a landing stage on the west side. Entry into the magazine was controlled by a inner and outer door. There is a single window in the north wall, possibly inserted, and a control panel inserted into the south wall. The east elevation is blank except for a steam pipe that enters the magazine. The interior has central steam pipe, a roof fan and two swivel bulkhead lights.			

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY


NUMBER L108	OLD SERIES 115	RCHME NUMBER	N.G.R. TL 37560 01568
NAME/FUNCTION Paste Store No6 Metal Store		START DATE 1908-14	END DATE 1945
			
<p>CARTOGRAPHIC DEPICTION</p> <p>c1910 WASC 900/65 ; Paste Store  c1910 WASC 900/79 ; Paste Store  1917 WASC 900/70  1917 WASC 900/72  1919 WASC 900/74  c1920 WASC 900/80  1923 WASC 900/84 Paste Store No6  &gt; 1940 WASC 900/91A ; L108  1954 A - B.34 ; L108  c1960 WASC 900/94 ; L108  c1963 WASC 900/97 ; L108  1972 WASC 900/102 ; L108  1972 WASC 900/104 ; L108  1976 WASC 900/113 ; L108</p>		<p>DOCUMENTARY REFERENCES</p> <p>1908 RGPF Ledger WASC 1509 + WASC 1764 ;  Paste Store built 1902 p12  c1925 RGPF Ledger WASC 1680 ; Paste Store  c1945 RGPF Ledger WASC 1508 ; Paste Store</p> <p>Plans;  L108 B01,B02 ; Plans and Elevations 1901,1940</p> <p>1972 ERDE List ; Magazine  1991 Mott McDonald survey  1992 RARDE List ; Metal Store/Paste Store</p>	
<p>PHOTOGRAPHY HISTORIC</p>		<p>PHOTOGRAPHY RCHME</p> <p>1) 206/U/5 From South  206/U/6 From South East</p> <p>2) BB92/26211 From South East</p>	
<p>RELATIONSHIPS WITH OTHER MONUMENTS</p> <p>ASSOCIATED WITH: RCHM 179, L101, L105</p>			
<p>CONDITION Fair</p>			



DESCRIPTION

- 1) CONSTRUCTIONAL MATERIAL  
Brick in English Bond and Timber
- 2) ROOF MATERIALS AND STRUCTURE  
Slate
- 3) POWER SOURCE  
Steam Electricity
- 4) DIMENSIONS i) L 10.56 ii) W 8.6 iii) HT 3.42
- 5) The magazine is a single storey building with an L shaped plan and gabled ends. The north and south elevations have two blind panels. Attached to the southern wall is pressure guage reading 0-100lbs/sqin. The West elevation has three blind panels with a central window with a red brick arch over. The eastern elevation also has three blind panels with a central doorway, this is protected by a wooden porch cover. A small room to the south of the porch may be a later addition. The magazine was served both by canal RCHM 179 and a light railway. A section of the light railway remains insitu at the rear of the building. Inside the magazine is a single steam pipe.

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L109	OLD SERIES 119	RCHME NUMBER	N.G.R. TL 37606 01522
NAME/FUNCTION Original function unknown Blank Cutting House (exploded) Rebuilt Preparation Room For Gap Test		START DATE 1878 ? (rebuilt 1902) post 1945	END DATE ? 5-Feb-1902 1945
			
<p>CARTOGRAPHIC DEPICTION</p> <p>1886 WASC 900/38 + SUPP5 975  1886 WASC 900/41A  1886 WASC 900/42  1897 WASC 900/53C  c1910 WASC 900/65 ; B/C House  c1910 WASC 900/79  1917 WASC 900/70 ; B/C House  1917 WASC 900/72 ; 119  1919 WASC 900/74 ; 119  c1920 WASC 900/80 ; 119  1923 WASC 900/84 ; 119  &gt; 1940 WASC 900/91A ; L109  1954 A - B.34 ; L109  c1960 WASC 900/94 ; L109  c1963 WASC 900/97 ; L109  1972 WASC 900/102 ; L109  1972 WASC 900/104 ; L109  1976 WASC 900/113 ; L109</p>		<p>DOCUMENTARY REFERENCES</p> <p>1908 RGPF Ledger WASC 1509 + WASC 1764 ; Blank Cutting House built 1902 Traverse pre 1880 p12  c1925 RGPF Ledger WASC 1680 ; Blank Cutting House  c1945 RGPF Ledger WASC 1508 ; Blank Cutting House    Plans;  L109 B01 - B05 ; Plans and Elevations 1952 to 1966    1972 ERDE List ; Test House  1991 Mott McDonald survey  1992 RARDE List ; Prep room for Gas Tap</p>	
<p>PHOTOGRAPHY HISTORIC</p> <p>PRO Supply 5/860 131-8 Explosion Blank Cutting House 5-Feb-1902</p>		<p>PHOTOGRAPHY RCHME</p> <p>1)206/P/6 From south West</p>	
<p>RELATIONSHIPS WITH OTHER MONUMENTS</p> <p>ASSOCIATED WITH: RCHM 179</p>			
<p>CONDITION Fair</p>			

DESCRIPTION

1) CONSTRUCTIONAL MATERIAL  
Brick

2) ROOF MATERIALS AND STRUCTURE  
Corrugated Iron

3) POWER SOURCE  
Steam Electricity

4) DIMENSIONS i) L 10.1 ii) W 7.4 iii) HT 5.0

5) The building is a single storey structure, rectangular in plan, with gabled ends. It is divided into three bays by brick partition walls 0.5m thick. The north and south elevations are blank except for a klaxon on the south wall. The walls and doors on the west side are inserted. building has three rooms divided by partitions 0.5m thick and has re-used light. the North and South elevations are blank, the South has a Claxton fixed to the wall. To the East is a brick outshot with a single door and window.

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L110	OLD SERIES	RCHME NUMBER	N.G.R. TL 37702 01458
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NAME/FUNCTION Acid Store	START DATE Post-War	END DATE
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### CARTOGRAPHIC DEPICTION

1954      A - B.34 ; L110  
 c1960    WASC 900/94 ; L110  
 c1963    WASC 900/97 ; L110  
 1972      WASC 900/102 ; L110  
 1972      WASC 900/104 ; L110  
 1976      WASC 900/113 ; L110

### DOCUMENTARY REFERENCES

1991      Mott McDonald survey  
 1992      RARDE List ; Acid Store

### PHOTOGRAPHY HISTORIC

### PHOTOGRAPHY RCHME

- 1) 206/D/33 From North West  
 206/D/34 From South East  
 206/D/35 Detail of machine bay from North West

### RELATIONSHIPS WITH OTHER MONUMENTS

CUTS L130

CONDITION      Fair

### DESCRIPTION

- 5)      The store is a roughly built structure set into the southern side of the traverse to L130. It is constructed from from reinforced concrete beams and reused sandstone blocks with a roof of RSJs with earth over. A pipe 11.5cm in diameter, with a pulley at the end connects this building to L130.

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L111	OLD SERIES 121	RCHME NUMBER	N.G.R. TL 37615 01511
NAME/FUNCTION Magazine		START DATE 1902	END DATE



<p><b>CARTOGRAPHIC DEPICTION</b></p> <p>1865 WASC 900/38 + SUPP5 975          1865 WASC 900/41A          1865 WASC 900/42          1897 WASC 900/53C          c1910 WASC 900/65 ; Magazine          c1910 WASC 900/79 ; Magazine          1917 WASC 900/70 ; Magazine          1917 WASC 900/72 ; 121          1919 WASC 900/74 ; 121          c1920 WASC 900/80 ; 121          1923 WASC 900/84 ; 121          &gt; 1940 WASC 900/91A ; 121          1954 A - B.34 ; L111          c1960 WASC 900/94 ; L111          c1963 WASC 900/97 ; L111          1972 WASC 900/102 ; L111          1972 WASC 900/104 ; L111          1976 WASC 900/113 ; L111</p>	<p><b>DOCUMENTARY REFERENCES</b></p> <p>1908 RGPF Ledger WASC 1509 + WASC 1764 ; Magazine built 1902 p12          c1925 RGPF Ledger WASC 1680 ; Magazine          c1945 RGPF Ledger WASC 1508 ; Magazine          1972 ERDE List ; Waste Hut          1991 Mott McDonald survey          1992 RARDE List</p>
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<p><b>PHOTOGRAPHY HISTORIC</b></p>	<p><b>PHOTOGRAPHY RCHME</b></p> <p>1) 206/P/7 From South East</p>
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<p><b>RELATIONSHIPS WITH OTHER MONUMENTS</b></p> <p>ASSOCIATED WITH:RCHM 156, L109</p>
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<p><b>CONDITION</b> Poor</p>
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DESCRIPTION

1) CONSTRUCTIONAL MATERIAL  
Brick in English bond

2) ROOF MATERIALS AND STRUCTURE


3) POWER SOURCE

4) DIMENSIONS i) L 3.71m ii) W3.71m iii) HT eave 2.5m

5) The magazine has been fired. The magazine is single storeyed and square in plan. The magazine was served through a door on the eastern side by canal, a rotten landing stage remains. On the north elevation is a small cast iron window with a red brick arch over.




## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L112	OLD SERIES	RCHME NUMBER	N.G.R. TL 37805 01191
NAME/FUNCTION Solvent Store		START DATE 1955?	END DATE
			
<b>CARTOGRAPHIC DEPICTION</b>  1954      A - B.34 c1960    WASC 900/94 ; L112 c1963    WASC 900/97 ; L112 1972    WASC 900/102 ; L112 1972    WASC 900/104 ; L112 1976    WASC 900/113 ; L112		<b>DOCUMENTARY REFERENCES</b>  Plan L112    B01 - 12/12/1955 ; Outbuildings  1972    ERDE List ; Solvent Store 1991    Mott McDonald survey 1992    RARDE List ; Solvent Store	
<b>PHOTOGRAPHY</b> HISTORIC		<b>PHOTOGRAPHY</b> RCHME 206/6/29	
<b>RELATIONSHIPS WITH OTHER MONUMENTS</b>  ASSOCIATED WITH: L113, L117, L159, L165			
<b>CONDITION</b> Demolished			
<b>DESCRIPTION</b> 1) <b>CONSTRUCTIONAL MATERIAL</b> Concrete  3) <b>POWER SOURCE</b> Electricity  4) <b>DIMENSIONS</b> i) L 4.12 ii) W 3.53  5)      The building has been demolished a concrete floor slab remains with a low concrete sill and slate damp proof course.			

**THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY**

NUMBER L113	OLD SERIES	RCHME NUMBER	N.G.R. TL 37799 01188
NAME/FUNCTION Gas Cylinder Storage Block		START DATE 1955?	END DATE
NO PHOTOGRAPHY AVAILABLE			
<p>CARTOGRAPHIC DEPICTION</p> <p>1954     A - B.34  c1960     WASC 900/94 ; L113  c1963     WASC 900/97 ; L113  1972     WASC 900/102 ; L113  1972     WASC 900/104 ; L113  1976     WASC 900/113 ; L113</p>		<p>DOCUMENTARY REFERENCES</p> <p>1972     ERDE List ; Acid Store  1991     Mott McDonald survey  1992     RARDE List ; Gas Cylinder Storage Block</p>	
PHOTOGRAPHY HISTORIC		PHOTOGRAPHY RCHME	
<p>RELATIONSHIPS WITH OTHER MONUMENTS</p> <p>ASSOCIATED WITH: L112, L117, L159, L165</p>			
CONDITION     Demolished			
<p>DESCRIPTION</p> <p>1)     CONSTRUCTIONAL MATERIAL  Concrete</p> <p>4)     DIMENSIONS i) L 2.75 ii) W 2.4</p> <p>5)     The building has been demolished a concrete floor slab remains with a quarry tile floor. There is a drain in the North West corner.</p>			

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L114	OLD SERIES 127	RCHME NUMBER	N.G.R. TL 37580 01447
NAME/FUNCTION Laboratory Explosive Magazine		START DATE 1899	END DATE
			
<p>CARTOGRAPHIC DEPICTION</p> <p>c1910 WASC 900/65 ; Laboratory Magazine  c1910 WASC 900/79 ; Laboratory Magazine  1917 WASC 900/70 ; Laboratory Magazine  1917 WASC 900/72 ; 127  1919 WASC 900/74 ; 127  c1920 WASC 900/80 ; Laboratory Magazine  1923 WASC 900/84 ; 127  &gt; 1940 WASC 900/91A ; L114  1954 A - B.34 ; L114  c1960 WASC 900/94 ; L114  c1963 WASC 900/97 ; L114  1972 WASC 900/102 ; L114  1972 WASC 900/104 ; L114  1976 WASC 900/113 ; L114</p>		<p>DOCUMENTARY REFERENCES</p> <p>1908 RGPF Ledger WASC 1509 + WASC 1764 ;  Laboratory Magazine built 1899 p13  c1925 RGPF Ledger WASC 1680 ; Laboratory  Magazine  c1945 RGPF Ledger WASC 1508 ; Laboratory  Magazine    Plan;  L114 B01 - 17/12/1982 ; Electrical Heating Layout    1972 ERDE List ; Magazine  1991 Mott McDonald survey  1992 RARDE List ; Magazine</p>	
<p>PHOTOGRAPHY HISTORIC</p> <p>WASC 989/2 Lab Magazine &amp; Photographic House  Supply 5/861 ( Photo No. 280), (Neg No. C/88) RCHME  Neg No. BB92/16724 ; Photo House and Lab.Magazine  April 1912</p>		<p>PHOTOGRAPHY RCHME</p> <p>1) 206/C/5 From South  206/C/6 From South with door open</p>	
<p>RELATIONSHIPS WITH OTHER MONUMENTS</p> <p>ASSOCIATED WITH: L122, L115, L116, L190</p>			
<p>CONDITION Good</p>			

DESCRIPTION

1) CONSTRUCTIONAL MATERIAL  
Brick in English Bond


2) ROOF MATERIALS AND STRUCTURE  
Felt

3) POWER SOURCE  
Steam Electricity


4) DIMENSIONS i) L 3.4 ii) W 4.6 iii) HT 3.3

5) The magazine is a single storey building, rectangular in plan, with gabled ends. It was entered through a small porch on the southern side protected by an inner and outer door. On the northern elevation is a small blocked window and a vent. On the inner door is a red sign that reads 'Explosives 250lb -- not to exceed 50lb'.

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY


NUMBER L115	OLD SERIES	RCHME NUMBER	N.G.R. TL 37589 01435
NAME/FUNCTION Air Raid Shelter Explosives Test House		START DATE 1940 1957	END DATE 1945
			
<b>CARTOGRAPHIC DEPICTION</b>  > 1940    WASC 900/91A ; L115 1954     A - B.34 ; L115 c1960    WASC 900/94 ; L115 c1963    WASC 900/97 ; L115 1972     WASC 900/102 ; L115 1972     WASC 900/104 ; L115 1976     WASC 900/113 ; L115		<b>DOCUMENTARY REFERENCES</b>  Plan; L115    B01 - 22/8/1957 ; Prep, Conversion to House Irradiating Source  1972    ERDE List ; Cobalt 60 source 1991    Mott McDonald survey 1992    RARDE List ; Explosives Test House	
<b>PHOTOGRAPHY HISTORIC</b>		<b>PHOTOGRAPHY RCHME</b>  1) 206/C/4 From South West	
<b>RELATIONSHIPS WITH OTHER MONUMENTS</b>  ASSOCIATED WITH: L114, L116, L190			
CONDITION      Fair			
<b>DESCRIPTION</b> Concrete			
2) <b>ROOF MATERIALS AND STRUCTURE</b> Concrete slab			
4) <b>DIMENSIONS</b> i) L 9.31 ii) W 5.3 iii) HT 2.33			
5)      The shelter is a single storey building and has a U shaped plan. The shelter was entered through two doors at either end of the western side. Later conversion of the shelter has entailed the cutting of roof lights. The interior is fitted with red and white lights and is lined with polyester tiles. A small crane is attached to the western wall.			

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L116	OLD SERIES 131	RCHME NUMBER	N.G.R. TL 37585 01422
NAME/FUNCTION Photographic house Heating Trials		START DATE 1899? 1945	END DATE 1945?
			
<p>CARTOGRAPHIC DEPICTION</p> <p>1923 WASC 900/84 ; 131          &gt; 1940 WASC 900/91A ; L116          1954 A - B.34 ; L116          c1960 WASC 900/94 ; L116          c1963 WASC 900/97 ; L116          1972 WASC 900/102 ; L116          1972 WASC 900/104 ; L116          1976 WASC 900/113 ; L116</p>		<p>DOCUMENTARY REFERENCES</p> <p>Plan;          L116 B01 - 21/4/1961 ; Conversion to Stability House          1908 RGPF Ledger WASC 1509 + WASC 1764          Photogarphic House built 1904 p14          1972 ERDE List ; Heating Trials          1991 Mott McDonald survey          1992 RARDE List ; Heating Trials</p>	
<p>PHOTOGRAPHY HISTORIC</p> <p>Supply 5/861 ( Photo No. 280), (Neg No. C/88) RCHME          Neg No. BB92/16724 ; Photo House and Lab.          Magazine April 1912</p> <p>WASC 989/2 Lab Magazine &amp; Photographic House</p>		<p>PHOTOGRAPHY RCHME</p> <p>1) 206/C/3 From South West          2) BB92/16724 L116 foreground L114 to rear (P.R.O)</p>	
<p>RELATIONSHIPS WITH OTHER MONUMENTS</p> <p>ASSOCIATED WITH: L114, L115</p>			
<p>CONDITION Fair</p>			
<p>DESCRIPTION</p> <p>1) CONSTRUCTIONAL MATERIAL          Brick in English Bond</p> <p>2) ROOF MATERIALS AND STRUCTURE          Slate to North Glass light</p> <p>3) POWER SOURCE          Steam Electricity</p> <p>4) DIMENSIONS i) L 5.35 ii) W 5.35 iii) HT 4.2</p> <p>5) The building is a single storey with a gable at either end. The building was entered through double doors on the west side, inside are two rooms the southern one unlit. Attached to the eastern elevation is a small blocked window and a small outshot with a single door. The South elevation is blank.</p>			



## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L117	OLD SERIES	RCHME NUMBER	N.G.R. 37809 01178
NAME/FUNCTION Locker Magazine		START DATE 1956	END DATE 198?
			
<b>CARTOGRAPHIC DEPICTION</b>  c1960    WASC 900/94 ; L117 c1963    WASC 900/97 ; L117 1972    WASC 900/102 ; L117 1972    WASC 900/104 ; L117 1976    WASC 900/113 ; L117		<b>DOCUMENTARY REFERENCES</b>  Plans; L117    B01 - B03 ; Plans and Elevations 1956  1972    ERDE List ; Locker Magazine 1991    Mott McDonald survey 1992    FARDE List ; Locker Magazine 1992    FBRC Class 1 Explosives Magazine	
<b>PHOTOGRAPHY</b> HISTORIC		<b>PHOTOGRAPHY</b> RCHME 1)206/P/10 from West	
<b>RELATIONSHIPS WITH OTHER MONUMENTS</b>  ASSOCIATED WITH: L112, L113, L159, L165			
<b>CONDITION</b> Poor fired			
<b>DESCRIPTION</b> 1) <b>CONSTRUCTIONAL MATERIAL</b> Brick in English Bond  2) <b>ROOF MATERIALS AND STRUCTURE</b> Corrugated Iron  3) <b>POWER SOURCE</b> Electricity  4) <b>DIMENSIONS</b> i) L 10.0 ii) W 2.61  5)      The building has been fire and is now roofless. The building is a single storey and is rectangular in plan. The building was entered through two doors at either end of the north side. Within the magazine were four lockers along the northern side. A sign on the east wall reads 'L117 NP4 DIVISION'. The building has been fired.			

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L118	OLD SERIES	RCHME NUMBER	N.G.R. TL 37586 01394
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NAME/FUNCTION Preparation Room	START DATE 1941	END DATE
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### CARTOGRAPHIC DEPICTION

> 1940 WASC 900/91A ; L118  
 1954 A - B.34 ; L118  
 c1960 WASC 900/94 ; L118  
 c1963 WASC 900/97 ; L118  
 1972 WASC 900/102 ; L118  
 1972 WASC 900/104 ; L118  
 1976 WASC 900/113 ; L118

### DOCUMENTARY REFERENCES

Plan;  
 L118 B01 - 1941 ; General Layout  
 1972 ERDE List ; Preparation Room  
 1991 Mott McDonald survey  
 1992 RARDE List ; Preparation Room

### PHOTOGRAPHY HISTORIC

PHOTOGRAPHY  
 RCHME  
 1) 206/C/2 From West

### RELATIONSHIPS WITH OTHER MONUMENTS


ASSOCIATED WITH: L119?

CONDITION Fair

### DESCRIPTION

- 1) CONSTRUCTIONAL MATERIAL  
Asbestos Sheet and Timber Frame
- 2) ROOF MATERIALS AND STRUCTURE  
Corrugated Asbestos
- 3) POWER SOURCE  
Steam Electricity
- 4) DIMENSIONS i) L 3.9 ii) W 3.28 iii) HT 2.54
- 5) The building is a single storey, rectangular in plan, constructed from a timber frame covered by sheet asbestos. It was entered through a single door on the west side and lit by two windows on the north wall. On the south wall are two small Gauzed covered vents.

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L119	OLD SERIES 144A	RCHME NUMBER	N.G.R. TL 37578 01381
NAME/FUNCTION Managers Office Heat Test Room		START DATE by 1912 1918?	END DATE
			
<p>CARTOGRAPHIC DEPICTION</p> <p>1917 WASC 900/70 ; Heat Test Room          1917 WASC 900/72 ; 144a          1919 WASC 900/74 ; 144a          c1920 WASC 900/80 ; 144a          1923 WASC 900/84 ; 144a          &gt; 1940 WASC 900/91A ; L119          1954 A - B.34 ; L119          c1960 WASC 900/94 ; L119          c1963 WASC 900/97 ; L119          1972 WASC 900/102 ; L119          1972 WASC 900/104 ; L119          1976 WASC 900/113 ; L119</p>		<p>DOCUMENTARY REFERENCES</p> <p>Plan;          L119 B01 - 13/10/1950 ; Alterations, General Layout</p> <p>1972 ERDE List ; Heat Test Room          1991 Mott McDonald survey          1992 RARDE List ; Heat Test Room</p>	
<p>PHOTOGRAPHY HISTORIC</p> <p>WASC 989/1 Main Lab          PRO Supply 5/861 279 April 1912 From west</p>		<p>PHOTOGRAPHY RCHME</p> <p>1) 206/P/8 from South West</p>	
<p>RELATIONSHIPS WITH OTHER MONUMENTS</p> <p>ASSOCIATED WITH: L118?</p>			
<p>CONDITION Fair</p>			

DESCRIPTION

1) CONSTRUCTIONAL MATERIAL  
Rendered Brick


2) ROOF MATERIALS AND STRUCTURE  
Slate

3) POWER SOURCE  
Steam Electricity


4) DIMENSIONS i) L 9.1 ii) W 6.6 iii) HT 5.0

5) The building is a single storey and has a rectangular plan with gabled ends. The floor is raised and the building is entered through two raised doors on the west side and a single raised door on the east side. There are two windows on all the elevations except the eastern where there are three.


## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L120	OLD SERIES 144b	RCHME NUMBER	N.G.R. TL 37588 01383
NAME/FUNCTION Silvered Vessel House Solvent Store		START DATE 1914-18 (rebuilt) 1960	END DATE 1960
			
<p>CARTOGRAPHIC DEPICTION</p> <p>c1910 WASC 900/65 ; Silvered Vessel House  c1910 WASC 900/79 ; Silvered Vessel House  1917 WASC 900/70 ; 144b  1917 WASC 900/72 ; 144b  1919 WASC 900/74 ; 144b  c1920 WASC 900/80 ; 144b  1923 WASC 900/84 ; 144b  &gt; 1940 WASC 900/91A ; L120  1954 A - B.34 ; L120  c1960 WASC 900/94 ; L120  c1963 WASC 900/97 ; L120  1972 WASC 900/102 ; L120  1972 WASC 900/104 ; L120  1976 WASC 900/113 ; L120</p>		<p>DOCUMENTARY REFERENCES</p> <p>c1925 RGPF Ledger WASC 1680 ; Silvered Vessel House  c1945 RGPF Ledger WASC 1508 ; Silvered Vessel House</p> <p>Plans;  L120 B01,B02 ; Plans and Elevations 1960</p> <p>1972 ERDE List ; Solvent Store  1991 Mott McDonald survey  1992 RARDE List ; Solvent Store</p>	
<p>PHOTOGRAPHY HISTORIC</p>		<p>PHOTOGRAPHY RCHME 1)206/F/37 From South West</p>	
<p>RELATIONSHIPS WITH OTHER MONUMENTS ASSOCIATED WITH: L122</p>			
<p>CONDITION Fair</p>			
<p>DESCRIPTION</p> <p>1) CONSTRUCTIONAL MATERIAL Brick</p> <p>2) ROOF MATERIALS AND STRUCTURE Corrugated Asbestos</p> <p>3) POWER SOURCE Electricity</p> <p>4) DIMENSIONS i) L 5.4 ii) W 2.55 ii) HT 2.5</p> <p>5) The store is a single storey structure, rectangular in plan, with gabled ends. The north and south walls incorporate earthenware drain pipes to act as vents. In the eastern wall are two vents. The store was entered through a double grilled door on the west side. Store to the West double doors with grills.</p>			

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L121	OLD SERIES	RCHME NUMBER	N.G.R. TL 37393 01376
NAME/FUNCTION Toilet & Store		START DATE 1952	END DATE
			
<b>CARTOGRAPHIC DEPICTION</b>  > 1940    WASC 900/91A ; L121 1954      A - B.34 ; L121 c1960    WASC 900/94 ; L121 c1963    WASC 900/97 ; L121 1972      WASC 900/102 ; L121 1972      WASC 900/104 ; L121 1976      WASC 900/113 ; L121		<b>DOCUMENTARY REFERENCES</b>  Plans; L121    B01,B02 ; Plans and Elevations 1952  1972    ERDE List ; Toilet and Store 1991    Mott McDonald survey 1992    RARDE List ; Toilet and Store	
<b>PHOTOGRAPHY HISTORIC</b>		<b>PHOTOGRAPHY RCHME</b> 1) 206/F/34 From South East	
<b>RELATIONSHIPS WITH OTHER MONUMENTS</b>  ASSOCIATED WITH: L122			
CONDITION      Good			
<b>DESCRIPTION</b> 1)      CONSTRUCTIONAL MATERIAL Brick  2)      ROOF MATERIALS AND STRUCTURE Corrugated Asbestos  3)      POWER SOURCE Electricity  4)      DIMENSIONS i) L 7.9 ii) W 5.9 iii) HT 4.3  5)      The toilet block is a single storey with a rectangular plan.			

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L122	OLD SERIES 144	RCHME NUMBER	N.G.R. TL 37584 01364
NAME/FUNCTION Main Laboratory Managers Office & Laboratory		START DATE 1897 extended 1902	END DATE
			
CARTOGRAPHIC DEPICTION		DOCUMENTARY REFERENCES	
1897 WASC 900/53C c1910 WASC 900/65 ; Managers office and Laboratory c1910 WASC 900/79 ; Managers office and Laboratory 1917 WASC 900/70 ; Main Laboratory 1917 WASC 900/72 ; 144 1919 WASC 900/74 ; 144 c1920 WASC 900/80 ; 144 1923 WASC 900/84 ; 144 > 1940 WASC 900/91A ; L122 1954 A - B.34 ; L122 c1960 WASC 900/94 ; L122 c1963 WASC 900/97 ; L122 1972 WASC 900/102 ; L122 1972 WASC 900/104 ; L122 1976 WASC 900/113 ; L122		Plans; L122 B01-B22 ; Plans and Elevations 1918 to 1963  1908 RGPF Ledger WASC 1509 + WASC 1764 ; Managers office and Lab built 1897 p15 c1925 RGPF Ledger WASC 1680 ; Managers office and Lab c1945 RGPF Ledger WASC 1508 ; Managers office and Lab  1972 ERDE List ; Main Lab 1991 Mott McDonald survey 1992 RARDE List ; Main Lab  1993 RCHME NBR No.91454	
PHOTOGRAPHY HISTORIC WASC 989/1 Main Lab PRO Supply 5/861 279 April 1912 From north west ?PRO Supply 5/861 281 Fume cupboard in main laboratory		PHOTOGRAPHY RCHME 1) 206/F/35 From South East 206/F/36 From South West 2) BB92/26102 From South East BB92/26103 From North West	
RELATIONSHIPS WITH OTHER MONUMENTS ASSOCIATED WITH: L114, L121			
CONDITION Good			

DESCRIPTION

- 1) CONSTRUCTIONAL MATERIAL  
Timber frame Brick infill upper storey cement rendered
- 2) ROOF MATERIALS AND STRUCTURE  
Slate
- 3) POWER SOURCE  
Steam Electricity
- 4) DIMENSIONS i) L 19.3 ii) W 8.1 iii) HT Eave 7.6
- 5) Date Stone 1902-3

See attached RCHME Threatened Buildings Section report.



ROYAL COMMISSION ON THE HISTORICAL MONUMENTS OF ENGLAND

MOD Building No. L122  
Manager's Office and Laboratory  
The Royal Gunpowder Factory  
Waltham Abbey  
Essex

NBR No: 91454  
NGR: TL37584 01364

This two-storeyed building has a rectangular plan and is constructed of wood-framing with red brick infill. First built in 1897, it was extended to the south in 1902-3.

It has always functioned as a Laboratory and is fitted throughout with benches and gas pipes. There was a Manager's Office on the ground floor.

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Situated on the Queen Meads part of the site, approximately 100 metres west-north-west of "Group F" Incorporating Mills (L145), the building was constructed in 1897 as a Laboratory and Manager's Office.<sup>1</sup>

Of two storeys, it is a wood-framed building with red brick infill on the ground floor between the framing. It has a chamfered brick plinth. The joists of the first floor corbel out approximately 0.30 metre from the ground floor. The infill on the first floor exterior is covered with a cement render. Windows are casement with timber frames. The interior is matchlined and there are timber floorboards. Roof trusses are of timber and each comprises a tie beam, a king post with expanded head and foot, and raking struts. The north and south ends of the roof is hipped, and the whole is covered with slate tiles.

It has a rectangular plan, aligned north to south,<sup>2</sup> which was approximately 11.5 x 8 metres when originally built in 1897. The ground floor, entered by a doorway at the original centre of both the east and west elevations, had four main rooms. There was a further room or rooms on the first floor above.

In 1902-3 the building was extended by three bays (approximately 7.5 metres) to the south.<sup>3</sup> The style and fabric of the extension matches that of the 1897 building. At this date the ground floor of the original building contained a Heat Test Room (north-west), a Gas Room (north-east), a Manager's Office (west) and Principal Foreman's Office (east).<sup>4</sup> Two further ground floor rooms in the extension were Chief Clerk's Office (south-west) and Writer's Room (south-east). The extension has doorway on the west side, giving a second main entrance on the west elevation. There was an extensive network of gas pipes on the east elevation and on the interior.<sup>5</sup>

In c1908, on the north-east side of the building, there was a detached cycle shed, built in 1902 of corrugated iron, and a detached Accumulator House.<sup>6</sup>

Although the building has continued to be used as a Laboratory throughout this century, the function of the rooms has changed

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

<sup>2</sup> 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.

<sup>3</sup> Datestone of 1902-3 on south side. Undated drawing of "Extension of Laboratory Offices", uncatalogued (?H167/X623) (PRO, Hayes Repository).

<sup>4</sup> Undated drawing of "Extension of Laboratory Offices", uncatalogued (?H176/X163), (PRO, Hayes Repository).

<sup>5</sup> Some of the piping still survives on the interior.

<sup>6</sup> Ledger c1908, cat. WASC 1509 (PRO, Hayes Repository).

periodically. In 1918, for example, the ground floor contained a Glass Blower's Room (north-west), a Gas Room (north-east), a Store Room (centre east), Assistant Manager's Room (centre west), C.E. Testing Room (south-east) and Nitrometer Room (south-west), and the first floor contained laboratories with, at the northern end, Balances, Extraction Room and an Office.<sup>7</sup> Proposal drawings of 1936 show the ground floor rooms at the south end of the building as being Chem. Res. Office, Chem. Cor. Office and JAC and Chem II Office, and also show a proposed addition on the south side for Research and CE Labs.<sup>8</sup> It is not clear whether the latter addition was ever built. Plans of 1963 label the rooms on the ground floor as two laboratories, office, PA, DCSO and office, and show the first floor as a large laboratory with a balance room and office at the north end.<sup>9</sup>

Surveyed March 1993  
Report by R L Burgess


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<sup>7</sup> Plans showing arrangement of fittings, benches etc in laboratories, dated 1918, cat. L122.B.07 (MOD Central Disposals Unit, Chessington).


<sup>8</sup> Pencil drawing of proposed extension to Main Laboratory, signed A? White 9/1/1936, uncatalogued drawing 144 (PRO, Hayes Repository).

<sup>9</sup> Plans for modifications to first floor laboratories, dated 14/5/1963, cat. L122.B.15 (MOD Central Disposals Unit, Chessington).

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L125	OLD SERIES	RCHME NUMBER	N.G.R. TL 37610 01369
NAME/FUNCTION Electrical Store		START DATE 195?	END DATE
			
<b>CARTOGRAPHIC DEPICTION</b>  > 1940    WASC 900/91A ; L125 1954      A - B.34 ; L125 c1960    WASC 900/94 ; L125 c1963    WASC 900/97 ; L125 1972      WASC 900/102 ; L125 1972      WASC 900/104 ; L125 1976      WASC 900/113 ; L125		<b>DOCUMENTARY REFERENCES</b>  1972      ERDE List ; Electrical Store 1991      Mott McDonald survey 1992      RARDE List ; Electrical Store	
<b>PHOTOGRAPHY HISTORIC</b>		<b>PHOTOGRAPHY RCHME</b> 1) 206/P/9 From South West	
<b>RELATIONSHIPS WITH OTHER MONUMENTS</b>  ASSOCIATED WITH: L122			
CONDITION      Good			
<b>DESCRIPTION</b> 1)      CONSTRUCTIONAL MATERIAL Brick  2)      ROOF MATERIALS AND STRUCTURE Concrete Slab  3)      POWER SOURCE Steam Electricity  4)      DIMENSIONS i) L 2.26 ii) W 2.26 iii) HT 2.30  5)      The small single storey store has a square plan. There is a single door on the north wall. It is protected by a lightning conductor.			

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L126	OLD SERIES	RCHME NUMBER	N.G.R. TL 37634 01378
NAME/FUNCTION Sewer pump house		START DATE 1951-2	END DATE
			
<b>CARTOGRAPHIC DEPICTION</b>  c1960      WASC 900/94 ; L126 c1963      WASC 900/97 ; L126 1972        WASC 900/102 ; L126 1972        WASC 900/104 ; L126 1976        WASC 900/113 ; L126		<b>DOCUMENTARY REFERENCES</b>  Plans; L126      B01-B04 ; Plans and ELevaltions 1951-52  1972      ERDE List ; Sewer Pump House 1991      Mott McDonald survey 1992      RARDE List ; Sewer Pump House	
<b>PHOTOGRAPHY HISTORIC</b>		<b>PHOTOGRAPHY RCHME</b> 1) 206/F/32 Pump House from South East	
<b>RELATIONSHIPS WITH OTHER MONUMENTS ASSOCIATED WITH: L170, H17, H31</b>			
<b>CONDITION      Good</b>			
<b>DESCRIPTION</b> 1) <b>CONSTRUCTIONAL MATERIAL</b> Brick  2) <b>ROOF MATERIALS AND STRUCTURE</b> Flat concrete slab  3) <b>POWER SOURCE</b> Electricity  4) <b>DIMENSIONS</b> i) L 4.3m ii) W 3.37m iii) HT 2.8m  5)      The pump house is a single storey brick building, it has a rectangular plan. It is entered through a single door on the west side and is lit by a window on the north wall. Internally are two electric pumps.			

**THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY**

NUMBER L127	OLD SERIES	RCHME NUMBER	N.G.R. TL 37850 01138
NAME/FUNCTION Car Hoist		START DATE 1959	END DATE
NO PHOTOGRAPHY AVAILABLE			
CARTOGRAPHIC DEPICTION  c1960 WASC 900/94 ; L127 c1963 WASC 900/97 ; L127 1972 WASC 900/102 ; L127 1972 WASC 900/104 ; L127 1976 WASC 900/113 ; L127		DOCUMENTARY REFERENCES  Plans; L127 B01 - B08 ; Plans and Elevations 1959  1972 ERDE List ; Car Hoist 1991 Mott McDonald survey 1992 RARDE List ; Car Hoist	
PHOTOGRAPHY HISTORIC		PHOTOGRAPHY RCHME	
RELATIONSHIPS WITH OTHER MONUMENTS  ASSOCIATED WITH: L162			
CONDITION			
DESCRIPTION 5) Site unavailable for inspection beneath dump.			

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L130	OLD SERIES 123	RCHME NUMBER	N.G.R. TL 37700 01476
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NAME/FUNCTION Moulding House No2 Cordite Hydraulic Press House Magazine	START DATE 186?? 1898	END DATE 1898?
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<p><b>CARTOGRAPHIC DEPICTION</b></p> <p>1865 WASC 900/38 + SUPP5 975 ; Moulding House No.2</p> <p>1865 WASC 900/41A ; Moulding House No.2</p> <p>1865 WASC 900/42</p> <p>1897 WASC 900/53C</p> <p>c1910? WASC 900/65 ; Moulding House No.2</p> <p>c1910? WASC 900/79 ; Moulding House No.2</p> <p>1917 WASC 900/72 ; 123</p> <p>1919 WASC 900/74 ; 123</p> <p>c1920 WASC 900/80 ; 123</p> <p>&gt;1940 WASC 900/91A ; L130</p> <p>1954 A - B.34 ; L130</p> <p>c1960 WASC 900/94 ; L130</p> <p>c1963 WASC 900/97 ; L130</p> <p>1972 WASC 900/102 ; L130</p> <p>1972 WASC 900/104 ; L130</p> <p>1976 WASC 900/113 ; L130</p>	<p><b>DOCUMENTARY REFERENCES</b></p> <p>Plans;</p> <p>L130 B01,B02 ; Plans and Elevations 1892-94</p> <p>1888 Maj.Gen W.H.Wardell <u>Handbook of Gunpowder &amp; Guncotton</u> 1888 Chp V111 p.61-9 Plate X111 p.80</p> <p>1908 RGPF Ledger WASC 1509 + WASC 1764 ; Press House built 1882 p13</p> <p>c1925 RGPF Ledger WASC 1680 ; Press House</p> <p>c1945 RGPF Ledger WASC 1508 ; Press House</p> <p>1972 ERDE List ; Pyrotechnics Store and Workroom</p> <p>1991 Mott McDonald survey</p> <p>1992 RARDE List ; Ruin</p>
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<p><b>PHOTOGRAPHY HISTORIC</b></p>	<p><b>PHOTOGRAPHY RCHME</b></p> <p>1)206/D/33 View from East</p> <p>206/D/34 View from South East</p> <p>206/D/35 View from West</p>
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<p><b>RELATIONSHIPS WITH OTHER MONUMENTS</b></p> <p>ASSOCIATED WITH: L110, L136?</p>
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<p><b>CONDITION</b> Fair</p>
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DESCRIPTION

1) CONSTRUCTIONAL MATERIAL  
Brick and earthwork

2) ROOF MATERIALS AND STRUCTURE  
-

3) POWER SOURCE  
Hydraulic? Electricity

4) DIMENSIONS i) L 17.5m ii) W 15.5m iii) HT 5.5m

5) The moulding house sat at the centre of an L shaped traverse the inner face revetted in brick. At the northern edge of the traverse is the remains of a small room two narrow slots in the wall may have formerly housed connections to the machinery within the traverse. The moulding house has been demolished. A concrete floor slab 8.65m x 7.4m covered by asphalt remains this may represent the floor of the later magazine. This magazine was served by the canal to the north, a rotten landing stage remains.

A broken pottery insulator dated 1897 found lying within the traverse may indicate the introduction of electric lighting around this date when the structure was converted into a magazine.


A small store L110 has been cut into the southern side of the traverse.

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L131	OLD SERIES	RCHME NUMBER	N.G.R. TL 37695 01447
NAME/FUNCTION Solvent Store		START DATE 1953	END DATE
NO PHOTOGRAPHY AVAILABLE			
CARTOGRAPHIC DEPICTION  > 1940    WASC 900/91A ; L131 1954      A - B.34 ; L131 c1960    WASC 900/94 ; L131 c1963    WASC 900/97 ; L131 1972      WASC 900/102 ; L131 1972      WASC 900/104 ; L131 1976      WASC 900/113 ; L131		DOCUMENTARY REFERENCES  Plans; L131    B01 - B03 ; Plans and Elevations 1953 to 1955  1972    ERDE List ; Solvent Store 1991    Mott McDonald survey 1992    RARDE List ; Solvent Store	
PHOTOGRAPHY HISTORIC		PHOTOGRAPHY RCHME	
RELATIONSHIPS WITH OTHER MONUMENTS  ASSOCIATED WITH: L134? L137?			
CONDITION: Demolished			
DESCRIPTION 1)        CONSTRUCTIONAL MATERIAL  2)        ROOF MATERIALS AND STRUCTURE  3)        POWER SOURCE  4)        DIMENSIONS i) L        ii) W        iii) HT  5)        Demolished, concrete floor slab remains.			



## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L132	OLD SERIES 128A	RCHME NUMBER	N.G.R. TL 37666 01452
NAME/FUNCTION Pump House Physical Test House/Climatic Control Building		START DATE 1914? Post 1945	END DATE 1945
			
CARTOGRAPHIC DEPICTION  1917 WASC 900/70 ; Pump House 1917 WASC 900/72 ; 128a 1919 WASC 900/74 ; 128a c1920 WASC 900/80 ; 128a 1923 WASC 900/84 ; 128a Pump House >1940 WASC 900/91A ; L132 1954 A - B.34 ; L132 c1960 WASC 900/94 ; L132 c1963 WASC 900/97 ; L132 1972 WASC 900/102 ; L132 1972 WASC 900/104 ; L132 1976 WASC 900/113 ; L132		DOCUMENTARY REFERENCES  Plans; L132 B01,B02 ; Plans and Elevations 1914 to 1958  c1925 RGPF Ledger WASC 1680 ; Pump House c1945 RGPF Ledger WASC 1508 ; Pump House  1972 ERDE List ; Physical Test House 1991 Mott McDonald survey 1992 RARDE List ; Physical Test House/ Climate Control Building	
PHOTOGRAPHY HISTORIC WASC 1543/14 Gen View		PHOTOGRAPHY RCHME 1)206/B/3 View from top floor of L136 ie from West 206/C/15 From South West 2) BB92/26162 Detail of roof structure from West	
RELATIONSHIPS WITH OTHER MONUMENTS  ASSOCIATED WITH: L134			
CONDITION      Good			
DESCRIPTION 1)      CONSTRUCTIONAL MATERIAL Brick in Flemish Bond  2)      ROOF MATERIALS AND STRUCTURE Felt over timber boards in a hipped pyramid form  3)      POWER SOURCE Steam Electricity  4)      DIMENSIONS i) L 5.83 ii) W 5.39 iii) HT Eave 4.3  5)      The building is a single storey with an almost square plan, it has pyramidal shaped roof. The building is entered through modern double doors on the western side. On the eastern elevation is an original window with a stone sill a metal window has been inserted into the north wall. Across the top of the interior are two RSJs with wheeled runners, the interior has latterly been partitioned.			

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L133	OLD SERIES 128	RCHME NUMBER	N.G.R. TL 37648 01442
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NAME/FUNCTION Magazine Paste Store Rework Magazine Propellant Store	START DATE 1879	END DATE
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### CARTOGRAPHIC DEPICTION

1897 WASC 900/53C  
 c1910 WASC 900/65 ; Paste Store  
 c1910 WASC 900/79 ; 128  
 1917 WASC 900/70 ; 128  
 1917 WASC 900/72 ; 128  
 1919 WASC 900/74 ; 128  
 c1920 WASC 900/80 ; 128  
 1923 WASC 900/84 ; 128  
 > 1940 WASC 900/91A ; L133  
 1954 A - B.34 ; L133  
 c1960 WASC 900/94 ; L133  
 c1963 WASC 900/97 ; L133  
 1972 WASC 900/102 ; L133  
 1972 WASC 900/104 ; L133  
 1976 WASC 900/113 ; L133

### DOCUMENTARY REFERENCES

Plans;  
 L133 B01 -B03 ; Plans and Elevations

1908 RGPF Ledger WASC 1509 + WASC 1764 ;  
 Paste Store built 1879 p13

c1925 RGPF Ledger WASC 1680 ; Paste Store  
 c1945 RGPF Ledger WASC 1508 ; Paste Store

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

1992 FBRC ; Class 3 Explosives Magazine

### PHOTOGRAPHY HISTORIC

PHOTOGRAPHY  
 RCHME  
 1) 206/C/17 From West

### RELATIONSHIPS WITH OTHER MONUMENTS

ASSOCIATED WITH:RCHM 179


CONDITION Fair

DESCRIPTION

- 1) CONSTRUCTIONAL MATERIAL  
Brick in English Bond and two Red Brick bands
- 2) ROOF MATERIALS AND STRUCTURE  
Felt over Slate covers a brick vault with suspended ceiling.
- 3) POWER SOURCE  
Steam Electricity
- 4) DIMENSIONS i) L 9.3 ii) W 4.77 iii) HT Eave 2.55
- 5) The magazine is a single storey building, rectangular in plan, with gable ends. It is entered from the western side through modern double doors. Disturbance to the brick work around the entrance may indicate that a small brick porch has been removed. On the north and south elevations are small blocked segmental headed windows. The eastern wall is supported by two brick buttresses. The building is protected by a lightning conductor.

The building was formerly served by the now filled canal RCHM179.


## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L134	OLD SERIES 129A	RCHME NUMBER	N.G.R. TL 37682 01430
NAME/FUNCTION Press House No. 2 Laboratories		START DATE 1914-1917? 1951	END DATE 1945
			
<p>CARTOGRAPHIC DEPICTION</p> <p>1917 WASC 900/70 ; Press House No.2          1917 WASC 900/72 ; 129a          1919 WASC 900/74 ; 129a          c1920 WASC 900/80 ; 129a          1923 WASC 900/84 ; 129a          &gt; 1940 WASC 900/91A ; L134          1954 A - B.34 ; L134          c1960 WASC 900/94 ; L134          c1963 WASC 900/97 ; L134          1972 WASC 900/102 ; L134          1972 WASC 900/104 ; L134          1976 WASC 900/113 ; L134</p>		<p>DOCUMENTARY REFERENCES</p> <p>Plans;          L134 B01 - B36 ; Plans and Elevations 1952 to 1986</p> <p>c1925 RGPF Ledger WASC 1680 ; Press House No.2          1938 Text Book of Explosives 1938 Chp XV          p99-111 Figs 15.2-9          c1945 RGPF Ledger WASC 1508 ; Press House No.2          Not Dated WASC 901/101 Materials Research          Laboratories "Preliminary"</p> <p>1972 ERDE List ; Laboratories          1991 Mott McDonald survey          1992 FARDE List ; Laboratories</p> <p>1992 FBRC Workshops, Mess, Rm3 Flammable</p>	
<p>PHOTOGRAPHY          HISTORIC          PRO Supply 5/860 79 1893 Hydraulic Press          PRO Supply 5/860 81 1893 Large vertical Press. In raised          letters on the side RGP W^D          PRO Supply 5/861 309-10 Ignition in bay 3 5-aug-1916</p>		<p>PHOTOGRAPHY          RCHME</p> <p>1) 206/U/18 From south          206/U/19 From south east          206/U/20 From west          2)BB92/26367 Documents of Gunpowder Works          Elevations &amp; Plans</p>	
<p>RELATIONSHIPS WITH OTHER MONUMENTS</p> <p>ASSOCIATED WITH: L143, L146, L151, L155, L159, L187</p>			
<p>CONDITION Fair</p>			

DESCRIPTION

- 1) CONSTRUCTIONAL MATERIAL  
Brick in English Bond
- 2) ROOF MATERIALS AND STRUCTURE  
Felt with vents, roof lights to the East
- 3) POWER SOURCE  
Hydraulic?, Steam, Electricity
- 4) DIMENSIONS i) L 65.95 ii) W 10.36 iii) HT Eave 3.55
- 5) The building is single storeyed with a rectangular plan the original walls are laid in English bond. The original structure consists of the west wall and the internal brick partition walls creating eight bays. An additional room has been added to the north and south ends and a timber lean-to corridor along the eastern side. 10 bays formed by partitions. At the centre of each bay is a metal roof truss. All the interior partition walls are plastered thereby masking any evidence for the transmission of power within the building.

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L135	OLD SERIES	RCHME NUMBER 129	N.G.R. TL 37666 01440
NAME/FUNCTION Tray Magazine Workshop		START DATE 1882 195?	END DATE 195?
			
<p>CARTOGRAPHIC DEPICTION</p> <p>1865 WASC 900/38 + SUPP5 975  1865 WASC 900/41A  1865 WASC 900/42  1897 WASC 900/53C  c1910 WASC 900/65 ; Tray Magazine  c1910 WASC 900/79 ; Tray Magazine  1917 WASC 900/70 ; Tray Magazine  1917 WASC 900/72 ; 129  1919 WASC 900/74 ; 129  c1920 WASC 900/80 ; 129  1923 WASC 900/84 ; 129  &gt; 1940 WASC 900/91A ; L135  1954 A - B.34 ; L135  c1960 WASC 900/94 ; L135  c1963 WASC 900/97 ; L135  1972 WASC 900/102 ; L135  1972 WASC 900/104 ; L135  1976 WASC 900/113 ; L135</p>		<p>DOCUMENTARY REFERENCES</p> <p>Plan; L135 B02 - 1894 ; Plan,Section and Elevation</p> <p>1908 RGPF Ledger WASC 1509 + WASC 1764 1 ; Tray Magazine built 1882 p14  c1925 RGPF Ledger WASC 1680 ; Tray Magazine  c1945 RGPF Ledger WASC 1508 ; Tray Magazine</p> <p>1972 ERDE List ; Workshop  1991 Mott McDonald survey  1992 RARDE List ; Workshop</p> <p>1992 FBRC ; Stores</p>	
<p>PHOTOGRAPHY HISTORIC WASC 1543/14 Gen View</p>		<p>PHOTOGRAPHY RCHME 1) 206/B/2 View from top of L136 from West 206/C/14 From South West 2) BB92/26266 From South West (Colour)</p>	
<p>RELATIONSHIPS WITH OTHER MONUMENTS</p> <p>ASSOCIATED WITH: L107,L135,L137,L138</p>			
CONDITION		Good	

DESCRIPTION

- 1) CONSTRUCTIONAL MATERIAL  
Brick in English Bond with red brick bands
- 2) ROOF MATERIALS AND STRUCTURE  
Slate over brick vault
- 3) POWER SOURCE  
Steam Electricity
- 4) DIMENSIONS i) L 9.35 ii) W 3.94 iii) HT 4.6
- 5) The magazine is a single storey building, rectangular in plan, with gabled ends north and south. It was formerly served by a canal on the west side. Entry to the building was under a cover porch, the step of which retains a hide floor covering fixed by copper nails. The doors to the magazine are modern. On the northern elevation is a small segmental headed window with a stone sill and on the eastern wall two brick buttresses. The magazine has subsequently been converted into a workshop, in addition to the insertion of the modern doors a metal window has been inserted into the south window. The workshop was heated by steam pipes.

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L136	OLD SERIES	RCHME NUMBER 130	N.G.R. TL 37647 01429
NAME/FUNCTION Remote Accumulator Tower Offices		START DATE 1878 1948	END DATE 1945



<p><b>CARTOGRAPHIC DEPICTION</b></p> <p>1865 WASC 900/38 + SUPP5 975 ; Accumulator House</p> <p>1865 WASC 900/41A ; Accumulator House</p> <p>1865 WASC 900/42 ; Accumulator House</p> <p>1897 WASC 900/53C</p> <p>c1910 WASC 900/65 ; Accumulator House</p> <p>c1910 WASC 900/79 ; Accumulator House</p> <p>1917 WASC 900/70 ; Accumulator House</p> <p>1917 WASC 900/72 ; 130</p> <p>1919 WASC 900/74 ; 130</p> <p>c1920 WASC 900/80 ; 130</p> <p>1923 WASC 900/84 ; 130</p> <p>&gt;1940 WASC 900/91A ; L136</p> <p>1954 A - B.34 ; L136</p> <p>c1960 WASC 900/94 ; L136</p> <p>c1963 WASC 900/97 ; L136</p> <p>1972 WASC 900/102 ; L136</p> <p>1972 WASC 900/104 ; L136</p> <p>1976 WASC 900/113 ; L136</p>	<p><b>DOCUMENTARY REFERENCES</b></p> <p>Plans; L136 B01 -B03 ; Plans and Elevations 1878 to 1970</p> <p>1908 RGPF Ledger WASC 1509 + WASC 1764 ; Accumulator House built 1879 p14</p> <p>c1925 RGPF Ledger WASC 1680 ; Accumulator House</p> <p>c1945 RGPF Ledger WASC 1508 ; Accumulator House</p> <p>1972 ERDE List ; TR Tower</p> <p>1991 Mott McDonald survey</p> <p>1992 RARDE List ; TR Tower</p>
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<p><b>PHOTOGRAPHY HISTORIC</b></p>	<p><b>PHOTOGRAPHY RCHME</b></p> <p>1) 206/B/1 View looking South 206/C/10 From South West 206/D/37 Gen view South from L136</p> <p>2) BB92/26097 Remote Accumulator Tower built 1878 From South East BB92/26115 View from South West</p>
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<p><b>RELATIONSHIPS WITH OTHER MONUMENTS</b></p> <p>ASSOCIATED WITH: L149, L130, L137, L132?, S31?, 107?, 108?</p>
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<p><b>CONDITION</b> Good</p>
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DESCRIPTION

1) CONSTRUCTIONAL MATERIAL  
Brick in English Bond

2) ROOF MATERIALS AND STRUCTURE  
Flat Concrete slab over RSJ

3) POWER SOURCE  
i) Water ii) Electricity

4) DIMENSIONS i) L 6.4 ii) W 6.39

5) The present structure has three storeys and is square in plan. All the elevations of the building have a single blind panel and the remains of two narrow blocked windows are visible on each elevation. Subsequent to its conversion to office accomodation two floors and a staircase have been inserted along with larger windows. On the southern elevation a stone plaque has the following inscription 'RGPF VR 1879'.

This tower acted as a remote accumulator for L149.

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L137	OLD SERIES	RCHME NUMBER 134	N.G.R. TL 37725 01418
NAME/FUNCTION Gun Cotton Press House Hydraulic Press House & Experimental House Press House No. 3 Hydraulic Press House Group H Laboratory		START DATE pre 1886  1947	END DATE  1945



<p><b>CARTOGRAPHIC DEPICTION</b></p> <p>1865 WASC 900/41A ; Guncotton Press House &amp; Experimental House</p> <p>1865 WASC 900/42</p> <p>1897 WASC 900/53C</p> <p>c1910 WASC 900/65 ; Hydraulic Press House, Group H</p> <p>c1910 WASC 900/79 ; Hydraulic Press House, Group H</p> <p>1917 WASC 900/70 ; Press House No.3</p> <p>1917 WASC 900/72 ; 134</p> <p>1919 WASC 900/74 ; 134</p> <p>c1920 WASC 900/80 ; 134</p> <p>1923 WASC 900/84 ; 134</p> <p>&gt; 1940 WASC 900/91A ; L137</p> <p>1954 A - B.34 ; L137</p> <p>c1960 WASC 900/94 ; L137</p> <p>c1963 WASC 900/97 ; L137</p> <p>1972 WASC 900/102 ; L137</p> <p>1972 WASC 900/104 ; L137</p> <p>1976 WASC 900/113 ; L137</p>	<p><b>DOCUMENTARY REFERENCES</b></p> <p>Plans;</p> <p>L137 B01 - B53 ; Plans and Elevations 1947 to 1983</p> <p>1908 RGPF Ledger WASC 1509 + WASC 1764 ; Hydraulic Press House Group H built 1902/3/4 p14</p> <p>c1925 RGPF Ledger WASC 1680 ; Hydraulic Press House Group H</p> <p>c1945 RGPF Ledger WASC 1508 ; Hydraulic Press House Group H</p> <p>1972 ERDE List ; Lab. Press House No.2</p> <p>1991 Mott McDonald survey</p> <p>1992 RARDE List ; Lab. Press House No.2</p> <p>1992 FBRC ; Lab. Offices Laser Hazard</p>
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<p><b>PHOTOGRAPHY HISTORIC</b></p> <p>WASC 741 Old Guncotton &amp; Cordite conv to labs 1968</p> <p>WASC 742 Old Guncotton &amp; Cordite conv to labs 1968</p> <p>WASC 1524/26 Dr D Sims test of plastics breaking point</p> <p>PRO Supply 5/861 213 10-May-1905 Cordite Press bay 2</p> <p>PRO Supply 5/861 214 10-May-1905 Lift with cylinder bay 2</p> <p>PRO Supply 5/861 215 10-May-1905 Front elevation showing toe boards and railway at north end</p> <p>PRO Supply 5/861 10-May-1905 Rear elevation showing pipes, (?hydraulic or ?heating)</p> <p>PRO Supply 5/861 238-243 Damage to cordite press bay I 2-Dec-1907</p> <p>PRO Supply 5/861 265-9, 271 Cordite press explosion, no date</p>	<p><b>PHOTOGRAPHY RCHME</b></p> <p>1) 206/G/36 From South</p> <p>206/T/28 From South East</p> <p>2) BB92/25356 No3 Press House Sections Plans &amp; Elevations</p> <p>BB92/26377 Extension of Press House Group H</p> <p>BB92/26383 Extension of Press House Group H</p> <p>BB92/26384 Extension of Press House Group H</p>
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RELATIONSHIPS WITH OTHER MONUMENTS

ASSOCIATED WITH: Expense Magazines L107,L135 L138 Secondary L136, L131, L149

CONDITION      Good

DESCRIPTION

- 1)      CONSTRUCTIONAL MATERIAL  
        Brick
- 2)      ROOF MATERIALS AND STRUCTURE  
        Felt
- 3)      POWER SOURCE  
        Electricity
- 4)      DIMENSIONS i) L 53.1 ii) W 8.6
- 5)      This building is single storeyed and is rectangular in plan. It is divided into seven bays by five internal partition walls. All the internal walls were plastered. The north and south bays are later additions as is the brick corridor along the eastern side. The bays partly lit by glass roof lights.

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L138	OLD SERIES	RCHME NUMBER 133/139	N.G.R. TL 37678 01410
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NAME/FUNCTION Dough Store No. 7 Store House	START DATE 1870	END DATE
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### CARTOGRAPHIC DEPICTION

1917 WASC 900/70 ; Dough Store No.7  
 1917 WASC 900/72 ; 139  
 1919 WASC 900/74 ; 133  
 c1920 WASC 900/80  
 1923 WASC 900/84 ; 133  
 > 1940 WASC 900/91A ; L138  
 1954 A - B.34 ; L138  
 c1960 WASC 900/94 ; L138  
 c1963 WASC 900/97 ; L138  
 1972 WASC 900/102 ; L138  
 1972 WASC 900/104 ; L138  
 1976 WASC 900/113 ; L138

### DOCUMENTARY REFERENCES

1908 RGPF Ledger WASC 1509 + WASC 1764 ;  
 Dough Store built 1870 p14  
 c1925 RGPF Ledger WASC 1680 ; Dough Store  
 c1945 RGPF Ledger WASC 1508 ; Dough Store  
 1972 ERDE List ; Store House  
 1991 Mott McDonald survey  
 1992 RARDE List ; Store House

### PHOTOGRAPHY HISTORIC

### PHOTOGRAPHY RCHME

1) 206/C/11 From South West

### RELATIONSHIPS WITH OTHER MONUMENTS

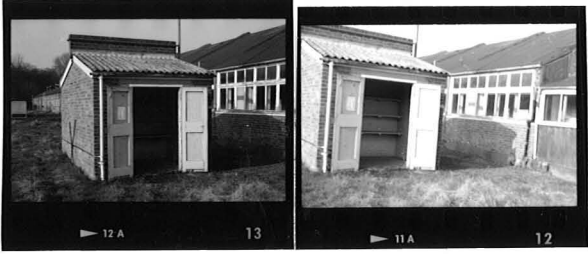
ASSOCIATED WITH L107,L135, L137

CONDITION Fair


### DESCRIPTION

- 1) CONSTRUCTIONAL MATERIAL  
Brick in English Bond
- 2) ROOF MATERIALS AND STRUCTURE  
Slate over brick vault
- 3) POWER SOURCE  
Steam Electricity
- 4) DIMENSIONS i) L 4.01 ii) W 3.94 iii) HT Gable 3.7
- 5) The store is a single storey building, it has an almost square plan. The store was served by the adjacent canal to the west. The entrance is protected by a covered timber porch. At the threshold of the door is a removable shoe board to delimit a dirty and clean area. Windows have been inserted into the north and south walls. The interior has centrally suspended steam pipes. The building is earthed.

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L139	OLD SERIES	RCHME NUMBER	N.G.R. TL 37706 01354
NAME/FUNCTION Magazine		START DATE 1958?	END DATE
			
<p>CARTOGRAPHIC DEPICTION</p> <p>c1960 WASC 900/94 ; L139  c1963 WASC 900/97 ; L139  1972 WASC 900/102 ; L139  1972 WASC 900/104 ; L139  1976 WASC 900/113 ; L139</p>		<p>DOCUMENTARY REFERENCES</p> <p>Plans;  L139 B01,B02 ; Plans and Elevations 1957 to 1961</p> <p>1972 ERDE List ; Magazine  1991 Mott McDonald survey  1992 RARDE List ; Magazine</p>	
<p>PHOTOGRAPHY  HISTORIC</p>		<p>PHOTOGRAPHY  RCHME</p> <p>1) 206/P/12 From South  206/P/13 From South doors open  2) BB92/26095 View from South West  BB92/26096 View from South West  BB92/26115 View from South West</p>	
<p>RELATIONSHIPS WITH OTHER MONUMENTS</p> <p>ASSOCIATED WITH: L143, L146</p>			
<p>CONDITION      Good</p>			
<p>DESCRIPTION</p> <p>1)      CONSTRUCTIONAL MATERIAL  Brick in Stretcher bond</p> <p>2)      ROOF MATERIALS AND STRUCTURE  Corrugated Asbestos</p> <p>3)      POWER SOURCE  Steam Electricity</p> <p>4)      DIMENSIONS i) L 4.35 ii) W 2.9 iii) HT Gable 2.9</p> <p>5)      The building is a single storey building with a rectangular plan with gables elevations east and west. The building is divided into two self contained rooms by a central wall. The southern room is entered through double doors on the south wall, internally the room is shelved and heated with steam pipes. The northern room is also entered through double doors, with a red shoe board at the threshold. Internally there is a single shelf, it is heated by steam pipes. The building is earthed and connected to a lightning pole 7.0m in height attached to the east wall.</p>			

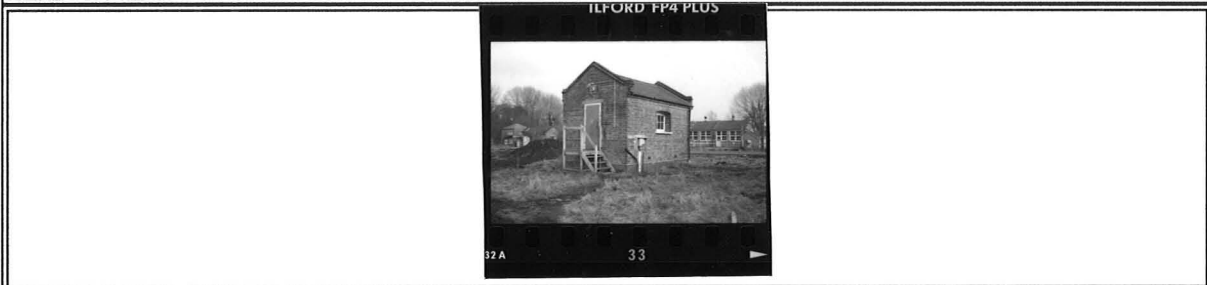
## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L140	OLD SERIES	RCHME NUMBER	N.G.R. TL 37672 01365
NAME/FUNCTION Locker Magazine		START DATE 1955?	END DATE
			
<b>CARTOGRAPHIC DEPICTION</b>  c1960    WASC 900/94 ; L140 c1963    WASC 900/97 ; L140 1972     WASC 900/102 ; L140 1972     WASC 900/104 ; L140 1976     WASC 900/113 ; L140		<b>DOCUMENTARY REFERENCES</b>  Plan; L140    B01 - 10/4/1961 ; Extention to Magazine  1972    ERDE List ; Locker Magazine 1991    Mott McDonald survey 1992    RARDE List ; Locker Magazine  1992    FBRC ; Class 1 Explosives	
<b>PHOTOGRAPHY HISTORIC</b>		<b>PHOTOGRAPHY RCHME</b> 1) 206/C/13 From South West	
<b>RELATIONSHIPS WITH OTHER MONUMENTS</b>  ASSOCIATED WITH: L145			
<b>CONDITION</b> Good			
<b>DESCRIPTION</b> 1) <b>CONSTRUCTIONAL MATERIAL</b> Brick in English bond  2) <b>ROOF MATERIALS AND STRUCTURE</b> Corrugated asbestos  3) <b>POWER SOURCE</b> Electricity  4) <b>DIMENSIONS</b> i) L 5.5m ii) W 2.6m ii) HT gable 2.6m  5)        The magazine is a single storey building, it has a rectangular plan and is laid in English bond. roof. The building is protected by a copper strip lightning conductor. Internally are metal locker magazines.			

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L141	OLD SERIES 143	RCHME NUMBER	N.G.R. TL 37652 01376
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NAME/FUNCTION Expense Magazine Sorting house no. 1 Sorting house no. 2 Solvent extraction room	START DATE 1899  ?1959	END DATE  1959?
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<p><b>CARTOGRAPHIC DEPICTION</b></p> <p>1897    WASC 900/53C  c1910    WASC 900/65 ; Sorting House No.1  c1910    WASC 900/79 ; Sorting House No.1  1917    WASC 900/70 ; Sorting House No.1  1917    WASC 900/72 ; 143  1919    WASC 900/74 ; 143  c1920    WASC 900/80 ; 143  1923    WASC 900/84 ; 143  &gt; 1940    WASC 900/91A ; L141  1954    A - B.34 ; L141  c1960    WASC 900/94 ; L141  c1963    WASC 900/97 ; L141  1972    WASC 900/102 ; L141  1972    WASC 900/104 ; L141  1976    WASC 900/113 ; L141</p>	<p><b>DOCUMENTARY REFERENCES</b></p> <p>Plans;  L141    B01,B02 ; Plans and Elevations 1958,1982</p> <p>1908    RGPF Ledger WASC 1509 + WASC 1764 ;  Sorting House built 1889 p15  c1925    RGPF Ledger WASC 1680 ; Sorting House  c1945    RGPF Ledger WASC 1508 ; Sorting House</p> <p>1972    ERDE List ; Solvent Extraction Room  1991    Mott McDonald survey  1992    RARDE List ; Solvent Extraction Room</p>
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<p><b>PHOTOGRAPHY</b> HISTORIC</p>	<p><b>PHOTOGRAPHY</b> RCHME  1) 206/F/33 From South West  2) BB92/26094 From North West</p>
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<p><b>RELATIONSHIPS WITH OTHER MONUMENTS</b></p> <p>ASSOCIATED WITH: L145</p>
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<p><b>CONDITION</b>      Good</p>
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DESCRIPTION


- 1) CONSTRUCTIONAL MATERIAL  
Brick in English bond
- 2) ROOF MATERIALS AND STRUCTURE  
Slate with tile ridges over brick vault
- 3) POWER SOURCE  
Electricity and steam heating
- 4) DIMENSIONS i) L 5.8m ii) W 4m iii) HT gable 5.2m
- 5) The expense magazine is a single storey building, rectangular in plan with gabled ends. It is constructed of buff bricks laid in English bond, with red brick details. The magazine is roofed in slate with ridge tiles over a brick vault. It is lit by a small windows on the north and south walls. A leanto was formerly attached the eastern elevation. The magazine was entered through a raised door on the western side. This was formerly served by a narrow guage railway on trestles. The following is painted on the side of the building '143 3-34'.



## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L142	OLD SERIES	RCHME NUMBER	N.G.R. TL 37767 01276
NAME/FUNCTION Toilet		START DATE 1952	END DATE
			
<b>CARTOGRAPHIC DEPICTION</b>  c1960    WASC 900/94 ; L142 c1963    WASC 900/97 ; L142 1972    WASC 900/102 ; L142 1972    WASC 900/104 ; L142 1976    WASC 900/113 ; L142		<b>DOCUMENTARY REFERENCES</b>  1972    ERDE List ; Toilet 1991    Mott McDonald survey 1992    RARDE List ; Toilet	
<b>PHOTOGRAPHY</b> HISTORIC		<b>PHOTOGRAPHY</b> RCHME 1)206/G/31 From South West	
<b>RELATIONSHIPS WITH OTHER MONUMENTS</b>  ASSOCIATED WITH: L149, L151			
<b>CONDITION</b> Good			
<b>DESCRIPTION</b> 1) <b>CONSTRUCTIONAL MATERIAL</b> Brick in stretcher bond  2) <b>ROOF MATERIALS AND STRUCTURE</b> Corrugated Asbestos  3) <b>POWER SOURCE</b> Electricity  4) <b>DIMENSIONS</b> i) L 4.14 ii) W 3.37 iii) HT Gable 3.53  5)        The building is a single storey it has a rectangular plan. The gentlemens toilet has a single door on the south elevation and a single window on the north elevation.			


## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L143	OLD SERIES	RCHME NUMBER 143A	N.G.R. TL 37719 01348
NAME/FUNCTION Cordite Incorporating house Laboratory/Electrode Boiler		START DATE 1914-17? 1946	END DATE 1945
			
<p>CARTOGRAPHIC DEPICTION</p> <p>1917 WASC 900/70 ; Incorporating House No.1          1917 WASC 900/72 ; 143a          1919 WASC 900/74 ; 143a          c1920 WASC 900/80 ; 143a          1923 WASC 900/84 ; 143a          &gt; 1940 WASC 900/91A ; L143          1954 A - B.34 ; L143          c1960 WASC 900/94 ; L143          c1963 WASC 900/97 ; L143          1972 WASC 900/102 ; L143          1972 WASC 900/104 ; L143          1976 WASC 900/113 ; L143</p>		<p>DOCUMENTARY REFERENCES</p> <p>Plans;          L143 B01 - B33 ; Plans and Elevations 1954 to 1973            c1925 RGPF Ledger WASC 1680 ; Incorporating House No.1          c1945 RGPF Ledger WASC 1508 ; Incorporating House No.1            1972 ERDE List ; Labs. and Plastic Moulding          1991 Mott McDonald survey          1992 RARDE List ; Electrode Boiler House/Incorporating Mill            1992 FBRC ; Decontamination Ovens</p>	
<p>PHOTOGRAPHY HISTORIC</p>		<p>PHOTOGRAPHY RCHME</p> <p>2) BB92/26092 Cordite incorp house steam pipe over canal from South West          4) 4788/7 06.05.1993</p>	
<p>RELATIONSHIPS WITH OTHER MONUMENTS</p> <p>ASSOCIATED WITH: L134, L146, L151, L155, L159</p>			
CONDITION		Fair	

DESCRIPTION

- 1) CONSTRUCTIONAL MATERIAL  
Brick in part English bond
- 2) ROOF MATERIALS AND STRUCTURE  
Felt over flat roof
- 3) POWER SOURCE  
Electricity
- 4) DIMENSIONS i) L 27.5 ii) W 14.7 iii) HT Eave 3.1
- 5) The building is a single storey, it has a rectangular plan the original parts of the building are laid in English bond. The building has gable walls at the north and south end. In the northern wall a small blocked feature high on the wall probably marks the position of a bearing box. The building is divided into six bays by four internal partition walls in English bond. A modern flat roof extension has been added to the eastern side. Along the west side a brick and timber corridor has been added.

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L144	OLD SERIES	RCHME NUMBER	N.G.R. TL 37709 01270
NAME/FUNCTION Solvent & Waste Store		START DATE 1960?	END DATE
			
<p>CARTOGRAPHIC DEPICTION</p> <p>c1960 WASC 900/94 ; L144  c1963 WASC 900/97 ; L144  1972 WASC 900/102 ; L144  1972 WASC 900/104 ; L144  1976 WASC 900/113 ; L144</p>		<p>DOCUMENTARY REFERENCES</p> <p>Plan;  L144 B01 - 31/5/59 ; Proposed New Solvent Store</p> <p>1972 ERDE List ; Solvent and Waste Store  1991 Mott McDonald survey  1992 RARDE List ; Solvent and Waste Store</p>	
PHOTOGRAPHY HISTORIC		PHOTOGRAPHY RCHME 1)206/M/1 From South East	
<p>RELATIONSHIPS WITH OTHER MONUMENTS</p> <p>ASSOCIATED WITH: L153, L148, L164, L150</p>			
CONDITION      Good			
<p>DESCRIPTION</p> <p>1) CONSTRUCTIONAL MATERIAL Brick</p> <p>2) ROOF MATERIALS AND STRUCTURE Corrugated Asbestos</p> <p>3) POWER SOURCE Electricity</p> <p>4) DIMENSIONS i) L 4.8 ii) W 2.29 iii) HT 2.63</p> <p>5) The store is a single storey building, rectangular in plan with a gabled roof. The store is divided into two by a central partion wall. On the south elevation is a double door the northern room was entered through a grilled door. Attached to the north wall is a veranda, a notice reads 'ACETONE CLEAN TRICHLORETHYLENE RECOVERED TRICHLORETHYLENE'. Also attached to the north wall is a small yellow glass fronted cabinet.</p>			

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L145	OLD SERIES	RCHME NUMBER 152	N.G.R. TL 37674 01340
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NAME/FUNCTION Gunpowder Incorporating Mills Group F Cordite Incorporating House 6 Group F/Spare Gear Room No1 Laboratory	START DATE 1879 1898  1946	END DATE 1898 1945
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<p><b>CARTOGRAPHIC DEPICTION</b></p> <p>1865 WASC 900/38 + SUPP5 975 ; Group F Incorp. Mills , Engine House , Boiler House/Coal Yard</p> <p>1865 WASC 900/41A ; Group F Incorp. Mills , Engine House , Boiler House/Coal Yard</p> <p>1865 WASC 900/42 ; Group F Incorp. Mills , Engine House , Boiler House/Coal Yard</p> <p>1897 WASC 900/53C</p> <p>c1910 WASC 900/65 ; Incorp House Group F</p> <p>c1910 WASC 900/79 ; Incorp House Group F</p> <p>1917 WASC 900/70 ; Incorp. House No. 6/ Spare Gear Room No. 1</p> <p>1917 WASC 900/72 ; 152</p> <p>1919 WASC 900/74 ; 152</p> <p>c1920 WASC 900/80 ; 152</p> <p>1923 WASC 900/84 ; 152</p> <p>&gt; 1940 WASC 900/91A ; L145</p> <p>1954 A - B.34 ; L145</p> <p>c1960 WASC 900/94 ; L145</p> <p>c1963 WASC 900/97 ; L145</p> <p>1972 WASC 900/102 ; L145</p> <p>1972 WASC 900/104 ; L145</p> <p>1976 WASC 900/113 ; L145</p>	<p><b>DOCUMENTARY REFERENCES</b></p> <p>Plans; L145 B01 - B95 ; Plans and Elevations 1946 to 1963</p> <p>1908 RGPF Ledger WASC 1509 + WASC 1764 ; Incorp House Group F built 1879 p17</p> <p>c1925 RGPF Ledger WASC 1680 ; Incorp House Group F</p> <p>c1945 RGPF Ledger WASC 1508 ; Incorp House Group F</p> <p>Not Dated WASC 901/137 Group F Mills Alterations at porch to magazine &amp; additions to platform</p> <p>1972 ERDE List ; Analytical House</p> <p>1991 Mott McDonald survey</p> <p>1992 RARDE List ; Lab/Incorp House No.6</p> <p>1993 RCHME NBR No. 91459</p>
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<p><b>PHOTOGRAPHY HISTORIC</b></p> <p>WASC 1524/22-25 Production of Ethyl cellulose tube for Giant Viper</p>	<p><b>PHOTOGRAPHY RCHME</b></p> <p>1) 206/P/2 From South West 206/P/3 Group F mills 1878</p> <p>2) BB92/26100 View from North West BB92/26177 View from North West (Colour)</p> <p>3) 225/A/12-14 Underground piping</p> <p>4) 4788/7 06.05.1993 4788/8 06.05.1993</p>
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RELATIONSHIPS WITH OTHER MONUMENTS

ASSOCIATED WITH: L140, L141, L148, L149, L153, L157

CONDITION      Good

DESCRIPTION

- 1)      CONSTRUCTIONAL MATERIAL  
        Brick
- 2)      ROOF MATERIALS AND STRUCTURE  
        Felt on timber boards over iron tension rod trusses
- 3)      POWER SOURCE  
        Formerly steam latterly steam heating and electric lighting
- 4)      DIMENSIONS i) L 50.6m ii) W 9.6m iii) HT gable estimate 5.7m
- 5)      Plaque on front of engine house tower reads 'Group F Mills 1878'.  
  
        See attached RCHME Threatened Buildings Section Report.

ROYAL COMMISSION ON THE HISTORICAL MONUMENTS OF ENGLAND

MOD Building No. L145  
Group F Incorporating Mills  
The Royal Gunpowder Factory  
Waltham Abbey  
Essex

NBR No: 91459  
NGR: TL 37674 01340

Built in 1878, the Group F Incorporating Mills building has a T-shaped plan which comprises a central Engine House, with a Boiler House at its east end, and three-bay cross wings on its north and south sides for six gunpowder incorporating mills. There was an open verandah along the west front. On the south side of the Boiler House was a coal yard containing a tall chimney.

The Engine House, Boiler House and partition walls separating the bays in the incorporating mills are constructed of yellow brick laid in English bond. The roofs and side walls were less substantial, being of wood and canvas or felt, with a slight iron framework.

The original gearing for the machinery of the mills was in a chamber below the ground.

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The Group F Incorporating Mills building was constructed in 1878.<sup>1</sup> Its design is similar to the other incorporating mills in this area of the site and was almost identical to the adjacent Group G Incorporating Mills building of 1888-9, for which it was a model.

Its T-shaped plan comprises a central Engine House, with a Boiler House at its east end, and cross wings on its north and south sides which are each of three bays and contained a total of six gunpowder incorporating mills.<sup>2</sup> There was an open verandah along the west front. On the south side of the Boiler House was a coal yard containing a chimney at the centre of its west wall.

Both the Engine House and the Boiler House are constructed of yellow brick laid in English bond, with a chamfered brick plinth and brick dentil cornice. Each had a hipped roof with a board and lead covering.

The Engine House has a rectangular plan, with internal dimensions of approximately 30' by 13'6" (9.15 x 4.1 m).<sup>3</sup> It is entered through a doorway from the open verandah on the west side and through a doorway reached by stairs rising up from the Boiler House on the east side. On the upper part of the east and west elevations of the Engine House there are a pair of window with a semi-circular heads of rubbed red brick. The north and south elevations had no fenestration originally. The Engine House carried a steam engine to drive the edge runners of the incorporating mills in the cross wings.

On the east side of the Engine House is the Boiler House which has a rectangular plan of approximately 21'2" by 53'4 1/4" (6.45 x 16.3 m).<sup>4</sup> Brick pilasters separate the exterior elevations into four bays by one bay. The north bays each contained a window with a cambered head. There was a doorway in the east elevation bay which had a semi-circular head with a keystone. The Boiler House carried two boilers which were aligned east to west.<sup>5</sup> The roof contained nine trusses which had round wrought

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<sup>1</sup> A datestone below the two windows on the western side of the Engine House bears the inscription "Group F Mills 1878".

<sup>2</sup> Although the building faces west-south-west and the cross wings are aligned north-north-west to south-south-east, for clarity in this report the building is described as if it faced west.

<sup>3</sup> Drawing of plan and sections of "Waltham Abbey, Extension of Factory, New Incorporating Mills - Group F", dated 12/1877, ?no cat. no. (L145/2), (MOD Central Disposals Unit, Chessington).

<sup>4</sup> Drawing of plan and sections of "Waltham Abbey, Extension of Factory, New Incorporating Mills - Group F", dated 12/1877, ?no cat. no. (L145/2), (MOD Central Disposals Unit, Chessington).

<sup>5</sup> Drawing of "Waltham Abbey, Extension of Factory, New Incorporating Mills Group F", dated 12/1877, ?no cat. no. (L145/2) (MOD Central Disposals Unit, Chessington).

iron tension rods, king rods, decorative cast iron compression members and cast iron ventilators. The roof had tongued boarding and lead coverings.

Serving the Boiler House, on its south side was the coal yard with a brick wall and an octagonal chimney which was 75' (22.86 m) in height and constructed of brick.<sup>6</sup>

The cross wings, originally containing the gunpowder incorporating mills, are of three bays each. They are single-storeyed and had a gabled roof which rose to just below the eaves of the Engine House. The bays are separated by partition walls, aligned east to west, which are constructed of brick laid in English bond. The front and back walls would have been of wood and canvas or felt, with shutters in an iron framing. The outer side of the verandah on the west side of the cross wings and Engine House originally had slender columns of cast iron. There were timber cabins at the north and south ends. The roof was of iron framing with a board and lead covering.<sup>7</sup> The relatively insubstantial fabric for the sides and roof of the cross wings could be easily replaced in the event of an explosion.<sup>8</sup> Drenching apparatus would have been erected over each pair of runners. In the event of an explosion, a wooden shutter would have been lifted automatically to release 40 gallons (182 l) of water from a cistern in the drenching apparatus of all of the mills in the building.<sup>9</sup>

The procedure for combining the ingredients of saltpetre, sulphur and charcoal to form gunpowder in each of the mills in the cross wing appears to have been essentially the same as it had been since 1857 when the first of the incorporating mills buildings (Group A; Building L169, now gone) was built.<sup>10</sup> The following is an extract from the Handbook of Gunpowder and Guncotton, 1888, which describes both the machinery and the process of Incorporating or Milling as carried out in this type of incorporating mill building at the Royal Gunpowder Factory at Waltham Abbey:

The incorporating mill consists of a circular iron or stone bed, about 7 feet in diameter (fixed very firmly in the floor of the building), whereon the iron or stone cylindrical edge runners revolve .... The runners have a common axle, resting in gun-metal bouches in a solid cross-head attached to a vertical shaft, which, passing through a bearing in the centre of the bed, is in gear with the machinery, which is ... beneath it in cast iron tanks in the new steam mills. ...

The bed has a sloping rim on the outside, called the "curb," and on the inside, an edge formed by the "cheese," or bearing through which the vertical shaft passes. The runners are not equidistant from the centre of the shaft; one works the part of the charge nearest the centre of the bed, the other the outer part, but their paths overlap; two "ploughs" of wood, covered with leather, attached to the cross-head by arms or brackets (one working next the vertical shaft, the other to the rim), throw the composition under the runners, as it works away from them.

The green charge to brought in its bag, and put on the bed of the mill, being spread evenly by means of a wooden rake; it is then "liquored," or moistened with distilled water, and is worked for 4 hours under iron runners for R.F.G. powder, which time was formerly considered sufficient to render the incorporation complete in every respect; but R.F.G2 powder is incorporated about 8 hours under iron runners. MG1, for Nordenfelt guns, is kept 7 hours under iron runners. The granulated cannon powders now made (RLG2 and RLG4) are incorporated for 3 hours under iron runners, an additional hour being allowed if worked under stone runners. All "dust" and "re-work" charges are milled for 40 minutes.

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<sup>6</sup> Ledger c1908, cat. WASC 1509 (MOD Central Disposals Unit, Chessington).

<sup>7</sup> Drawing of "Waltham Abbey, Extension of Incorporating Mills Group F", dated 12/1877, ?no cat. no., L145/2 (MOD Central Disposals Unit, Chessington).

<sup>8</sup> "A Handbook of the Manufacture and Proof of Gunpowder, as carried on at the Royal Gunpowder Factory, Waltham Abbey," by Captain F M Smith, Royal Artillery, Assistant Superintendent. London, 1870, p43.

<sup>9</sup> "A Handbook of the Manufacture and Proof of Gunpowder, as carried on at the Royal Gunpowder Factory, Waltham Abbey," by Captain F M Smith, Royal Artillery, Assistant Superintendent, 1870. Printed by Order of the Secretary of State for War, London.

<sup>10</sup> The same procedure is outlined in both "A Handbook of the Manufacture and Proof of Gunpowder, as carried on at the Royal Gunpowder Factory, Waltham Abbey," by Captain F.M. Smith, Royal Artillery, Assistant Superintendent, 1870 and "Handbook of Gunpowder and Guncotton," by W.H. Wardell, 1888.



... During the time of working the millman enters the mill occasionally, takes a wooden "shover," and pushes the outside of the charge into the middle of the path of the runners, so that every portion may be regularly incorporated.

... The action of the runners is a combination of rolling and twisting, and has, on a large scale, somewhat the effect of a pestle and mortar, crushing, rubbing, and mixing, thus giving the charge a most intimate union.

.. When the charge, which in this state is called "mill-cake," is ready to be taken off the bed, it should be uniform in appearance, not having any specks of either saltpetre or sulphur visible to the eye, and of a greyish or brownish colour, according to the charcoal used.

Finally the mill cake would have been taken from the incorporating mill to a detached expense magazine. It would then have been taken in covered trucks to a "breaking down" house<sup>11</sup>.

The underground chamber, which contained the independent gearing for each of the six mills, appears to have been flat-roofed, like that in the chamber of the adjacent Group G Incorporating Mills.<sup>12</sup> Almost all of the machinery of the gunpowder incorporating mills has been removed. The intermediate pinion wheel beams survive in the chamber.

Like most of the other gunpowder incorporating mills buildings on the site, this building was probably converted to take cordite incorporating mills in the late nineteenth century or early twentieth century.<sup>13</sup> It would have been then that the gunpowder incorporating mills were removed from the building. The cross wing partition walls have "I" girders and blocked openings in the gables which are likely to belong to shafting for machinery associated with cordite manufacture.

The timber cabins at the north and south ends of the cross wings were demolished in December of 1905.<sup>14</sup> The chimney was demolished in c1908-9.<sup>15</sup>

The building was extensively altered in the mid twentieth century for use as laboratories. In c1955 the gable roofs and partition walls of the cross wings were lowered, and probably at this time the Boiler House roof was replaced by a flat roof.<sup>16</sup> A drawing of 1956 shows that by this date the Boiler House was used as a propellant laboratory, with a balance room and solvent laboratory at its west end, the Engine House had a floor inserted to create an optical laboratory on the ground floor and an office above, and the bays, from north to south, were: initiator's laboratory, HE and compatibility laboratory, micro-analysis laboratory, oven room and H&S laboratory, store and physical laboratory, and preparation room.<sup>17</sup> It was probably with this conversion that new windows were inserted in the bays on the north and south sides of the Boiler House and on the south elevation of the Engine House, and possibly then that the cast iron columns of the verandah were removed. A link block, of

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<sup>11</sup> "How Explosives are Made" by William G. Fitzgerald, The Strand Magazine, Vol IX Jan-June 1895.

<sup>12</sup> Drawing of "Waltham Abbey, Extension of Factory, New Incorporating Mills Group F", dated 12/1877, ?no cat. no, L145/2 (MOD Central Disposals Unit, Chessington).

<sup>13</sup> The building is labelled as Incorporating Houses Group F in the OS County Series 1:2500 maps, 2nd ed. 1897 (surveyed 1865-9, revised 1895), sheet refs XLIX.14, XLI.8.12, XLII.5.9.

Another building, Group G Incorporating Mills, were converted from black gunpowder incorporating mills to cordite incorporating mills in 1898-9 and it is probable that most of the gunpowder incorporating mills were dismantled and converted in this way at around the same time.

<sup>14</sup> Ledger c1908, cat. WASC 1509 (PRO, Hayes Repository).

<sup>15</sup> Ledger c1908, cat. WASC 1509 (PRO, Hayes Repository).

<sup>16</sup> Drawing showing specifications for conversion of building L145 to analytical laboratories, dated 9/1955, cat. L145.B.15 (MOD Central Disposals Unit, Chessington).

<sup>17</sup> Drawing of "LPHW Heating and Layout of Plant Room", dated 10/7/1956, cat. L145.B.68 (MOD Central Disposals Unit, Chessington).

brick with a flat roof, joining the south cross wing with the north cross wing of the adjacent building no. L148 is also likely to be of this date.

The building was last used as laboratories in 1991. Stripping out began in early 1993.

Surveyed March 1993  
Report R L Burgess

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L146	OLD SERIES 152A	RCHME NUMBER	N.G.R. TL 37719 01348
NAME/FUNCTION Cordite Incorporating house No.2 Crystallograph		START DATE 1914-17? 1946	END DATE 1945
<p>CARTOGRAPHIC DEPICTION</p> <p>1917 WASC 900/70 ; Incorporating House No. 2  1917 WASC 900/72 ; 152a  1919 WASC 900/74 ; 152a  c1920 WASC 900/80 ; 152a  1923 WASC 900/84 ; 152a  &gt; 1940 WASC 900/91A ; L146  1954 A - B.34 ; L146  c1960 WASC 900/94 ; L146  c1963 WASC 900/97 ; L146  1972 WASC 900/102 ; L146  1972 WASC 900/104 ; L146  1976 WASC 900/113 ; L146</p>		<p>DOCUMENTARY REFERENCES</p> <p>Plans;  L146 B01 - B04 ; Plans and Elevations 1949 to 1956    c1925 RGPF Ledger WASC 1680 ; Incorp House No.2  c1945 RGPF Ledger WASC 1508 ; Incorp House No.2    1972 ERDE List ; Crystallograph Lab/Incorp House No.2  1991 Mott McDonald survey  1992 RARDE List ; Crystallograph Lab/Incorp House No.2  1992 FBRC left hand site Radiation, Right hand site Workshop</p>	
<p>PHOTOGRAPHY  HISTORIC</p>		<p>PHOTOGRAPHY  RCHME  1) 206/D/31 From East  206/D/32 From North East  206/T/29 From South West  2) BB92/26099 From North West  4) 4788/7 06.05.1993  4788/8 06.05.1993</p>	
<p>RELATIONSHIPS WITH OTHER MONUMENTS</p> <p>ASSOCIATED WITH: L134, L143, L146, L151, L155, L159</p>			
CONDITION		Fair	

DESCRIPTION

1) CONSTRUCTIONAL MATERIAL  
Brick


2) ROOF MATERIALS AND STRUCTURE  
Felt with timber boards over purlins

3) POWER SOURCE  
Steam Electricity

4) DIMENSIONS i) L 31.9 ii) W 8.8 iii) HT Eave 3.1

5) The building is a single storey with a rectangular plan. It has gabled ends to the north and south. It is divided into seven bays by five internal partition walls laid in English bond. On a number of the dividing walls the positions of bearing boxes could be discerned and cut off I girders formerly used to support a belt drive system. A lean to corridor has been added along the west side. the timber frame infill along the eastern side is modern. To the West is a leanto forming a corridor. An addition has been made to the north end in brick.

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L147	OLD SERIES 151	RCHME NUMBER	N.G.R. 37752 01343
NAME/FUNCTION Fire Engine Shed Friction Test Room		START DATE 1865-1877	END DATE
			
<p><b>CARTOGRAPHIC DEPICTION</b></p> <p>1865 WASC 900/38 + SUPP5 975 ; Fire Engine Shed          1865 WASC 900/41A ; Fire Engine Shed          1865 WASC 900/42 ; Fire Engine Shed          1897 WASC 900/53C          c1910 WASC 900/65 ; Fire Engine House          c1910 WASC 900/79 ; Fire Engine House          1917 WASC 900/70 ; Fire Engine House          1917 WASC 900/72 ; 151          1919 WASC 900/74 ; 151          c1920 WASC 900/80 ; 151          1923 WASC 900/84 ; 151          &gt; 1940 WASC 900/91A ; L147          1954 A - B.34 ; L147          c1960 WASC 900/94 ; L147          c1963 WASC 900/97 ; L147          1972 WASC 900/102 ; L147          1972 WASC 900/104 ; L147          1976 WASC 900/113 ; L147</p>		<p><b>DOCUMENTARY REFERENCES</b></p> <p>1908 RGPF Ledger WASC 1509 + WASC 1764          Fire Engine House built pre 1877 p16          1972 ERDE List ; Friction Test Room          1991 Mott McDonald survey          1992 RARDE List ; Friction Test Room/ Fire Engine Shed            1992 FBRC ; Stores</p>	
<p><b>PHOTOGRAPHY</b> HISTORIC</p>		<p><b>PHOTOGRAPHY</b> RCHME 1) 206/G/35 From North</p>	
<p><b>RELATIONSHIPS WITH OTHER MONUMENTS</b></p> <p>ASSOCIATED WITH:</p>			
<p><b>CONDITION</b>      Good</p>			

DESCRIPTION

1) CONSTRUCTIONAL MATERIAL  
Brick with Red brick banding



2) ROOF MATERIALS AND STRUCTURE  
Corrugated Asbestos

3) POWER SOURCE  
Steam Electricity

4) DIMENSIONS i) L 5.06 ii) W 3.85 iii) HT 4.2

5) The building is a single storey with gabled ends and a rectangular ground plan. On the south elevation is a single blind panel with an inserted window, the west and east elevations have two blind panels. A modern double door has been inserted into the north wall.

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L148	OLD SERIES	RCHME NUMBER 156	N.G.R. TL 37700 01292
NAME/FUNCTION Incorporating Mills Group G Gunpowder Incorporating Mills Group G Cordite Lab/Store/Incorp House No7		START DATE 1889 1898 1946	END DATE 1898 1945 1991
			
CARTOGRAPHIC DEPICTION  1897      WASC 900/53C c1910    WASC 900/65 ; Incorp House Group G c1910    WASC 900/79 ; Incorp House Group G 1917    WASC 900/70 ; Incorp House Group G 1917    WASC 900/72 ; 156 1919    WASC 900/74 ; 156 c1920    WASC 900/80 ; 156 1923    WASC 900/84 ; 156 > 1940   WASC 900/91A ; L148 1954    A - B.34 ; L148 c1960    WASC 900/94 ; L148 c1963    WASC 900/97 ; L148 1972    WASC 900/102 ; L148 1972    WASC 900/104 ; L148 1976    WASC 900/113 ; L148		DOCUMENTARY REFERENCES  Plans; 1904      WASC 901/160 10 Oct 1904 Traverses to Group "G" WASC 901/160A no date Traverses to Group "G" WASC 901/162 no date No7 Incorporating Mill N? of No6 Mill L148    B01 - B34 ; Plans and Elevations 1888 to 1972  1908    RGPF Ledger WASC 1509 + WASC 1764 ; Incorp House Group G built 1889 p17 c1925   RGPF Ledger WASC 1680 ; Incorp House Group G c1945   RGPF Ledger WASC 1508 ; Incorp House Group G  1972    ERDE List ; Plastics Manufacture 1991    Mott McDonald survey 1992    RARDE List ; Lab and Store Rooms/Incorp House No.7  1993    RCHME NBR No. 91458  WASC 353      Nathan F.L. Proceedings of a court of Enquiry re circumstances attending explosion at Waltham Abbey on 15 December 1902  WASC 353      Nathan F.L Drawing of Group G mills for manufacture of Cordite No 914 WASC 353      Nathan F.L Drawing of Incorporating machine for Cordite factory No 917	

<p>PHOTOGRAPHY HISTORIC WASC 73 Explosion 11.3.1892 WASC 74 Explosion 11.3.? (x2) WASC 76 Explosion 11.3.1892 WASC 102 Explosion WASC 104 Explosion 15.12.1902 WASC 353 Nathan F.L Bay 3 &amp; Engine House Group G photograph No.1 WASC 353 Nathan F.L Engine House &amp; Bays 3,2,1 Group G photograph No.2 WASC 1543/47 Gunpowder mills Group G 1888-9 WASC 1655/13-15 Explosion 15.12.1902 57lb MD Cordite paste in No 3 bay Supply 5/860 (Photo No.139),(Neg No.B25) RCHME Neg No. BB92/16738 ; Group G exploded 15/12/1902 Supply 5/860 (Photo No.145),(Neg No. B30) RCHME Neg No. BB92/16727 ; Group G exploded 15/12/1902 Supply 5/860 (Photo No.142),(Neg No.B28) RCHME Neg No. BB92/16728 ; Group G exploded 15/12/1902 PRO Supply 5/860 139-145, 147 Group G exploded 57lbs Cordite MD</p>	<p>PHOTOGRAPHY RCHME 1) 206/P/4 Group G mills 1888-9 206/P/14 Boiler &amp; Engine house from South 2) BB92/16727 Explosion 15.12.1902 BB92/16728 Explosion Group G 15.12.1902 BB92/16738 Explosion Group G 15.12.1902 BB92/26089 From North East BB92/26090 From South East BB92/26191 From North East BB92/26192 Roof Trusses from North West BB92/26193 East room from West BB92/26352 Elevations, Plans &amp; Sections 4) 4788/4 06.05.1993 4788/7 06.05.1993 4788/8 06.05.1993</p>
<p>RELATIONSHIPS WITH OTHER MONUMENTS</p> <p>ASSOCIATED WITH: L145, L149, L153, L157</p>	
<p>CONDITION      GOOD</p>	
<p>DESCRIPTION</p> <p>5)            See attached RCHME Threatened buildings Section report</p>	



ROYAL COMMISSION ON THE HISTORICAL MONUMENTS OF ENGLAND

MOD Building No. L148  
Group G Incorporating Mills  
The Royal Gunpowder Factory  
Waltham Abbey  
Essex

NBR No: 91458  
NGR: TL 37700 01292

Built in 1888-9, the Group G Incorporating Mills building has a T-shaped plan which comprises a central Engine House, with a Boiler House at its east end, and three-bay cross wings on its north and south sides, for six black-gunpowder incorporating mills. There was an open verandah along the west front. On the south side of the Boiler House was a coal yard containing a tall chimney.

The Engine House, Boiler House and partition walls separating the bays in the incorporating mills are constructed of yellow brick laid in English bond. The roofs and side walls of the cross wings were less substantial, being of wood and felt with a slight iron framework. The gearing for the machinery of the mills was in a chamber below the ground.

In 1898-9 the machinery of the gunpowder incorporating mills was dismantled and the whole group was converted to take cordite incorporating mills. The building was partially rebuilt after an explosion in one of its bays in December 1902.

-ooOoo-

The Group G Incorporating Mills building was constructed in 1888-9.<sup>18</sup> The latest of the group of incorporating mills on this part of the site, the building was an infill between Group D and Group F Incorporating Mills.

Its T-shaped plan comprises a central Engine House, with a Boiler House at its east end, and cross wings, each of three bays, for the incorporating mills on its north and south sides.<sup>19</sup> There was an open verandah along the west front. On the south side of the Boiler House was a coal yard containing a chimney at the centre of its west wall.

Both the Engine House and the Boiler House are constructed of yellow brick laid in English bond, with a chamfered brick plinth and brick dentil cornice. Each has a hipped roof which was originally covered with board and slate.

The Engine House has a rectangular plan of approximately 20'6" x 34'<sup>20</sup> (6.3 x 10.4 m) and rises to a height of approximately 30'8" (9.4 m).<sup>21</sup> It is entered through a doorway from the open verandah on the west side and through a doorway reached by stairs rising up from the Boiler House on the east side. On the upper part of the east and west elevations of the Engine House there are a pair of window with a semi-circular heads of rubbed red-brick. The north and south elevations had no fenestration originally. The Engine House carried a steam engine to drive the edge runners in the incorporating mills in the cross wings.

On the east side of the Engine House is the Boiler House which has a rectangular plan of 23' x 50' (7 x 15.24 m).<sup>22</sup> Brick pilasters separate the exterior elevations into four bays by one bay. The north bays each contained a window with a cambered head. There was a doorway in the east elevation bay which had a semi-circular head with a keystone. The Boiler House carried

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<sup>18</sup> A datestone below the windows the western side of the Engine House bears the inscription "Group G Mills 1888-9".

<sup>19</sup> Although the building faces west-south-west and the cross wings are aligned north-north-west to south-south-east, for clarity in this report the building is described as if it faced west.

<sup>20</sup> Drawing of "Waltham Abbey Incorporating Mills", dated ?July 1888, ?no cat. no (L148/X369) (MOD Central Disposals Unit, Chessington).

<sup>21</sup> Ledger c1908, cat. WASC 1509 (PRO Hayes Repository).

<sup>22</sup> Drawing of "Waltham Abbey Incorporating Mills", dated ?July 1888, ?no cat. no. (L148/X369) (MOD Central Disposals Unit, Chessington).

two Lancashire<sup>23</sup> boilers which were aligned east to west.<sup>24</sup> The roof contains trusses which have round wrought iron tension rods, king rods, and decorative cast iron compression members. The roof had cast iron ventilators, tongued boarding and zinc-galvanised metal coverings.

Serving the Boiler House, on its south side was the coal yard with a brick wall and an octagonal chimney which was 75<sup>25</sup> (22.86 m) in height and constructed of brick.<sup>26</sup>

The cross wings, originally containing six black-gunpowder incorporating mills, are of three bays each and are single-storeyed and have a gabled roof.<sup>27</sup> The bays are separated by partition walls, aligned east to west, which are constructed of yellow brick, laid in English bond. The front and back walls were lightly framed, comprising wood and non-inflammable felt, with movable sashes glazed with 15 oz (425 g) sheet glass.<sup>28</sup> On the west wall frames, on the inner side of the verandah, were lampframes constructed of lead, copper and sheet glass. The bottom of the lampframes were to hold ½' (0.15 m) of water constantly, as a fire precaution. Cast iron columns on the outer west side of the verandah are slender (2½" or .635 m diameter) and, having foliate-type design capitals, are more elaborate than the capitals of the verandah columns in the other incorporating mills. The roof was of angle and tee iron framing, with board and lead coverings. Drenching apparatus, constructed of iron and copper, was position on the tie of the truss.<sup>29</sup> The relatively insubstantial fabric of the sides and roof of the cross wings could be easily replaced should an explosion occur.<sup>30</sup> In the event of an explosion, a wooden shutter would have been lifted automatically to release 40 gallons (182 l) of water from a cistern in the drenching apparatus of all the mills in the building.

The procedure for combining the ingredients of saltpetre, sulphur and charcoal to form gunpowder in each of the mills in the cross wing appears to have been essentially the same as it had been since 1857 when the first of the incorporating mills buildings (Group A; Building L169, now gone) was built.<sup>31</sup> The following is an extract from the Handbook of Gunpowder and Guncotton, 1888, which describes both the machinery and the process of Incorporating or Milling as carried out in this type of incorporating mill building at the Royal Gunpowder Factory at Waltham Abbey:

The incorporating mill consists of a circular iron or stone bed, about 7 feet in diameter (fixed very firmly in the floor of the building), whereon the iron or stone cylindrical edge runners revolve .... The runners have

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<sup>23</sup> "Proceedings of a Court of Enquiry and a Report ... on the Circumstances Attending an Explosion which occurred at the Royal Gunpowder Factory, Waltham Abbey, on the 15th December 1902", cat. WASC 353.

<sup>24</sup> Drawing of "Waltham Abbey Incorporating Mills", signed J.W. Hale, 19/6/1888, (cat. no. ripped off, L148.B (MOD Central Disposals Unit, Chessington).

<sup>25</sup> Drawing of plans and sections, "Waltham Abbey Incorporating Mills", signed J.W. Hale, 19/6/1888, (cat. no. ripped off), L148.B (MOD Central Disposals Unit, Chessington).

<sup>26</sup> Ledger c1908, cat. WASC 1509 (PRO, Hayes Repository).

<sup>27</sup> "Proceedings of a Court of Enquiry and a Report ... on the Circumstances Attending an Explosion which occurred at the Royal Gunpowder Factory, Waltham Abbey, on the 15th December 1092", cat. WASC 353.

<sup>28</sup> Drawing of "Waltham Abbey Incorporating Mills", dated ?July 1888, ?no cat. no (L148/X369) (MOD Central Disposals Unit, Chessington).

<sup>29</sup> Drawing showing enlarged cross section of "Waltham Abbey Incorporating Mills", dated 4/1888, cat. L148.B.20 (MOD Central Disposals Unit, Chessington).

<sup>30</sup> "A Handbook of the Manufacture and Proof of Gunpowder, as carried on at the Royal Gunpowder Factory, Waltham Abbey," by the Captain F M Smith, Royal Artillery, Assistant Superintendent, 1870.

<sup>31</sup> The same procedure is outlined in both "A Handbook of the Manufacture and Proof of Gunpowder, as carried on at the Royal Gunpowder Factory, Waltham Abbey," by Captain F.M. Smith, Royal Artillery, Assistant Superintendent, 1870 and "Handbook of Gunpowder and Guncotton," by W.H. Wardell, 1888.

a common axle, resting in gun-metal bouches in a solid cross-head attached to a vertical shaft, which, passing through a bearing in the centre of the bed, is in gear with the machinery, which is ... beneath it in cast iron tanks in the new steam mills. ...

The bed has a sloping rim on the outside, called the "curb," and on the inside, an edge formed by the "cheese," or bearing through which the vertical shaft passes. The runners are not equidistant from the centre of the shaft; one works the part of the charge nearest the centre of the bed, the other the outer part, but their paths overlap; two "ploughs" of wood, covered with leather, attached to the cross-head by arms or brackets (one working next the vertical shaft, the other to the rim), throw the composition under the runners, as it works away from them.

The green charge to brought in its bag, and put on the bed of the mill, being spread evenly by means of a wooden rake; it is then "liquored," or moistened with distilled water, and is worked for 4 hours under iron runners for R.F.G. powder, which time was formerly considered sufficient to render the incorporation complete in every respect; but R.F.G2 powder is incorporated about 8 hours under iron runners. MG1, for Nordenfelt guns, is kept 7 hours under iron runners. The granulated cannon powders now made (RLG2 and RLG4) are incorporated for 3 hours under iron runners, an additional hour being allowed if worked under stone runners. All "dust" and "re-work" charges are milled for 40 minutes.

... During the time of working the millman enters the mill occasionally, takes a wooden "shover," and pushes the outside of the charge into the middle of the path of the runners, so that every portion may be regularly incorporated.

... The action of the runners is a combination of rolling and twisting, and has, on a large scale, somewhat the effect of a pestle and mortar, crushing, rubbing, and mixing, thus giving the charge a most intimate union.

.. When the charge, which in this state is called "mill-cake," is ready to be taken off the bed, it should be uniform in appearance, not having any specks of either saltpetre or sulphur visible to the eye, and of a greyish or brownish colour, according to the charcoal used.

Finally the mill cake would have been taken from the incorporating mill to a detached expense magazine.<sup>32</sup> It would then have been taken in covered trucks to a "breaking down" house<sup>33</sup>.

Each mill contained in the bays had its own independent gearing in an underground chamber.<sup>34</sup> Unlike the barrel-vaulted chambers of the adjacent Group D and Group C Incorporating Mills, the chamber has a flat roof. It appears to have been approximately 3'6" wide and is positioned slightly off-centre to the east below the cross wing gable.<sup>35</sup>

In 1898-9 and the gunpowder incorporating mills in the building were dismantled and new machinery was installed for cordite incorporating mills.<sup>36</sup> In effect, all the original machinery on the ground floor (circular bed, runners, etc) was removed and that in the chamber became redundant. A plan and sections of the building as it was used for the manufacture of cordite shows the Engine House with engine and hydraulic pumps, steam pipes, six sets of mills, and shaft alley.<sup>37</sup> The cross wing partition

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<sup>32</sup> A drawing of "Waltham Abbey Incorporating Mills" dated 4/1888, shows plans and sections for a magazine to go with Group G Incorporating Mills: a single-storeyed building constructed of brick it had a rectangular plan of 10' x 16' internal dimensions and had a barrel-vaulted ceiling and a gable roof, cat. L148.B.20 (MOD Central Disposals Unit, Chessington).

<sup>33</sup> "How Explosives are Made" by William G. Fitzgerald, The Strand Magazine, Vol IX Jan-June 1895.

<sup>34</sup> The underground chamber was not investigated at the time of this survey in March 1993 owing to contamination in the building.

<sup>35</sup> Drawing showing enlarged cross section of "Waltham Abbey Incorporating Mills", dated 4/1888, cat. L148.B.20 (MOD Central Disposals Unit, Chessington).

<sup>36</sup> "Proceedings of a Court of Enquiry and a Report ... on the Circumstances Attending an Explosion which occurred at the Royal Gunpowder Factory, Waltham Abbey, on the 15th December 1902", cat. WASC 353.

<sup>37</sup> "Proceedings of a Court of Enquiry and a Report ... on the Circumstances Attending an Explosion which occurred at the Royal Gunpowder Factory, Waltham Abbey, on the 15th December 1092", cat. WASC 353.

walls have "I" girders and blocked openings in the gables which are likely to belong to shafting for the cordite machinery. The cordite incorporating mills were powered by an engine in the central Engine House, as the gunpowder incorporating mills had been powered, but the engine appears to be different in the two phases.<sup>38</sup>

Cordite incorporating involved the "incorporating," or the conversion of "paste," a mixture of guncotton and nitroglycerine, to which mineral jelly was added after half the incorporation was completed, into "incorporated material" by means of the solvent acetone.<sup>39</sup>

On 15 December 1902 there was an explosion in the bay immediately adjacent on the south side of the Engine House of this Group G Incorporating Mills building.<sup>40</sup> Three men were killed and the building was severely damaged. The building was then repaired shortly afterwards. Concrete and earth traverses, 12' (3.66 m) high, were built on the west and east sides of the cross wings in 1904-5.<sup>41</sup>

Some time after the explosion and before the chimney was demolished in c1908-9, the building ceased to be steam powered.<sup>42</sup>

In the mid twentieth century, after 1945, the building was converted into laboratories. Large windows were inserted on the north and south elevations of Boiler House, the doorway at its east end was blocked and replaced by narrower doorway, windows were added on the north and south elevations of the Engine House, and the sides of the verandah were enclosed. A low flat-roofed extension was added on the north side of the Boiler House and a flat-roofed brick addition was built to link this building with buildings L153 and L145 on the south and north sides.

The laboratories were finally closed around 1991 and stripping out began in early 1993.

Surveyed March 1993  
Report by R L Burgess

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<sup>38</sup> Cf the Engine House in plans and sections, "Waltham Abbey Incorporating Mills", signed J.W. Hale, 19/6/1888, (cat. no. ripped off), L148.B (MOD Central Disposals Unit, Chessington) with plan of "Group G Mills for Manufacture of Cordite, RGPF" in "Proceedings of a Court of Enquiry and a Report ... on the Circumstances Attending an Explosion which occurred at the Royal Gunpowder Factory, Waltham Abbey, on the 15th December 1902", cat. WASC 353.


<sup>39</sup> "Proceedings of a Court of Enquiry and a Report ... on the Circumstances Attending an Explosion which occurred at the Royal Gunpowder Factory, Waltham Abbey, on the 15th December 1902", cat. WASC 353.

<sup>40</sup> "Proceedings of a Court of Enquiry and a Report ... on the Circumstances Attending an Explosion which occurred at the Royal Gunpowder Factory, Waltham Abbey, on the 15th December 1902", cat. WASC 353.

<sup>41</sup> Ledger c1908, cat. WASC 1509, and undated drawing RGPF Waltham Abbey showing traverses to Group "G", section of concrete traverse, 156/C261, (PRO, Hayes Repository)

<sup>42</sup> Ledger c1908, cat. WASC 1509 (PRO, Hayes Repository). The replacement power may have come from a central hydraulic system at the Accumulator building A214 over 250 metres to the south-east of the building.

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER	OLD SERIES	RCHME NUMBER	N.G.R.
L149	154		TL 37750 01292
NAME/FUNCTION		START DATE	END DATE
Hydraulic Accumulator House for Pellet Powder House		1867-8	1877
Steam Gunpowder Incorporating House Group E		1877	1898
Cordite Incorporating House Group G		1898	by 1917
Cordite Incorporating House No3 Spare gear room No4 and Pump House		by 1917	1945
Laboratory		1947	
			
CARTOGRAPHIC DEPICTION		DOCUMENTARY REFERENCES	
1865	WASC 900/38 + SUPP5 975 ; Group E Accumulator (Incorp Mills), Engine, Boiler Houses / Coal Yard	Plans;	
1865	WASC 900/41A ; Group E Accumulator (Incorp Mills), Engine, Boiler Houses / Coal Yard	L149	B01 - B51 ; Plans and Elevations 1867 to 1985
1865	WASC 900/42 ; Group E Incorp Mills , Boiler House /Coal Yard	1877	WASC 901/129 13.Mar.1877 Plan & sections of platform & bridge (group E) New Mills
1897	WASC 900/53C	1894	WASC 901/129A 30.Nov.1894 Incorporating Mills Group E
c1910	WASC 900/65 ; Incorp House Group E	1908	RGPF Ledger WASC 1509 + WASC 1764 ; Incorp House Group E built 1867-8 p17
c1910	WASC 900/79 ; Incorp House Group E	c1925	RGPF Ledger WASC 1680 ; Incorp House Group E
1917	WASC 900/70 ; Incorp House No. 3/ Spare Gear Room No. 4 + Pump House	c1945	RGPF Ledger WASC 1508 ; Incorp House Group E
1917	WASC 900/72 ; 154	1972	ERDE List ; Initiation Solvent Store
1919	WASC 900/74 ; 154	1991	Mott McDonald survey
c1920	WASC 900/80 ; 154	1992	RARDE List ; Lab/Incorp. House No.3
1923	WASC 900/84 ; 154	1992	FBRC ; Explosives Testing/ Offices
> 1940	WASC 900/91A ; L149	1993	RCHME NBR No.91460
1954	A - B.34 ; L149		
c1960	WASC 900/94 ; L149		
c1963	WASC 900/97 ; L149		
1972	WASC 900/102 ; L149		
1972	WASC 900/104 ; L149		
1976	WASC 900/113 ; L149		

PHOTOGRAPHY  
HISTORIC

WASC 1233/1 Looking North West 12.12.1978  
WASC 1543/48 Group E mills 1877-8  
WASC 1568 Rotter impact Machine  
Supply 5/861 (Photo No.217),(Neg No.B95) RCHME Neg.  
No.BB92/16726 ; View of Group E showing traverse  
10/5/1904  
Supply 5/860 17 1879 Exterior  
Supply 5/860 146 Damage after explosion in group G 15-  
dec-1902

PHOTOGRAPHY  
RCHME

- 1) 206/D/27 From South East  
206/D/28 Boiler House from South East  
206/D/29 Boiler House from North East  
206/D/30 From South East  
206/Q/23 From North
- 2) BB92/26086 From South East  
BB92/26087 From South West  
BB92/26091 From North West  
BB92/26098 From South West  
BB92/26176 From South West (Colour)  
BB92/26177 From North West (Colour)  
BB92/26178 Steampipes from North West  
BB92/26182 Detail pinnion wheel/Clutch  
BB92/26183 Detail support beam & bearing  
BB92/26184 Detail drive shaft/clutch  
BB92/26185 Detail drive shaft/clutch  
BB92/26186 Detail drive shat channel  
BB92/26187 Detail of clutch/drive shaft  
BB92/26190 Steam Incorporating mill & Accumulator  
tower  
BB92/26194 From North West  
BB92/26195 Roof from East  
BB92/26196 Detail of roof  
BB92/26350 Plans Sections Elevations  
BB92/26360 Plans Elevations Pellet Powder buildings  
BB92/26361 Extension to new Incorporating Mills  
Group F
- 3) 225/B/6-8 Corridor & Column details looking South  
225/B/9-10 Baffle wall showing relieving arch for  
underground chamber  
225/B/11 Roof detail of mill  
225/B/12-13 Roof detail Boiler house  
225/B/14-15 Doorway West side of Accumulator tower  
225/B/16 North Elevation  
225/B/17 West side  
225/B/18 South side  
225/B/19 West Elevation  
225/B/20 Boiler house South elevation
- 4) 4788/4 06.05.1993  
4788/5 06.05.1993  
4788/8 06.05.1993

RELATIONSHIPS WITH OTHER MONUMENTS

ASSOCIATED WITH: L145, L148, L149 1/2, L153, L157

CONDITION Good

DESCRIPTION

- 1) CONSTRUCTIONAL MATERIAL  
Brick in English bond
- 2) ROOF MATERIALS AND STRUCTURE  
Felt and slate
- 3) POWER SOURCE  
Steam, Hydraulic, Electricity
- 4) DIMENSIONS i) L 47.2m ii) W 6.7m iii) HT iv)DIA
- 5) A plaque on the west side of the accumulator tower reads 'GROUP E MILLS 1877-8'  
  
See attached RCHME Threatened Buildings Section report.

ROYAL COMMISSION ON THE HISTORICAL MONUMENTS OF ENGLAND

MOD Building No. L149  
Group E Incorporating Mills  
The Royal Gunpowder Factory  
Waltham Abbey  
Essex

NBR No: 91460  
NGR: TL 37750 01292

The Building No. L149 has two main phases of construction. The core was built in c1869 as "Pellet Powder Buildings". As such it had an almost-square plan comprising an Accumulator House, Engine House and Boiler House, with a coal yard with chimney against the Boiler House.

In 1877-8 the building was converted to Group E Incorporating Mills. The Accumulator House, Engine House and chimney of the original building appear to have been retained but the Boiler House and coal yard walls were demolished. A new Boiler House was built at the rear of the Engine House and a new coal yard was formed which incorporated the earlier chimney. On the north and south sides of the Engine House three-bay cross wings were added to contain six gunpowder incorporating mills. There was an open verandah along the west front of the cross wings. A Pump House was subsequently added, in two phases, on the north side of the Boiler House.

The construction is of yellow brick, laid in English bond, with red brick details, except for the side walls of the cross wings which were of wood and canvas or felt on a slight iron framework. The gearing for the machinery of the mills survives in a chamber below the ground.

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This building has a t-shaped plan and is constructed of yellow brick, laid in English bond, with red brick detailing, and of timber with a slight iron framework.

It has two main phases of construction. The original structure was built in c1869 as "Pellet Powder Buildings". Project drawings for this show an almost-square building containing a Boiler House, on one side of which is an Accumulator House and Engine House, and on the other side is a coal yard with chimney.<sup>43</sup> As a Pellet Powder Building, the structure would have been used for the pressing of gunpowder.

Almost a decade later, in 1877-8, the building was significantly altered and converted into the fifth gunpowder incorporating mills building to be constructed on the Gunpowder Factory site, and was named Group E Incorporating Mills.<sup>44</sup> Proposal drawings for this new incorporating mills building outline and label the site of the original Boiler House and coal yard, which were still standing at that time in March 1877.<sup>45</sup> The structure then built in 1877-8 may have utilised the existing Accumulator House<sup>46</sup>, Engine House and chimney. The original Boiler House and coal yard walls were demolished. A new Boiler House was built at the east end of the Engine House, reusing the iron roof trusses of the former Boiler House, and on its east side a new coal yard was created which incorporated the existing chimney at its south-west corner.<sup>47</sup> On the north and south sides of the Engine House, set back from the front of the Accumulator House, three-bay cross wings were added to contain six

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<sup>43</sup> Drawing of "Waltham Abbey, (Project), Plans, Sections & Elevations for Pellet Powder Buildings, signed I. Randall, Clerk of Works, 2/12/186(?9), cat. L149.B.15 and drawing of "Pellet Powder Buildings, Accumulator House", dated 1869, cat. L149.B.10 (MOD Central Disposals Unit, Chessington).

<sup>44</sup> Drawings of "Waltham Abbey, Proposed New Incorporating Mills, Item I, AE 1877-8, dated 3/1877, cat. L149.B.05 (MOD Central Disposals Unit, Chessington).

<sup>45</sup> Drawings of "Waltham Abbey, Proposed New Incorporating Mills, Item I, AE 1877-8", dated 3/1877, cat. L149.B.05 (MOD Central Disposals Unit, Chessington).

<sup>46</sup> The Accumulator House may be partly rebuilt, however, because its style is slightly different from that shown in the proposal drawings for the "Pellet Powder Buildings" of 186(?9) and because its west front carries a datestone bearing the inscription "Group E Mills 1877-8".

<sup>47</sup> Although the building faces west-south-west and the cross wings are aligned north-north-west to south-south-east, for clarity in this report the building is described as if it faced west.



gunpowder incorporating mills. There was an open verandah along the west front of the cross wings.

Probably as a result of combining parts of an earlier building as its core, the Group E Incorporating Mills building is more elaborate in plan and design than the other incorporating mills on this part of the site.

The Engine House has a rectangular plan of 16'6" x 30'6" (5.05 x 9.3 m), and rises to a height of 22'6" (6.9 m).<sup>48</sup> As such it is both narrower and lower than the Engine Houses in the other incorporating mill buildings on this part of the site. Constructed of yellow brick, laid in English bond, with red brick details, it had brick pilasters and windows on its north side, and a brick dentil cornice.<sup>49</sup> It has a hipped roof which is wood-framed. A large wooden transverse beam may have carried the engine itself.

The Accumulator House, at the west side of the Engine House, may be the Accumulator House of the earlier "Pellet Powder Buildings" of c1869. Although it differs slightly in appearance from the Accumulator House shown in the proposal drawings for the earlier building, the Accumulator House actually built for that earlier building may be that which survives.<sup>50</sup> Alternatively it may be a rebuild or partial rebuild. A datestone on its west elevation reads "Group E Mills 1887-8" but, rather than being incorporated into the brickwork, the plaque is adhered to it. Built of yellow brick with red brick details, with a 16'6" (5.05 m) square plan, it forms a tower 36' (11 m) in height.<sup>51</sup> On the north and west elevations a kind of platband with dentils marks a point almost halfway up the tower, below which the tower is wider on these north and west sides only. The absence of this feature on the south elevation might support the theory that this is the Accumulator House from the earlier building which would have had the Boiler House abutting on the south side. Furthermore, the brickwork of the innermost walls of each of the cross wings does not appear to be bonded into the brickwork of the tower.

Below the datestone on the west front, the entrance doorway to the Accumulator House has a semi-circular head and brick label. At a higher level on the tower, each of its elevations has a pair of semi-circular headed windows with rubbed red-brick arches with a pair of brick drops at the springing on either side. The windows on the north and south elevations are blind. Above the windows, a series of five brick arches give the appearance of false machicolations, and this is echoed in an arrangement of bricks which corbel out as part of the cornice. It appears to have had a hipped roof originally.<sup>52</sup>

The accumulator which would have been housed within the tower supplied a more remote accumulator on the site (Building No. L136). An internal pier would have held the guide rail of the accumulator itself.

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<sup>48</sup> Ledger c1908, cat. WASC 1509 (PRO, Hayes Repository).

<sup>49</sup> Drawing of "Waltham Abbey, (Project), Plans, Sections & Elevations for Pellet Powder Buildings", signed I Randall, Clerk of Works, 2/12/186(?), cat. L149.B.15 (MOD Central Disposals Unit, Chessington).

<sup>50</sup> The project drawings for the "Pellet Powder Buildings" of 2/12/186(?) for the front west elevation of the Accumulator House show, above the doorway, a rectangular panel with clipped corners, above a pair of semi-circular headed windows which have keystones and which span almost the entire width of the front, and a simple dentil cornice below the eaves. The present building has no such rectangular panel, narrower windows with no keystone and a more elaborate false-machicolation design above.

<sup>51</sup> Ledger c1908, cat. WASC 1509 (PRO, Hayes Repository).

<sup>52</sup> A hipped roof is shown on the tower in an elevation drawing of "Waltham Abbey, Proposed New Incorporating Mills, Item I. AE 1877-8", cat. L149.B.05 (MOD Central Disposals Unit, Chessington). However, in place of a hipped roof, the tower carried a water tank by 1902, as recorded in a photograph of December 1902, RCHME neg. no. BB92/16730, PRO Supply 5/860 (photo no. 146; neg. no. B32).

Serving the Boiler Houses in both phases of construction, was a chimney stack which had an octagonal plan, 75<sup>53</sup> (22.86 m) in height, and was constructed of brick.<sup>54</sup> A coal yard on the south side of the original Boiler House incorporated the chimney on its east wall, while a new coal yard created in 1877-8 on the south side of the new Boiler House incorporated the same chimney in the south-west corner.

The Boiler House which was constructed in the second phase of 1877-8 has a rectangular plan of 45' x 23'. (13.7 x 7 m)<sup>55</sup> Of a single storey and of the same height as the Engine House, it is also brick-built and has a dentil cornice as well as dentils at the top of recessed panels between pilasters which separate the exterior elevations into four bays by one bay. The three eastern bays on the north and south elevations each contained a pair of semi-circular headed windows with red brick heads and drops, in a style similar to that of the Accumulator House. There is a doorway in the east elevation bay which has a semi-circular head of rubbed red-brick. The Boiler House carried a pair of boilers which were aligned east to west. The roof is hipped and contains trusses which are probably reused from the earlier Boiler House, since the trusses match those in the drawings for the original building.<sup>56</sup> The trusses have wrought iron tension rods, decorative cast iron compression members, and cast iron ventilators. The hips have central roundels with five bridging arms on a horizontal plane and a king rod on a vertical plane. The roof had tongued boarding and lead coverings.

Cross wings, set back from the front of the Accumulator House, were added in 1877-8 on the north and south sides of the Engine House. The wings contained a total of six gunpowder incorporating mills. Each of three bays, the wings are single-storeyed and have a gabled roof. The bays are separated by partition walls, aligned east to west, which are constructed of brick laid in English bond. The front and back walls had a light iron framing filled in with moveable panels of non-inflammable felt on light deal frames.<sup>57</sup> On the west wall frames were lampframes constructed of iron, copper and sheet glass, the bottom of which were to hold 1/2' (0.15 m) of water constantly.<sup>58</sup> Cast iron columns on the outer west side of the cross wings originally formed part of an open verandah which had ends of corrugated iron.<sup>59</sup> The roof was of angle and tee iron framing (round rods with metal purlins and pin spokes), with board and lead coverings. Drenching apparatus, constructed of iron and copper, was positioned on the tie of the truss.<sup>60</sup> The relatively insubstantial fabric for the sides and roof could be easily

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<sup>53</sup> The chimney stack is labelled as being 75' in height in both the early project drawing for the "Pellet Powder Buildings", cat L149.B.15, and in the Group E Incorporating Mills, Ledger c1908, cat. WASC 1509 (PRO, Hayes Repository).

<sup>54</sup> The date of 1877 given to the Chimney Shaft in the Ledger of c1908 appears to be incorrect, cat. WASC 1509 (PRO, Hayes Repository).

<sup>55</sup> Ledger c1908, cat. WASC 1509 (PRO Hayes Repository).

<sup>56</sup> Drawing of "Waltham Abbey, (Project), Plans, Sections & Elevations for Pellet Powder Buildings", signed I. Randall, Clerk of Works, 2/12/186(?9), cat. L149.B.15.

<sup>57</sup> A drawing of "Waltham Abbey, Proposed New Incorporating Mills, Enlarged Section, Item I, A.E. 1877-8", dated 13/3/1877, describes the side walls as such, ?no cat. no. (L149/6) (MOD Central Disposals Unit, Chessington). However, the an undated drawing (?c1908) describes the walls as being of wood and canvas, with shutters in an iron-framing, cat. WASC 901/129A, (PRO, Hayes Repository).

<sup>58</sup> Drawing of "Waltham Abbey, Proposed New Incorporating Mills, Enlarged Section, Item I, A.E. 1877-8", dated 13/3/1877, ?no cat. no. (L149/6) (MOD Central Disposals Unit, Chessington).

<sup>59</sup> A photograph taken in December 1902 shows the open verandah. RCHME Neg. No. BB92/16730 (PRO Supply 5/860; photo no. 146)

<sup>60</sup> Although the drawing of "Waltham Abbey, Proposed new Incorporating mills, Enlarged Section, Item I, A.E. 1877-8", dated 13/3/1877, details this apparatus, an adjacent note states that "This drenching Apparatus will not be included in the Contract for the building".

replaced in the event of an explosion.<sup>61</sup>

The procedure for combining the ingredients of saltpetre, sulphur and charcoal to form gunpowder in each of the mills in the cross wing appears to have been essentially the same as it had been since 1857 when the first of the incorporating mills buildings (Group A; Building L169, now gone) was built.<sup>62</sup> The following is an extract from Handbook of Gunpowder and Guncotton, which describes both the machinery and the process of Incorporating or Milling as carried out in this type of incorporating mill building at the Royal Gunpowder Factory at Waltham Abbey:

The incorporating mill consists of a circular iron or stone bed, about 7 feet in diameter (fixed very firmly in the floor of the building), whereon the iron or stone cylindrical edge runners revolve .... The runners have a common axle, resting in gun-metal bouches in a solid cross-head attached to a vertical shaft, which, passing through a bearing in the centre of the bed, is in gear with the machinery, which is ... beneath it in cast iron tanks in the new steam mills. ...

The bed has a sloping rim on the outside, called the "curb," and on the inside, an edge formed by the "cheese," or bearing through which the vertical shaft passes. The runners are not equidistant from the centre of the shaft; one works the part of the charge nearest the centre of the bed, the other the outer part, but their paths overlap; two "ploughs" of wood, covered with leather, attached to the cross-head by arms or brackets (one working next the vertical shaft, the other to the rim), throw the composition under the runners, as it works away from them.

The green charge to brought in its bag, and put on the bed of the mill, being spread evenly by means of a wooden rake; it is then "liquored," or moistened with distilled water, and is worked for 4 hours under iron runners for R.F.G. powder, which time was formerly considered sufficient to render the incorporation complete in every respect; but R.F.G2 powder is incorporated about 8 hours under iron runners. MG1, for Nordenfelt guns, is kept 7 hours under iron runners. The granulated cannon powders now made (RLG2 and RLG4) are incorporated for 3 hours under iron runners, an additional hour being allowed if worked under stone runners. All "dust" and "re-work" charges are milled for 40 minutes.

... During the time of working the millman enters the mill occasionally, takes a wooden "shover," and pushes the outside of the charge into the middle of the path of the runners, so that every portion may be regularly incorporated.

... The action of the runners is a combination of rolling and twisting, and has, on a large scale, somewhat the effect of a pestle and mortar, crushing, rubbing, and mixing, thus giving the charge a most intimate union.

.. When the charge, which in this state is called "mill-cake," is ready to be taken off the bed, it should be uniform in appearance, not having any specks of either saltpetre or sulphur visible to the eye, and of a greyish or brownish colour, according to the charcoal used.

Finally the mill cake would have been taken from the incorporating mill to a detached expense magazine which was probably situated north-west of the building.<sup>63</sup> It would then have been taken in covered trucks to a "breaking down" house<sup>64</sup>.

Although all of the machinery on the ground floor has been removed, all of the machinery for the independent gearing of each of the six mills survives in the underground chamber.<sup>65</sup> This includes parts of the vertical shafting, pinions, friction clutch, and

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<sup>61</sup> "A Handbook of the Manufacture and Proof of Gunpowder, as carried on at the Royal Gunpowder Factory, Waltham Abbey, by Captain F M Smith, Royal Artillery, Assistant Superintendent, 1870, London, p43.

<sup>62</sup> The same procedure is outlined in both A Handbook of the Manufacture and Proof of Gunpowder, as carried on at the Royal Gunpowder Factory, Waltham Abbey, by Captain F.M. Smith, Royal Artillery, Assistant Superintendent, 1870 and Handbook of Gunpowder and Guncotton by W.H. Wardell, 1888.

<sup>63</sup> The drawing of "Waltham Abbey, Proposed New Incorporating Mills, Item I. AE 1877-8" includes a plan and sections of a magazine, with interior dimensions of 10' x 8', cat. L149.B.05 (MOD Central Disposals Unit, Chessington).

<sup>64</sup> "How Explosives are Made" by William G. Fitzgerald, The Strand Magazine, Vol IX Jan-June 1895.

<sup>65</sup> The relieving arches of the chamber are visible in the partition walls at the lower part of the ground floor.

wheel. Below the Engine House is a tunnel which contains cast iron members, possibly the spokes of a flywheel, and clutch to chambers from the Engine House end.

Some time after 1878, and before 1895, a Pump House was added at the centre of the north elevation of the Boiler House, cutting across the former windows in this position.<sup>66</sup> Of a single storey, approximately 16' (4.88 m) in height, it is of yellow brick laid in Flemish bond and has a gabled roof, aligned north to south. Originally it was one bay wide and housed Worthington and Tangye pumps.<sup>67</sup> In c1904 the Pump House was extended by another bay, giving it an almost-square plan, 22' x 23'9" (6.71 x 7.3 m).<sup>68</sup> The new bay housed a new hydraulic pump. It is lit by a pair of semi-circular headed windows on the north elevation and square windows on the east and west sides.

A timber cabin at the north end of the north cross wing was built in 1895 and demolished in 1905.<sup>69</sup>

Around the turn of the century the building was altered for the manufacture of cordite. New line shafting, pulleys and individual driving wheels were installed. Blocked openings in each of the end gables of the cross wings are evidence of the existence of the line shafting. Concrete traverse were added on the west side in the early twentieth century; the traverse has since been demolished but a photograph of 10 May 1904 shows the traverse on the west side of the building.<sup>70</sup>

Although the chimney stack was proposed to be demolished in c1908-9,<sup>71</sup> it appears to have survived at least until the following decade, as it is shown in a block plan of 1923.<sup>72</sup>

In c1947 the building was converted into laboratories.<sup>73</sup> The former Accumulator Tower was a room for an impact machine, the former Engine House was divided into a laboratory and a store, the former Boiler House was a laboratory, balance room and machine shop, the former Pump House was a dark room and a laboratory, and the bays of the cross wings were variously used for glass blowing, laboratories, dark room, drawing office, office and writing room. The verandah was probably filled in at this time and extended to form a covered way around the west side of the Accumulator House.

The building ceased to function as laboratories in c1991. Stripping out began in c1993.

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<sup>66</sup> Although the Ledger of c1908 dates the addition to 1877, it is in fact secondary to the Boiler House of that date and is therefore a later addition, cat. WASC 1509 (PRO, Hayes Repository). The addition is shown on the OS County Series 1:2500 maps, 2nd ed. 1897 (surveyed 1865-9, revised 1895), sheet refs XLIX.14, XLI.8.12, XLII.5.9.

This single-bay extension was drawn as a later addition to the plan of "Waltham Abbey, Proposed New Incorporating Mills, Item I. AE 1877-8", cat. L149.B.02 (MOD Central Disposals Unit, Chessington).

<sup>67</sup> Drawing of "Extension of Pump House Group E", dated 16/4/1904, ?no cat. no. (L149/13) (MOD Central Disposals Unit, Chessington).

<sup>68</sup> Drawing of "Extension of Pump House Group E", dated 16/4/1904, ?no cat. no. (L149/13) (MOD Central Disposals Unit, Chessington).

<sup>69</sup> Ledger c1908, cat. WASC 1509 (PRO, Hayes Repository).

<sup>70</sup> RCHME Neg. No. BB92/16726. A print from this negative appears in PRO. Supply 5/861 (photo no. 217, negative no. B.95), Group E Mills, 10 May 1904.

<sup>71</sup> Ledger c1908, cat. WASC 1509 (PRO, Hayes Repository).

<sup>72</sup> "Royal Gunpowder Factory, Waltham Abbey" site plan 1:2500, as named 13th September 1917, revised March 1919, and March 1923, cat. WASC 900/84.

<sup>73</sup> Drawing of "Layout of New Laboratories in Building No. 154", dated 18/11/1947, cat. L149.B.28 (MOD Central Disposals Unit, Chessington).

Surveyed March 1993  
Report by R L Burgess

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L149 1/2	OLD SERIES	RCHME NUMBER	N.G.R. TL 37759 01281
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NAME/FUNCTION Dehumidifier Plant & Hardstanding	START DATE 197?	END DATE
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### CARTOGRAPHIC DEPICTION

1972 WASC 900/102; L149 1/2  
 1972 WASC 900/104; L149 1/2  
 1976 WASC 900/113; L149 1/2

### DOCUMENTARY REFERENCES

1991 Mott McDonald survey  
 1992 ION Poor

### PHOTOGRAPHY HISTORIC

### PHOTOGRAPHY RCHME

1) 206/G/32 10.Feb.1993 From South West  
 206/P/11 09.Mar.1993 Floor slab from South East

### RELATIONSHIPS WITH OTHER MONUMENTS


ASSOCIATED WITH: L149

CONDITION Demolished


### DESCRIPTION

- 1) CONSTRUCTIONAL MATERIAL
- 2) ROOF MATERIALS AND STRUCTURE
- 3) POWER SOURCE
- 4) DIMENSIONS i) L      ii) W      iii) HT
- 5) Demolished concrete floor slab remains.

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L150	OLD SERIES	RCHME NUMBER	N.G.R. TL 37709 01284
NAME/FUNCTION Concrete Air Raid Shelter Solvent Store		START DATE 1941	END DATE 1945 198?
			
<b>CARTOGRAPHIC DEPICTION</b>  > 1940    WASC 900/91A ; L150 1954      A - B.34 ; L150 c1960    WASC 900/94 ; L150 c1963    WASC 900/97 ; L150 1972      WASC 900/102 ; L150 1972      WASC 900/104 ; L150 1976      WASC 900/113 ; L150		<b>DOCUMENTARY REFERENCES</b>  Plan; L150    B01 - 1940 ; Air Raid Shelter for RGPF  1972    ERDE List ; Solvent General Store 1991    Mott McDonald survey 1992    RARDE List ; Air Raid Shelter	
<b>PHOTOGRAPHY</b> HISTORIC		<b>PHOTOGRAPHY</b> RCHME 1) 206/M/0 From South East 4) 4788/4 06.05.1993	
<b>RELATIONSHIPS WITH OTHER MONUMENTS</b>  ASSOCIATED WITH: L148			
<b>CONDITION</b> Good			
<b>DESCRIPTION</b> 1)            CONSTRUCTIONAL MATERIAL Concrete  2)            ROOF MATERIALS AND STRUCTURE Concrete slab  3)            POWER SOURCE Steam Electricity  4)            DIMENSIONS i) L 9.18 ii) W 5.18 iii) HT 2.62  5)            The air raid shelter is single storeyed with a U shaped plan. It is entered through two doors on the eastern side. Its later conversion into a store has included the insertion of a metal roof vent.			

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L151	OLD SERIES 161A	RCHME NUMBER	N.G.R. TL 37766 01241
NAME/FUNCTION Incorporating House No.4 Laboratory		START DATE 1914-17? 1946	END DATE 1945
			
<p>CARTOGRAPHIC DEPICTION</p> <p>1917 WASC 900/70 ; Incorp. House No.4  1917 WASC 900/72 ; 161a  1919 WASC 900/74 ; 161a  c1920 WASC 900/80 ; 161a  1923 WASC 900/84 ; 161a  &gt; 1940 WASC 900/91A ; L151  1954 A - B.34 ; L151  c1960 WASC 900/94 ; L151  c1963 WASC 900/97 ; L151  1972 WASC 900/102 ; L151  1972 WASC 900/104 ; L151  1976 WASC 900/113 ; L151</p>		<p>DOCUMENTARY REFERENCES</p> <p>Plans;  L151 B01 - B15 ; Plans and Elevations 1947 to 1958</p> <p>c1925 RGPF Ledger WASC 1680 ; Incorp. House No.4  c1945 RGPF Ledger WASC 1508 ; Incorp. House No.4  1938 Text Book of Explosives 1938 H.M.S.O. Chp XV  p99-111 Figs 15.2-9</p> <p>1972 ERDE List ; Organic Igniferous Laboratory  1991 Mott McDonald survey  1992 RARDE List ; Laboratory/Incorp. House No.4</p>	
<p>PHOTOGRAPHY HISTORIC</p>		<p>PHOTOGRAPHY RCHME</p> <p>1) 206/D/26 From South East  206/Q/22 From North</p> <p>2) BB92/26086 From South East  BB92/26087 From South West  BB92/26176 From South West (Colour)</p> <p>4) 4788/9 06.05.1993</p>	
<p>RELATIONSHIPS WITH OTHER MONUMENTS</p> <p>ASSOCIATED WITH L152, L198, L134, L143, L146, L151, L155, L159</p>			
CONDITION		Fair	



DESCRIPTION

1) CONSTRUCTIONAL MATERIAL  
Brick

2) ROOF MATERIALS AND STRUCTURE  
Felt over timber boards supported by purlins

3) POWER SOURCE  
Steam Electricity

4) DIMENSIONS i) L 32.07 ii) W 8.8 iii) HT Eave 3.67

5) The building is single storeyed it has a rectangular ground plan with gabled walls north and south. The building was divided into seven bays by five internal partition walls in English bond. Also visible in the partition walls are cut off I girders that formerly supported internal machinery. The external walls of the bays are filled to the east and west by modern timber frames. Small timber framed lean-tos with an asbestos covering have been added to the north and south ends of the building.

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L152	OLD SERIES 161B	RCHME NUMBER	N.G.R. TL 37777 01244
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NAME/FUNCTION Chemical Store/Solvent Store	START DATE 1914-18?	END DATE
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<p><b>CARTOGRAPHIC DEPICTION</b></p> <p>1919 WASC 900/74  c1920 WASC 900/80 ; 161b  1923 WASC 900/84 ; 161b  &gt; 1940 WASC 900/91A ; L152  1954 A - B.34 ; L152  c1960 WASC 900/94 ; L152  c1963 WASC 900/97 ; L152  1972 WASC 900/102 ; L152  1972 WASC 900/104 ; L152  1976 WASC 900/113 ; L152</p>	<p><b>DOCUMENTARY REFERENCES</b></p> <p>c1925 RGPF Ledger WASC 1680 ; EC  c1945 RGPF Ledger WASC 1508 ; EC</p> <p>1972 ERDE List ; Hazardous Chemicals  1991 Mott McDonald survey  1992 RARDE List ; Chemicals Store</p> <p>1992 FBRC ; Solvent Store</p>
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<p><b>PHOTOGRAPHY</b> HISTORIC</p>	<p><b>PHOTOGRAPHY</b> RCHME 1) 206/G/30 From South</p>
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<p><b>RELATIONSHIPS WITH OTHER MONUMENTS</b></p> <p>ASSOCIATED WITH: L151</p>
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<p><b>CONDITION</b> Fair</p>
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<p><b>DESCRIPTION</b></p> <ol style="list-style-type: none"> <li>1) <b>CONSTRUCTIONAL MATERIAL</b> Brick in Stretcher bond</li> <li>2) <b>ROOF MATERIALS AND STRUCTURE</b> Corrugated Asbestos with a vented ridge</li> <li>3) <b>POWER SOURCE</b> Steam Electricity</li> <li>4) <b>DIMENSIONS</b> i) L. 3.45 ii) W 1.92 iii) HT 3.19</li> <li>5) The store is a single storeyed building with a rectangular ground plan. It has gabled ends on the north and south side. The south elevation has a single door and a small segmental headed window. On the north elevation is an inserted door and a small segmental headed window. The east and west elevations are blank.</li> </ol>
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## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L153	OLD SERIES 160	RCHME NUMBER	N.G.R. TL 37720 01237
NAME/FUNCTION Group D Incorporating House Press House Group D Cordite Incorporating Mill No.8 Initiators Section /Laboratory		START DATE 1868 1898 by 1908 1946	END DATE 1898? by 1908 1946?



<p><b>CARTOGRAPHIC DEPICTION</b></p> <p>1865 WASC 900/38 + SUPP5 975 ; Group D Incorp. House</p> <p>1865 WASC 900/41A ; Group D Incorp. House/Electric Machine House &amp; Pump</p> <p>1865 WASC 900/42 ; Group D Incorp. House/Electric Machine House &amp; Pump</p> <p>1897 WASC 900/53C</p> <p>1902 WASC 353 ; Press House Group D</p> <p>c1910 WASC 900/65 ; Incorp. House Group D</p> <p>c1910 WASC 900/79 ; Incorp. House Group D</p> <p>1917 WASC 900/70 ; Incorp. House No. 8/Spare Gear Rm No. 3</p> <p>1917 WASC 900/72 ; 160</p> <p>1919 WASC 900/74 ; 160</p> <p>c1920 WASC 900/80 ; 160</p> <p>1923 WASC 900/84 ; 160</p> <p>&gt; 1940 WASC 900/91A ; L153</p> <p>1954 A - B.34 ; L153</p> <p>c1960 WASC 900/94 ; L153</p> <p>c1963 WASC 900/97 ; L153</p> <p>1972 WASC 900/102 ; L153</p> <p>1972 WASC 900/104 ; L153</p> <p>1976 WASC 900/113 ; L153</p>	<p><b>DOCUMENTARY REFERENCES</b></p> <p>Plans; L153 B01 - B36 ; Plans and Elevations 1946 to 1985</p> <p>1908 RGPF Ledger WASC 1509 + WASC 1764 ; Incorp. House Group D built 1868 p17</p> <p>c1925 RGPF Ledger WASC 1680 ; Incorp. House Group D</p> <p>1938 Text Book of Explosives 1938 H.M.S.O. Chp XV p99-111 Figs 15.2-9</p> <p>c1945 RGPF Ledger WASC 1508 ; Incorp. House Group D</p> <p>Not Dated WASC 901/149 Incorporating Mills Group C &amp; D</p> <p>1972 ERDE List ; Laboratory</p> <p>1991 Mott McDonald survey</p> <p>1992 RARDE List ; Initiators Section/Incorp. House No.8</p> <p>1993 RCHME NBR No.91457</p>
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<p>PHOTOGRAPHY HISTORIC WASC 1039/1 Building constructed 1867-8 WASC 1233/10</p>	<p>PHOTOGRAPHY RCHME 1) 206/F/25 Foundations of Narrow Gauge Railway trestles 206/J/23 From South 206/P/5 Erected 1867-8 206/P/33 Detail of Drive shaft support 206/P/34 Detail of pinion wheel of Southerly mill from South 206/P/35 Detail of pinion wheel of Southerly mill from South 206/P/36 Detail of pinion wheel of Southerly mill from South 206/P/37 Detail of pinion wheel of Southerly mill from South 2) BB92/26082 From South West BB92/27177 From North West (Colour) BB92/26188 Detail of pinion wheel of Southerly mill BB92/26219 L153 &amp; L145 from South West 3) 225/A/2-4 Below Engine House Cast iron fly wheel made up of bolted segments 225/A/5-8 Chamber below incorporating mills 225/A/9-11 Below engine house large stone beds for beam engine 225/A/12-14 Below engine house 4) 4788/4 06.05.1993 4788/5 06.05.1993 4788/8 06.05.1993 4788/9 06.05.1993</p>
<p>RELATIONSHIPS WITH OTHER MONUMENTS ASSOCIATED WITH: L145, L148, L149, L154, L157</p>	
<p>CONDITION Fair</p>	
<p>DESCRIPTION</p> <ol style="list-style-type: none"> <li>1) CONSTRUCTIONAL MATERIAL Brick</li> <li>2) ROOF MATERIALS AND STRUCTURE Slate over timber boards</li> <li>3) POWER SOURCE Steam Electricity</li> <li>4) DIMENSIONS i) L 46.8 ii) W 8.6</li> <li>5) A stone plaque on the west side of the engine house reads 'Erected 1867-8'.</li> </ol> <p>See attached RCHME Threatened Buildings Section report.</p>	

ROYAL COMMISSION ON THE HISTORICAL MONUMENTS OF ENGLAND

MOD Building No. L153  
Group D Incorporating Mills  
The Royal Gunpowder Factory  
Waltham Abbey  
Essex

NBR No: 91457  
NGR: TL 37720 01237

Built in 1867-8, the Group D Incorporating Mills building is similar to the other incorporating mills on the site and was virtually identical to Group C Incorporating Mills building of 1861. It has a T-shaped plan which comprises a central Engine House, with a Boiler House at its east end, and three-bay cross wings on its north and south sides for six gunpowder incorporating mills. There was an open verandah along the west front. On the south side of the Boiler House was a coal yard containing a chimney.

The Engine House, Boiler House and partition walls separating the bays in the incorporating mills are constructed of yellow brick laid in English bond. The roofs and side walls were less substantial, being of wood and canvas with a slight iron framework.

Gearing for the incorporating mills survives in a underground chamber below the mills.

-ooOoo-

Constructed in 1867-8, the Group D Incorporating Mills building is virtually identical to the Group C Incorporating Mills building of 1861, to its south, upon which it was modelled.<sup>1</sup>

Its T-shaped plan comprises a central Engine House, with a Boiler House at its east end, and cross wings on its north and south sides, which are each of three bays, and contained a total of six gunpowder incorporating mills<sup>2</sup> There was an open verandah along the west front. On the south side of the Boiler House was a coal yard containing a chimney at the centre of its west wall.

Both the Engine House and the Boiler House are constructed of yellow brick laid in English bond, with a chamfered brick plinth and brick dentil cornice. Each has a hipped roof with lead coverings.

The Engine House has a rectangular plan, with internal dimensions of approximately 18' by 31'10" (5.49 x 9.7 m), and rises to a height of approximately 30'8" (9.4 metres).<sup>3</sup> It is entered through a doorway from the open verandah on the west side and through a doorway reached by stairs rising up from the Boiler House on the east side. On the upper part of each elevation of the Engine House is a window with a semi-circular head and central keystone; those on the east and west sides are glazed while the north and south windows were originally blind. The Engine House carried a steam engine to drive the edge runners in the incorporating mills in the cross wings.

On the east side of the Engine House is the Boiler House which has a rectangular plan of approximately 21'3" x 53'" (6.5 x 16.15 m).<sup>4</sup> Brick pilasters separated the exterior elevations into four bays by one bay. On the north and south sides each bay contained a window with a cambered head and a blind rectangular panel below. The windows were sash except in the westernmost bay on both elevations where they were blind. The east elevation bay originally contained a doorway which probably had a glazed semi-circular headed fanlight with keystone, as in the Boiler House of Group C Incorporating Mills. The roof trusses have round wrought iron tension rods, king rods, and decorative cast iron compression members.

Serving the Boiler House, on its south side was the coal yard with a brick wall and an octagonal chimney which was 75' (22.9

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<sup>1</sup> The sill of a window on the Engine House bears the inscription "Erected 1867-8".

<sup>2</sup> Although the building faces west-south-west and the cross wings are aligned north-north-west to south-south-east, for clarity in this report the building is described as if it faced west.

<sup>3</sup> Ledger c1908, cat. WASC 1509 (PRO Hayes Repository).

<sup>4</sup> Ledger c1908, cat. WASC 1509 (PRO Hayes Repository).

m) in height and constructed of brick.<sup>5</sup>

The cross wings, originally containing the gunpowder incorporating mills, are of three bays each and are single-storeyed and have a gabled roof. The bays are separated by partition walls, aligned east to west, which are constructed of brick laid in English bond. The front and back walls were of wood and canvas, with shutters in an iron framing, and the roof was of iron framing and boarded outside.<sup>6</sup> There was a small timber cabin on the north side of the north cross wing originally.<sup>7</sup> The outer side of the verandah on the west side of the cross wings and Engine House has slender columns of cast iron. The relatively insubstantial fabric of the sides and roof of the cross wings could be easily replaced should an explosion occur.<sup>8</sup> Drenching apparatus was erected over each pair of runners. In the event of an explosion, a wooden shutter would have been lifted automatically to release 40 gallons (182 l) of water from a cistern in the drenching apparatus of all of the mills in the building.<sup>9</sup>

Published in 1870, "A Handbook of the Manufacture and Proof of Gunpowder as carried on at the Royal Gunpowder Factory, Waltham Abbey" describes the incorporating mills machinery and outlines the procedure for combining the ingredients of saltpetre, sulphur and charcoal to form gunpowder:<sup>10</sup>

The incorporating mill consists of a pair of large heavy edge-runners, of iron or stone, which revolve on a strong circular bed .... The runners are of various sizes, but must weigh from 3½ to 4 tons each. ... The runners are connected together by a powerful spindle of wrought iron, which rests in brass bouches placed in the cross-head, so as to allow the spindle and runners to rise and fall according to the thickness or thinness of the layer of material on the bed. The spindle is placed in the cross-head, so as to bring one runner nearer to it than the other, and therefore to cause them to describe different paths when in motion. ...

The cross-head is fixed on a vertical shaft, on which is fixed, underneath the flooring of the mill, a wheel driven by a pinion on the driving shaft which passes underneath the whole group of mills. By this arrangement the whole of the machinery is kept underneath, and out of reach of damage from explosion. The cross-head is fitted with a bracket on each side to carry a "plough," or wedge-shaped piece of wood shod with felt and leather, which travels round on the bed immediately in front of the runners, and thus keeps the composition from working away from them. The bed has a curb or edge round the outside and inside of the circular path described by the runners, that on the outside being formed by a sloping rim or casing fixed all round the bed, that on the inside by the circular base of the "cheese" or conical socket down which the vertical shaft of the cross-head passes. Both the inside and outside curbs have gun-metal rings round them for the ploughs to work against. Every fitting and bolt is arranged with the greatest care, as neither to break nor become loose from the jolting of the mill, and thus drop into the charge. ...

The operations connected with a charge are as follows:- The charges (either "green charges" from the mixing house, or dust charges from the dusting houses or granulating houses) come to the mills in wooden tubs, and are stored in strong expense magazines or charge houses. In all cases these charges have been carefully sifted before going to the mills, the green charges in the mixing houses after passing through the

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<sup>5</sup> Ledger c1908, cat. WASC 1509 (PRO, Hayes Repository).

<sup>6</sup> Dyelined drawing of "Incorporating Mills Group C and D 39 & 40", no date, cat. WASC 901/149 (PRO, Hayes Repository).

<sup>7</sup> Ledger c1908, cat. WASC 1509 (PRO, Hayes Repository).

<sup>8</sup> "A Handbook of the Manufacture and Proof of Gunpowder, as carried on at the Royal Gunpowder Factory, Waltham Abbey," by Captain F M Smith, Royal Artillery, Assistant Superintendent, 1870. Printed by Order of the Secretary of State for War, London.

<sup>9</sup> "A Handbook of the Manufacture and Proof of Gunpowder, as carried on at the Royal Gunpowder Factory, Waltham Abbey," by Captain F M Smith, Royal Artillery, Assistant Superintendent, 1870. Printed by Order of the Secretary of State for War, London.

<sup>10</sup> "A Handbook of the Manufacture and Proof of Gunpowder, as carried on at the Royal Gunpowder Factory, Waltham Abbey," by Captain F M Smith, Royal Artillery, Assistant Superintendent, 1870. Printed by Order of the Secretary of State for War, London.

The Handbook states (p40) that, at that time, there were three groups of mills buildings on the site which operated in this way (ie Groups A, C & D), driven by steam.

mixing machine, and the dust charges in the houses from which they come. This sifting is most necessary, as it is the only certain plan of preventing foreign matters getting into the mill bed. The millman takes the other, and then with his rake and brush distributes it evenly over the mill bed. The runners are then moved round a quarter revolution, and the piece of mill cake left under the runners from the former charge is broken up and distributed over the fresh charge. This portion of mill cake is of course finished powder ....

Cannon powder requires to be incorporated for three hours, all small arm powder made with dogwood for five.\* (\*The times of incorporation vary with the power of the mills.) ...

When the process [of incorporation] is finished, the charge is now known as "mill cake," being partly in the state of soft cake and partly of dust, is scraped and swept up from the mill bed, placed in wooden tubs, and transferred to the charge house to await inspection ....

Most of the independent gearing for each of the six mills survives, in a partly-collapsed state, in the underground chamber. Aligned north to south, the chamber is brick barrel-vaulted and is positioned slightly off-centre to the east below the cross wing gable. Protected by a metal trough, surviving machinery includes main drive shafts, with clutches before each gear chamber, control rods and pinions. Below the Engine House are two large stone engine beds, two cast iron fly wheels made up of bolted segments, a central drive, flywheel and small gearing.

Just as most of the machinery in the other steam incorporating mills on the site were dismantled and converted to take cordite incorporating machines by the late nineteenth century, this building also underwent alteration relating to cordite production.<sup>11</sup> Around the late nineteenth century and early twentieth century it is known as "Press House Group D"<sup>12</sup> as well as an "Acetone and Mineral Jelly Weighing Store".<sup>13</sup> The Press House would have been for cordite and both Acetone and Jelly are used in the mixing of cordite. By c1908 it reverts to being known as an Incorporating Mill,<sup>14</sup> and by 1923 it is an Incorporating Mill and a Cordite Store.<sup>15</sup>

The cross wing partition walls have "I" girders and blocked openings in the gables which are likely to belong to shafting for machinery associated with cordite manufacture. An earth traverse was created in 1904-5.<sup>16</sup> In 1906 a shoe porch, constructed of corrugated iron, was added on the south side of the south cross wing.<sup>17</sup> The chimney was demolished in c1908-9.<sup>18</sup>

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<sup>11</sup> Another building, the Group G Incorporating Mills were converted from black gunpowder incorporating mills to cordite incorporating mills in 1898-9 and it is probable that most of the gunpowder incorporating mills were dismantled and converted in this way at around the same time. The conversion of Group G Incorporating Mills is noted in the "Proceedings of a Court of Enquiry and a Report ... on the Circumstances Attending an Explosion which occurred at the Royal Gunpowder Factory, Waltham Abbey, on the 15th December 1902", cat. WASC 353.

<sup>12</sup> It is labelled "Press House Group D" on a plan by Weller & Grahams Ltd, Litho, London, 3737.2.03, in "Proceedings of a Court of Enquiry and a Report ... on the Circumstances Attending an Explosion which occurred at the Royal Gunpowder Factory, Waltham Abbey, on the 15th December 1902", cat. WASC 353. The Ledger of c1908, however, still refers to it as an Incorporating Mill, cat. WASC 1509 (PRO, Hayes Repository).

<sup>13</sup> It is known as both Acetone & Mineral Jelly Weighing Store and Press House Group D in the OS County Series 1:2500 maps, 2nd ed. 1897 (surveyed 1865-9, revised 1895), sheet refs XLIX.14, XLI.8.12, XLII.5.9.

<sup>14</sup> Almost this was for incorporating cordite rather than gunpowder. Ledger c1908, cat. WASC 1509 (PRO, Hayes Repository). By September 1917 it is known as Incorporating House No. 8/Spare Gear Room No. 3 ("Royal Gunpowder Factory, Waltham Abbey" scale 1:2500.

<sup>15</sup> 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.

<sup>16</sup> Ledger c1908, cat. WASC 1509 (PRO, Hayes Repository).

<sup>17</sup> Ledger c1908, cat. WASC 1509 (PRO, Hayes Repository).

The building has been altered in various phases in the mid twentieth century relating to its later use as laboratories. Additional windows were added on the north and south elevations of the former Engine House and larger windows were inserted in the north and south bays of the Boiler House. The doorway at the east end of the Boiler House was blocked and replaced by later doorway. The shoe porch of corrugated iron at the south end of the cross wing was replaced by a brick porch with a flat roof. A low flat-roofed Pump House was added at the east end of the north elevation of the Boiler House, and a low flat-roofed addition linked the north cross wing with the south cross wing of building L148. A drawing of 1951 shows the Boiler House, then being used as a Recording Room, Park Room and Preparation Room, was about to be converted into a Burning Rate Laboratory, Charge Preparation and Computing Rooms.<sup>19</sup> Another drawing of 1959 is for proposed alterations to have ground and first floor offices in the former Engine House.<sup>20</sup>

The laboratories were finally closed around 1991 and stripping out began in early 1993.

Surveyed March 1993  
Report by R L Burgess

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<sup>18</sup> Ledger c1908, cat. WASC 1509 (PRO, Hayes Repository).

<sup>19</sup> Drawing dated 24/4/1951, Cat. L153.B.10. (MOD Central Disposals Unit, Chessington).

<sup>20</sup> Drawing dated 27/4/1959, cat. L153.B.17 (MOD Central Disposals Unit, Chessington).



## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L154	OLD SERIES	RCHME NUMBER	N.G.R. TL 37710 01200
NAME/FUNCTION Magazine		START DATE 195?	END DATE
			
<b>CARTOGRAPHIC DEPICTION</b>  > 1940    WASC 900/91A ; L154 1954      A - B.34 ; L154 c1960    WASC 900/94 ; L154 c1963    WASC 900/97 ; L154 1972    WASC 900/102 ; L154 1972    WASC 900/104 ; L154 1976    WASC 900/113 ; L154		<b>DOCUMENTARY REFERENCES</b>  1991    Mott McDonald survey 1992    RARDE List ; Magazine	
<b>PHOTOGRAPHY</b> HISTORIC		<b>PHOTOGRAPHY</b> RCHME  1) 206/F/26 From South West 206/J/24 From South West 206/J/25 Detail of Engine House 206/J/27 From South 2) BB92/26083 From North West	
<b>RELATIONSHIPS WITH OTHER MONUMENTS</b>  ASSOCIATED WITH: L153, L157			
<b>CONDITION</b> Fair			
<b>DESCRIPTION</b> 1) <b>CONSTRUCTIONAL MATERIAL</b> Brick in English bond  2) <b>ROOF MATERIALS AND STRUCTURE</b> Slate with felt covering over a brick vault  3) <b>POWER SOURCE</b> Electricity  4) <b>DIMENSIONS</b> i) L 4.02 ii) W 3.43 iii) HT Eave 3.6  5)      The magazine is a single storeyed building with a rectangular ground plan. It has gabled ends to the west and east. The building is entered through a raised door on the western side, formerly served by a narrow guage railway on a trestle. The magazine was lit by a small window on the north wall, now blocked. The north and south elevations are blank. The interior of the magazine is lined with wooden boards. To the west of mills L153 and L157 the brick pier foundations of the railway was found. Two narrow slots on the east wall now filled by bricks may have contained trestle supports.			

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L155	OLD SERIES 162A	RCHME NUMBER	N.G.R. TL 37783 01200
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NAME/FUNCTION Incorporating House No.5 Laboratory	START DATE 1914-17? 1955	END DATE 1945
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### CARTOGRAPHIC DEPICTION

1917 WASC 900/70 ; Incorp. House No.5  
 1917 WASC 900/72 ; 162a  
 1919 WASC 900/74 ; 162a  
 c1920 WASC 900/80 ; 162a  
 1923 WASC 900/84 ; 162a  
 > 1940 WASC 900/91A ; L155  
 1954 A - B.34 ; L155  
 c1960 WASC 900/94 ; L155  
 c1963 WASC 900/97 ; L155  
 1972 WASC 900/102 ; L155  
 1972 WASC 900/104 ; L155  
 1976 WASC 900/113 ; L155

### DOCUMENTARY REFERENCES

Plans;  
 L155 B01 - B25 ; Plans and Elevations

c1925 RGPF Ledger WASC 1680 ; Incorp. House No.5  
 1938 Text Book of Explosives 1938 H.M.S.O Chp XV  
 p99-111 Figs 15.2-9

c1945 RGPF Ledger WASC 1508 ; Incorp. House No.5

1972 ERDE List ; Laboratory/Physical Section  
 1991 Mott McDonald survey  
 1992 RARDE List ; Laboratory/Incorp. House No.5

### PHOTOGRAPHY HISTORIC

PHOTOGRAPHY  
 RCHME  
 1) 206/D/25 From South West  
 206/N/21 Detail of Barge porch  
 206/N/22 From South West  
 4) 4788/9 06.05.1993

### RELATIONSHIPS WITH OTHER MONUMENTS

ASSOCIATED WITH: L151, L159, L134, L143, L146, L151, L155, L159

CONDITION Fair

### DESCRIPTION

- 1) CONSTRUCTIONAL MATERIAL  
Brick
- 2) ROOF MATERIALS AND STRUCTURE  
Felt
- 3) POWER SOURCE  
Steam Electricity
- 4) DIMENSIONS i) L 32.07 ii) W 8.5 iii) HT Eave 3.5
- 5) The building is single storeyed with a rectangular ground plan, it has gabled ends to the north and south. the building is divided into seven bays by five internal partition walls in English bond. A blocked bearing box is visible on the south gable wall, on the north wall is a small timber hatch in a similar position. The external walls of the bays are filled by modern timber framed infill. Modern leanos constructed from timber frames with an asbestos skin have been added to the north and south ends.

**THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY**

NUMBER L156	OLD SERIES	RCHME NUMBER	N.G.R. TL 37740 01209
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NAME/FUNCTION Mixing & Grinding /Hose House	START DATE 1945-55?	END DATE
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NO PHOTOGRAPHY  
AVAILABLE

**CARTOGRAPHIC DEPICTION**

> 1940 WASC 900/91A ; L156  
 1954 A - B.34 ; L156  
 c1960 WASC 900/94 ; L156  
 c1963 WASC 900/97 ; L156  
 1972 WASC 900/102 ; L156  
 1972 WASC 900/104 ; L156  
 1976 WASC 900/113 ; L156

**DOCUMENTARY REFERENCES**

1972 ERDE List ; Mixing and Grinding/Hose House  
 1991 Mott McDonald survey  
 1992 RARDE List ; Mixing and Grinding/Hose House

**PHOTOGRAPHY  
HISTORIC**

**PHOTOGRAPHY  
RCHME**  
 1) 206/P/16 From West

**RELATIONSHIPS WITH OTHER MONUMENTS**

ASSOCIATED WITH L157, L158, L174, L187

**CONDITION** Demolished

**DESCRIPTION**

- 3) **POWER SOURCE**  
Electricity
- 4) **DIMENSIONS** i) L 4.6m ii) W 3.4m
- 5) The building, rectangular in plan, has been demolished a concrete floor slab remains.

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L157	OLD SERIES 167	RCHME NUMBER	N.G.R. TL 37750 01174
NAME/FUNCTION Group C Incorporating Mills Press House Group C Press House No 4 Laboratory		START DATE 1861 1898 by 1917 1946	END DATE 1898 by 1917 1945



### CARTOGRAPHIC DEPICTION

1861-1868 WASC 900/10A  
 1865 WASC 900/13 ; Incorp Mills and Boiler House  
 1865 WASC 900/14 ; Group C Incorp Mills  
 1865 WASC 900/38 + SUPP5 975 ; Group C Incorp Mills  
 1865 WASC 900/41A ; Group C Incorp Mills  
 1865 WASC 900/42 ; Group C Incorp Mills  
 1897 WASC 900/53C  
 c1910 WASC 900/65 ; Press House Group C  
 c1910 WASC 900/79 ; Press House Group C  
 1917 WASC 900/70 ; Press House Group 4  
 1917 WASC 900/72 ; 167  
 1919 WASC 900/74 ; 167  
 c1920 WASC 900/80 ; 167  
 1923 WASC 900/84 ; 167  
 > 1940 WASC 900/91A ; L157  
 1954 A - B.34 ; L157  
 c1960 WASC 900/94 ; L157  
 c1963 WASC 900/97 ; L157  
 1972 WASC 900/102 ; L157  
 1972 WASC 900/104 ; L157  
 1976 WASC 900/113 ; L157  
 1863 WASC 901/138 22 April 1863 General Plan D  
 1864 WASC 901/138/1 29 Jan 1864 General Plan & Sections of proposed canals +C  
 WASC 901/149 Incorporating Mills Group C+D

### DOCUMENTARY REFERENCES

Plans;  
 L157 B01 - B35 ; Plans and Elevations  
  
 1908 RGPF Ledger WASC 1509 + WASC 1764 ; Press House Group C built 1861 p17  
 c1925 RGPF Ledger WASC 1680 ; Press House Group C  
 c1945 RGPF Ledger WASC 1508 ; Press House Group C  
  
 1938 Text Book of Explosives H.M.S.O. Chp XV p99-111, Figs 15.2-9  
 1972 ERDE List ; Laboratory/Press House No.4  
 1991 Mott McDonald survey  
 1992 RARDE List ; Laboratory/Press House No.4  
  
 1993 RCHME NBR No.91456



<p>PHOTOGRAPHY HISTORIC WASC 68 Explosion 21.8.1890 WASC 71 Explosion 21.10.18?? WASC 72 Explosion 21.10.189? PRO Supply 5/860 32-7 Explosion 21-oct-1890 PRO Supply 5/860 75 1890s PRO Supply 5/860 99 Group C Mill No136 Incorporating Mill Explosion 10.7.95</p>	<p>PHOTOGRAPHY RCHME 1) 206/P/29 Detail drive shaft beneath Northerly mill 206/P/30 Detail clutch mechanism 206/P/31 Detail clutch mechanism 206/P/32 Detail clutch mechanism 206/R/22 Gunpowder Steam mill from South East  2) BB92/26082 From South West BB92/26086 From South East BB92/26088 From North BB92/26175 From South West (Colour) BB92/26363 Plans &amp; Elevations BB92/26374 Plans Sections Elevations of Boiler House BB92/26385 Plans Sections Elevations New Incorporating Mills 4) 4788/9 06.05.1993</p>
<p>RELATIONSHIPS WITH OTHER MONUMENTS</p> <p>ASSOCIATED WITH: L145, L148, L149, L153, L154, L156, L158, L174, L187</p>	
<p>CONDITION Fair</p>	
<p>DESCRIPTION</p> <ol style="list-style-type: none"> <li>1) CONSTRUCTIONAL MATERIAL Brick in English bond</li> <li>2) ROOF MATERIALS AND STRUCTURE Timber boards</li> <li>3) POWER SOURCE Steam Electricity</li> <li>4) DIMENSIONS i) L 46.05 ii) W 8.4</li> <li>5) A stone plaque on the west side has the following inscription 'Erected 1861'.</li> </ol> <p>See attached RCHME Threatened Buildings Section report.</p>	

## ROYAL COMMISSION ON THE HISTORICAL MONUMENTS OF ENGLAND

MOD Building No. L157  
Group C Incorporating Mills  
The Royal Gunpowder Factory  
Waltham Abbey  
Essex

NBR No: 91456  
NGR: TL 37750 01174

Built in 1861, the Group C Incorporating Mills building has a T-shaped plan which comprises a central Engine House, with a Boiler House at its east end, and cross wings on its north and south sides for gunpowder incorporating mills. There was an open verandah along the west front. On the south side of the Boiler House was a coal yard containing a tall chimney.

The Engine House, Boiler House and partition walls separating the bays in the incorporating mills are constructed of yellow brick laid in English bond. The roofs and side walls were less substantial, being of wood and canvas or felt, with a slight iron framework.

The original gearing for the machinery of the mills in this building survives more or less intact below the ground.

Originally the cross wings were of two bays each and were later extended by the addition of a third bay at either end. In this secondary form, the building represents a model for the other incorporating mills subsequently built on this part of the site.

-ooOoo-

Group C Incorporating Mills building was constructed in 1861.<sup>21</sup> Its T-shaped plan comprises a central Engine House, with a Boiler House at its east end, and cross wings on its north and south sides, which are each of three bays, and contained a total of six gunpowder incorporating mills<sup>22</sup> There was an open verandah along the west front. On the south side of the Boiler House was a coal yard containing a chimney at the centre of its west wall.

Both the Engine House and the Boiler House are constructed of yellow brick laid in English bond, with a chamfered brick plinth and brick dentil cornice. Each has a hipped roof with lead coverings.

The Engine House has a rectangular plan, with internal dimensions of approximately 18' by 31'10" (5.49 x 9.7 m), and rises to a height of approximately 30'8" (9.4 m).<sup>23</sup> It is entered through a doorway from the open verandah on the west side and through a doorway reached by stairs rising up from the Boiler House on the east side. On the upper part of each elevation of the Engine House is a window with a semi-circular head and central keystone; those on the east and west sides are glazed while the north and south windows were originally blind. The Engine House carried a steam engine to drive the edge runners in the incorporating mills in the cross wings.

On the east side of the Engine House is the Boiler House which has a rectangular plan of approximately 21'2" x 7'53" (6.45 x 7.16.15 m).<sup>24</sup> Brick pilasters separated the exterior elevations into four bays by one bay. On the north and south sides each bay contained a window with a cambered head and a blind rectangular panel below. The windows were sash except in the westernmost bay on both elevations where they were blind. A wide doorway in the east elevation bay has a glazed semi-circular

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<sup>21</sup> The sill of a window on the western side of the Engine House bears the inscription "Erected 1861".

<sup>22</sup> Although the building faces west-south-west and the cross wings are aligned north-north-west to south-south-east, for clarity in this report the building is described as if it faced west.

<sup>23</sup> Ledger c1908, cat. WASC 1509 (PRO Hayes Repository).

<sup>24</sup> Ledger c1908, cat. WASC 1509 (PRO Hayes Repository).

headed fanlight with a keystone, although originally the doorway may have had a different form.<sup>25</sup> A drawing dated 1860 shows a partition between the eastern end bay and the remainder of the Boiler House which carried at least two boilers.<sup>26</sup> The roof contains nine trusses which have round wrought iron tension rods, king rods, and decorative cast iron compression members.

Serving the Boiler House, on its south side was the coal yard with a brick wall and an octagonal chimney which was 75' (22.9 m) in height and constructed of brick.<sup>27</sup>

The cross wings, containing the incorporating mills, were originally of two bays each<sup>28</sup> and were later extended by the addition of a third bay at either end.<sup>29</sup> They are single-storeyed and have a gabled roof. The bays are separated by partition walls, aligned east to west, which are constructed of brick laid in English bond. The walls were of canvas and timber and the roof is of iron and timber with slate coverings.<sup>30</sup> The outer side of the verandah on the west side of the cross wings and Engine House has slender columns of cast iron. The relatively insubstantial fabric of the sides and roof of the cross wings could be easily replaced should an explosion occur.<sup>31</sup> Drenching apparatus would have been erected over each pair of runners. In the event of an explosion, a wooden shutter would have been lifted automatically to release 40 gallons (182 l) of water from

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<sup>25</sup> A drawing of the "Plan, Section and Elevations of Boiler House &c to New Incorporating Mills," signed I. Randall, Clerk of Works, 22/6/1860 has had a separate drawing for a doorway adhered to the east elevation drawing of the Boiler House, cat. L157.B.03 (MOD Central Disposals Unit, Chessington).

<sup>26</sup> Drawing of the "Plan, Section and Elevations of Boiler House &c to New Incorporating Mills," signed I. Randall, Clerk of Works, 22/6/1860, cat. L157.B.03 (MOD Central Disposals Unit, Chessington).

<sup>27</sup> Ledger c1908, cat. WASC 1509 (PRO, Hayes Repository).

<sup>28</sup> An original drawing of "Plans, Sections and part Elevation of New Incorporating Mills," signed I. Randall, Clerk of Works, 22/6/1860, shows only two bays on either side of the Engine House, to which separate pieces of paper with drawings of a third bay have been adhered at either end of the original plan.

Actual construction appears to have followed this two-stage pattern of progression. A site plan of the Gunpowder Factory of 1821, updated in the mid nineteenth century, shows a block plan of the building, with a tramway running along the west side from which five short tramlines/platforms run off at right angles to connect with the building (one to the Engine House at the centre and two to each of the cross wings), which suggests that the wings are only two bays in this representation ("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).

<sup>29</sup> Plan of Royal Powder Factory, Waltham Abbey, 1865, corrected May 1886, PRO Supply 5/975.

<sup>30</sup> Dyelined drawing of "Incorporating Mills Group C and D, 39 and 40", undated, cat. WASC 901/149 (PRO, Hayes Repository).

<sup>31</sup> "A Handbook of the Manufacture and Proof of Gunpowder, as carried on at the Royal Gunpowder Factory, Waltham Abbey," by Captain F M Smith, Royal Artillery, Assistant Superintendent, 1870. Printed by Order of the Secretary of State for War, London.



a cistern in the drenching apparatus of all of the mills in the building.<sup>32</sup>

Published in 1870, "A Handbook of the Manufacture and Proof of Gunpowder as carried on at the Royal Gunpowder Factory, Waltham Abbey" describes the incorporating mills machinery and outlines the procedure for combining the ingredients of saltpetre, sulphur and charcoal to form gunpowder:<sup>33</sup>

The incorporating mill consists of a pair of large heavy edge-runners, of iron or stone, which revolve on a strong circular bed .... The runners are of various sizes, but must weigh from 3½ to 4 tons each. ... The runners are connected together by a powerful spindle of wrought iron, which rests in brass bouches placed in the cross-head, so as to allow the spindle and runners to rise and fall according to the thickness or thinness of the layer of material on the bed. The spindle is placed in the cross-head, so as to bring one runner nearer to it than the other, and therefore to cause them to describe different paths when in motion. ...

The cross-head is fixed on a vertical shaft, on which is fixed, underneath the flooring of the mill, a wheel driven by a pinion on the driving shaft which passes underneath the whole group of mills. By this arrangement the whole of the machinery is kept underneath, and out of reach of damage from explosion. The cross-head is fitted with a bracket on each side to carry a "plough," or wedge-shaped piece of wood shod with felt and leather, which travels round on the bed immediately in front of the runners, and thus keeps the composition from working away from them. The bed has a curb or edge round the outside and inside of the circular path described by the runners, that on the outside being formed by a sloping rim or casing fixed all round the bed, that on the inside by the circular base of the "cheese" or conical socket down which the vertical shaft of the cross-head passes. Both the inside and outside curbs have gun-metal rings round them for the ploughs to work against. Every fitting and bolt is arranged with the greatest care, as neither to break nor become loose from the jolting of the mill, and thus drop into the charge. ...

The operations connected with a charge are as follows:- The charges (either "green charges" from the mixing house, or dust charges from the dusting houses or granulating houses) come to the mills in wooden tubs, and are stored in strong expense magazines or charge houses. In all cases these charges have been carefully sifted before going to the mills, the green charges in the mixing houses after passing through the mixing machine, and the dust charges in the houses from which they come. This sifting is most necessary, as it is the only certain plan of preventing foreign matters getting into the mill bed. The millman takes the other, and then with his rake and brush distributes it evenly over the mill bed. The runners are then moved round a quarter revolution, and the piece of mill cake left under the runners from the former charge is broken up and distributed over the fresh charge. This portion of mill cake is of course finished powder ....

Cannon powder requires to be incorporated for three hours, all small arm powder made with dogwood for five.\* (\*The times of incorporation vary with the power of the mills.) ...

When the process [of incorporation] is finished, the charge is now known as "mill cake," being partly in the state of soft cake and partly of dust, is scraped and swept up from the mill bed, placed in wooden tubs, and transferred to the charge house to await inspection ....

Most of the independent gearing for each of the six mills survives, in a partly-collapsed state, in the underground chamber. Aligned north to south, and positioned slightly off-centre to the east below the cross wing gable, the chamber is metal-lined. The drive tunnel is 1.05 m wide and 2.09 m in height and the compartment below each mill is 2.14 m in diameter. The drive shaft is supported on intermediate bearing brackets, the feet of which are 0.78 m below the ceiling. The northern section of the drive shaft has been removed. The northern two chambers retain their friction clutches and pinion wheel support arm. "WA94" is painted on the clutch wheel of the northernmost chamber. The chamber immediately to the north of the Engine House is blocked by rubble. South of the Engine House, the drive shaft is in situ, and each of the three compartments below

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<sup>32</sup> "A Handbook of the Manufacture and Proof of Gunpowder, as carried on at the Royal Gunpowder Factory, Waltham Abbey," by Captain F M Smith, Royal Artillery, Assistant Superintendent, 1870. Printed by Order of the Secretary of State for War, London.

<sup>33</sup> "A Handbook of the Manufacture and Proof of Gunpowder, as carried on at the Royal Gunpowder Factory, Waltham Abbey," by Captain F M Smith, Royal Artillery, Assistant Superintendent, 1870. Printed by Order of the Secretary of State for War, London.

The Handbook states (p40) that, at that time, there were three groups of mills buildings on the site which operated in this way (ie Groups A, C & D), driven by steam.



the mills on this side retain a friction clutch and pinion support arm. The engine compartment has been sealed and is rubble-filled.

The first of the incorporating mills buildings to be built in the form of a T-shaped plan comprising a central Engine House, rear Boiler House and cross wings to contain incorporating mills, it represents a model for the later incorporating mills buildings on the site. In particular, the Group D Incorporating Mills building (L153), constructed some seven years later, was an almost-identical copy of the building.

Small timber cabins, one at either end of the cross wings, are late nineteenth-century and in 1898 an additional timber truck shed was added beside the cabin on the north side.<sup>34</sup>

Just as most of the machinery in the other steam incorporating mills on the site were dismantled and converted to take cordite incorporating machines by the late nineteenth century, this building also underwent alteration relating to cordite production.<sup>35</sup> A map of c1902 labels the building as "Press House Group C" rather than the "Incorporating Mill" description given to some of the other mill buildings shown on the same map.<sup>36</sup> The gunpowder incorporating machinery would have been removed at ground floor level and that in the underground chamber would have become redundant. The layout and operations of the building after conversion is not entirely clear but cordite was probably pressed here before being taken to be dried in a separate Reel Drying Stove (H7 or H8). The cross wing partition walls have "I" girders and blocked openings in the gables which are likely to belong to shafting for machinery associated with cordite manufacture. The boilers were removed in c1906-7 and it may have been at this time that further beams and iron posts were added to support a crane in the Boiler House.<sup>37</sup> The chimney was demolished in c1908-9 and thereafter the building may have been operated by a central power source such as the Accumulator Tower building A214 sited approximately 150 metres to the south-south-west.<sup>38</sup>

Further alterations were carried out in 1906-7.<sup>39</sup> A floor was inserted half-way up the Engine House to create offices for heads of branches, and new windows were inserted on the lower part of the Engine House north and south elevations and in the

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<sup>34</sup> The Ledger of c1908 states that the cabin at the north end was built in 1861 but it adjoins the end bay which is later. It states that the cabin at the south end was built in 1896 and that the truck shed was added in 1898. Cat. WASC 1509 (PRO, Hayes Repository).

<sup>35</sup> Another building, the Group G Incorporating Mills were converted from black gunpowder incorporating mills to cordite incorporating mills in 1898-9 and it is probable that most of the gunpowder incorporating mills were dismantled and converted in this way at around the same time. The conversion of Group G Incorporating Mills is noted in the "Proceedings of a Court of Enquiry and a Report ... on the Circumstances Attending an Explosion which occurred at the Royal Gunpowder Factory, Waltham Abbey, on the 15th December 1902", cat. WASC 353.

<sup>36</sup> Plan by Weller & Grahams Ltd, Lith, London, 3737.2.03, in "Proceedings of a Court of Enquiry and a Report ... on the Circumstances Attending an Explosion which occurred at the Royal Gunpowder Factory, Waltham Abbey, on the 15th December 1902," cat. WASC 353.

<sup>37</sup> Drawing of plans, sections and elevations of Building No. L157, Waltham Abbey ERDE, dated 26/2/1962, cat. L157.B.21 (MOD Central Disposals Unit, Chessington). The crane is described on the drawing as having 3 ton gantry with long E cross travel.

<sup>38</sup> Ledger c1908, cat. WASC 1509 (PRO, Hayes Repository).

<sup>39</sup> Drawing of plans, sections and elevations of Building No. L157, Waltham Abbey ERDE, dated 26/2/1962, cat. L157.B.21 (MOD Central Disposals Unit, Chessington).

formerly blind windows above. The Boiler House became a Semi Scale Laboratory and had the windows on its north and south elevations enlarged by lowering their sills by approximately 0.60 metre, the easternmost window on the north elevation was replaced by steel double doors, and the doorway on its east elevation was partially blocked and converted into a window. A detached single-storeyed building of 13'10" (4.2 m) square was built on the north side of the Boiler House as a Workshop and Compressor House. The rooms in the cross wings were variously used as Chem. and Crystal Laboratories, Testing and Prep. Rooms. The truck house at the north end of the north cross wing appears to have been removed at this date.

Surveyed March 1993  
Report by R L Burgess

THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY			
NUMBER L158	OLD SERIES	RCHME NUMBER	N.G.R. TL 37747 01181
NAME/FUNCTION Workshop		START DATE 197?	END DATE
NO PHOTOGRAPHY AVAILABLE			
CARTOGRAPHIC DEPICTION  1972 WASC 900/102 ; L158 1972 WASC 900/104 ; L158 1976 WASC 900/113 ; L158		DOCUMENTARY REFERENCES  1972 ERDE List ; Workshop for L157 1991 Mott McDonald survey 1992 RARDE List ; Ancillary Building for L157	
PHOTOGRAPHY HISTORIC		PHOTOGRAPHY RCHME  1) 206/J/28 From West 206/J/29 From South	
RELATIONSHIPS WITH OTHER MONUMENTS  ASSOCIATED WITH: L157			
CONDITION Demolished			
DESCRIPTION 1) CONSTRUCTIONAL MATERIAL Brick  4) DIMENSIONS i) L 4.22 ii) W 4.22  5) The building , rectangular in plan, was demolished in 1992, a concrete floor slab remains.			

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L159	OLD SERIES 167A	RCHME NUMBER	N.G.R. TL 37800 01144
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NAME/FUNCTION Press House No.5 Laboratory	START DATE 1915 1956-7	END DATE 1956
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### CARTOGRAPHIC DEPICTION

1917 WASC 900/70 ; Press House No.5  
 1917 WASC 900/72 ; 167a  
 1919 WASC 900/74 ; 167a  
 c1920 WASC 900/80 ; 167a  
 1923 WASC 900/84 ; 167a  
 > 1940 WASC 900/91A ; L159  
 1954 A - B.34 ; L159  
 c1960 WASC 900/94 ; L159  
 c1963 WASC 900/97 ; L159  
 1972 WASC 900/102 ; L159  
 1972 WASC 900/104 ; L159  
 1976 WASC 900/113 ; L159

### DOCUMENTARY REFERENCES

Plans;  
 L159 B01 - B42 ; Plans and Elevations 1915 to 1967  
  
 c1925 RGPF Ledger WASC 1680 ; Press House No.5  
 c1945 RGPF Ledger WASC 1508 ; Press House No.5  
  
 1938 Text Book of Explosives H.M.S.O. Chp XV  
 p99-111 Figs 15.2-9  
 1972 ERDE List ; Organic Laboratory  
 1991 Mott McDonald survey  
 1992 RARDE List ; Laboratory/Press House No.5

### PHOTOGRAPHY HISTORIC

WASC 1448 From North mid/late 1940's  
 WASC 1748 From North  
 PRO Supply 5/861 288-91 Ignition of MDY 20-10 No.5  
 Presshouse 1-may-1915  
 PRO Supply 5/861 343-4 Ignition of MD 5-may-1918  
 PRO Supply 5/861 348 Large press bay 1  
 PRO Supply 5/861 383 30-jan-1930 Cordite press bay 1

### PHOTOGRAPHY RCHME

1) 206/J/30 from South  
 206/J/31 From South West  
 206/R/30 From South East  
  
 4) 4788/9 06.05.1993

### RELATIONSHIPS WITH OTHER MONUMENTS

ASSOCIATED WITH: L134, L143, L151, L155, L159

CONDITION Fair

DESCRIPTION

- 1) CONSTRUCTIONAL MATERIAL  
Brick
- 2) ROOF MATERIALS AND STRUCTURE  
Timber boards covered in felt
- 3) POWER SOURCE  
Steam Electricity
- 4) DIMENSIONS i) L 61.0 ii) W 9.74 iii) HT Eave 3.45
- 5) The building is single storeyed with a rectangular ground plan. It has gable walls on the north and south side. It is divided into seven bays by five internal partition walls in English bond. No evidence was seen in the walls for the presence of bearing boxes. The windows along the west wall may have been inserted. A timber leanto corridor has been added to the eastern side.

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L160	OLD SERIES 173	RCHME NUMBER	N.G.R. TL 37820 01156
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NAME/FUNCTION Coal Store (Coal = Charcoal?) Charcoal Picking House Office/Laboratory/CMJ House	START DATE 1887 1900? 1951	END DATE 1900? 1951
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### CARTOGRAPHIC DEPICTION

1897 WASC 900/53C  
 c1910 WASC 900/65 ; Coal Store  
 c1910 WASC 900/79 ; Coal Store  
 1917 WASC 900/70 ; C.M.J. House  
 1917 WASC 900/72 ; 175  
 1919 WASC 900/74 ; 175  
 c1920 WASC 900/80 ; 175  
 1923 WASC 900/84 ; 175  
 > 1940 WASC 900/91A ; L160  
 1954 A - B.34 ; L160  
 c1960 WASC 900/94 ; L160  
 c1963 WASC 900/97 ; L160  
 1972 WASC 900/102 ; L160  
 1972 WASC 900/104 ; L160  
 1976 WASC 900/113 ; L160

### DOCUMENTARY REFERENCES

Plans;  
 L160 B01 - B05 ; Plans and Elevations 1891 to 1947

1908 RGPF Ledger WASC 1509 + WASC 1764 ;  
 Charcoal Picking House built 1891 p19

c1925 RGPF Ledger WASC 1680 ; Charcoal Picking  
 House

c1945 RGPF Ledger WASC 1508 ; Charcoal Picking  
 House

1972 ERDE List ; Office and Laboratory/CMJ House  
 1991 Mott McDonald survey  
 1992 RARDE List ; Office and Laboratory/CMJ House

### PHOTOGRAPHY HISTORIC

### PHOTOGRAPHY RCHME

- 1) 206/J/32 From South  
 206/J/33 From South West  
 206/R/26 Eastern elevation  
 206/R/27 From South East
- 2) BB92/26101 From South East

### RELATIONSHIPS WITH OTHER MONUMENTS

ASSOCIATED WITH: L159

CONDITION Fair

DESCRIPTION

- 1) CONSTRUCTIONAL MATERIAL  
Concrete and Brick

- 2) ROOF MATERIALS AND STRUCTURE  
Gabled Gambrel roof with slates and ridge tiles supported on Queen post trusses.

- 3) POWER SOURCE  
Electricity

- 4) DIMENSIONS i) L 16.75 ii) W 10.64 iii) HT Eave 2.75

- 5) The building is single storeyed with a rectangular ground plan. The base of the building is cast concrete over which is a upper brick wall. The gables of the building are covered by corrugated iron with a large window in the centre. The building is supported by integral buttresses in concrete and brick there are six on the south and north sides and four on the east and west elevations. Three windows have been inserted into the north and south elevations while two windows and a door have been inserted into the east and west elevations. The interior has been divided into office accomodation, most of the interior is covered by an inserted suspended ceiling.

It is thought that the building was originally constructed as a charcoal store. The term 'coal' was often applied in the nineteenth century to describe charcoal.

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L161	OLD SERIES 174	RCHME NUMBER	N.G.R. TL 37870 01147
NAME/FUNCTION Charcoal Establishment Boat Builders Shed Garage/Metal Store		START DATE Pre 1855 1885 1969	END DATE
NO PHOTOGRAPHY AVAILABLE			
<p>CARTOGRAPHIC DEPICTION</p> <p>1897 WASC 900/53C  c1910 WASC 900/65 ; Boat Builders Shed  c1910 WASC 900/79 ; Boat Builders Shed  1917 WASC 900/70 ; Boat Builder Shed  1917 WASC 900/72 ; Boat Builder Shed  1919 WASC 900/74 ; 174  c1920 WASC 900/80 ; 174  1923 WASC 900/84 ; 174  &gt; 1940 WASC 900/91A ; L161  1954 A - B.34 ; L161  c1960 WASC 900/94 ; L161  c1963 WASC 900/97 ; L161  1972 WASC 900/102 ; L161  1972 WASC 900/104 ; L161  1976 WASC 900/113 ; L161</p>		<p>REFERENCES</p> <p>Plans;  WASC 901/109 Drying Chamber Charcoal Establishment  1855 WASC 901/113 3 Feb 1855 Plans Sections showing proposed Alterations &amp; C+C to Charcoal Establishment  L161 B01 - B13 ; Plans and Elevations 1885 to 1972  1908 RGPF Ledger WASC 1509 + WASC 1764 ; Boat Builders Shed built 1885 p19  c1925 RGPF Ledger WASC 1680 ; Boat Builders Shed  c1945 RGPF Ledger WASC 1508 ; Boat Builders Shed  1972 ERDE List ; Garage/Metal Store  1991 Mott McDonald survey  1992 RARDE List ; Garage/Metal Store  1992 FBRC Storage</p>	
PHOTOGRAPHY HISTORIC		PHOTOGRAPHY RCHME	
<p>RELATIONSHIPS WITH OTHER MONUMENTS</p> <p>ASSOCIATED WITH: L127, L162, L163, L197</p>			
CONDITION Demolished			
<p>DESCRIPTION</p> <p>5) Site unavailable for inspection beneath rubble grader</p>			



## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L162	OLD SERIES 175	RCHME NUMBER	N.G.R. TL 37850 01138
NAME/FUNCTION Charcoal Picking House Labour Pool Store, Green Houses 1/2		START DATE 1887 197?	END DATE 197?
NO PHOTOGRAPHY AVAILABLE			
<p><b>CARTOGRAPHIC DEPICTION</b></p> <p>1897 WASC 900/53C  c1910 WASC 900/65 ; Charcoal Picking House  c1910 WASC 900/79 ; Charcoal Picking House  1917 WASC 900/70 ; Charcoal Picking House  1917 WASC 900/72 ; 175b  1919 WASC 900/74 ; 175b  c1920 WASC 900/80 ; 175b  1923 WASC 900/84 ; 175b  &gt; 1940 WASC 900/91A ; L162  1954 A - B.34 ; L162  c1960 WASC 900/94 ; L162  c1963 WASC 900/97 ; L162  1972 WASC 900/102 ; L172  1972 WASC 900/104 ; L162  1976 WASC 900/113 ; L162</p>		<p><b>DOCUMENTARY REFERENCES</b></p> <p>Plans;  L162 B01, B02 ; Plans and Elevations 1886 to 1980</p> <p>1908 RGPF Ledger WASC 1509 + WASC 1764 ;  Charcoal Picking House built 1887 p19</p> <p>c1925 RGPF Ledger WASC 1680 ; Charcoal Picking  House</p> <p>c1945 RGPF Ledger WASC 1508 ; Charcoal Picking  House</p> <p>1972 ERDE List ; Labour Pool Store  1991 Mott McDonald survey  1992 RARDE List ; Labour Pool Store, Green Houses  1/2</p>	
PHOTOGRAPHY HISTORIC		PHOTOGRAPHY RCHME	
<p><b>RELATIONSHIPS WITH OTHER MONUMENTS</b></p> <p>ASSOCIATED WITH: L127, L161, L163, L197, RCHME 224</p>			
CONDITION      Demolished			
<p><b>DESCRIPTION</b></p> <p>Site unavailable for inspection beneath dump.</p>			

**ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY**

NUMBER  
L163

OLD SERIES

RCHME NUMBER

N.G.R.  
TL 37878 01138

NAME/FUNCTION  
Concrete Air Raid Shelter

START DATE  
1940

END DATE  
1945

NO PHOTOGRAPHY  
AVAILABLE

CARTOGRAPHIC DEPICTION

c1960 WASC 900/94 ; L163  
c1963 WASC 900/97 ; L163  
1972 WASC 900/102 ; L163  
1972 WASC 900/104 ; L163  
1976 WASC 900/113 ; L163

DOCUMENTARY REFERENCES

1972 ERDE List ; Concrete Air Raid Shelter  
1991 Mott McDonald survey  
1992 RARDE List ; Concrete Air Raid Shelter

PHOTOGRAPHY  
HISTORIC

PHOTOGRAPHY  
RCHME

RELATIONSHIPS WITH OTHER MONUMENTS


ASSOCIATED WITH: L127, L161, L162, L197

CONDITION Demolished

DESCRIPTION

Site unavailable for inspection beneath dump.

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L164	OLD SERIES	RCHME NUMBER	N.G.R. 37706 01280
NAME/FUNCTION Oven Room nr L148		START DATE 1959	END DATE
			
<b>CARTOGRAPHIC DEPICTION</b>  c1960    WASC 900/94 ; L164 c1963    WASC 900/97 ; L164 1972    WASC 900/102 ; L164 1972    WASC 900/104 ; L164 1976    WASC 900/113 ; L164		<b>DOCUMENTARY REFERENCES</b>  Plans; L164    B01,B02 ; Plans and Elevations 1959 to 1975  1972    ERDE List ; Oven Room near L148 1991    Mott McDonald survey 1992    RARDE List ; Oven Room near L148	
<b>PHOTOGRAPHY HISTORIC</b>		<b>PHOTOGRAPHY RCHME</b>  1) 206/M/2 From South East  4) 4788/4 06.05.1993	
<b>RELATIONSHIPS WITH OTHER MONUMENTS</b>  ASSOCIATED WITH: L148, L144, L150			
CONDITION    Good			
<b>DESCRIPTION</b> 1)    CONSTRUCTIONAL MATERIAL Brick  2)    ROOF MATERIALS AND STRUCTURE Corrugated Asbestos  3)    POWER SOURCE Electricity  4)    DIMENSIONS i) L 6.06 ii) W 2.67 iii) HT 2.7  5)    The building is single storeyed, rectangular in plan with a single pitch gabled roof. The south west and north elevations are built of brick and are blank. Attached to the south wall is a thermometer reading 0-100*c and a sign reading 'Explosives ...lbs'. The eastern side consists of a metal frame with a corrugated asbestos covering over, with double louvered doors to the north and a single door to the south. The interior is lined with concrete shelves each with a plug point. Two blackboards on the inside have the following written on them 'Oven No 1-4'.			

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L165	OLD SERIES 190a	RCHME NUMBER	N.G.R. TL 37712 01086
NAME/FUNCTION Mineral Jelly Store No 2		START DATE 1916?	END DATE
<p><b>CARTOGRAPHIC DEPICTION</b></p> <p>1919 WASC 900/74  c1920 WASC 900/80  1923 WASC 900/84  &gt; 1940 WASC 900/91A  1954 A - B.34 ; L165  c1960 WASC 900/94 ; L165  c1963 WASC 900/97 ; L165  1972 WASC 900/102 ; L165  1972 WASC 900/104 ; L165  1976 WASC 900/113 ; L165</p>		<p><b>DOCUMENTARY REFERENCES</b></p> <p>Plans;  1918 WASC 901/300 17 Aug 1918 Ether pipe line to Mineral Jelly store No2. Reads "Cancelled"  1918 WASC 901/300A 13 Sept 1918 Ether pipe to Mineral Jelly store No2  1918 WASC 901/301 17 Aug 1918 Ether pipe line to M.J Store No2 details of pump house &amp; trestles  L165 B01,B02 ; Plans and Elevations 1916  c1925 RGPF Ledger WASC 1680 ; Mineral Jelly Store No.2  c1945 RGPF Ledger WASC 1508 ; Mineral Jelly Store No.2  1972 ERDE List ; Laboratory  1991 Mott McDonald survey  1992 RARDE List ;Mineral Jelly Store</p>	
<p><b>PHOTOGRAPHY HISTORIC</b></p>		<p><b>PHOTOGRAPHY RCHME</b></p> <p>1) 206/J/14 From South West  206/R/32 From South East  206/R/33 Metal doors on North wall from West  2) BB92/26080 From South West  BB92/26081 From North East  4) 4788/12 06.05.1993</p>	
<p><b>RELATIONSHIPS WITH OTHER MONUMENTS</b></p> <p>ASSOCIATED WITH: The Incorporation of Cordite</p>			
<p><b>CONDITION</b> Good</p>			

DESCRIPTION

1) CONSTRUCTIONAL MATERIAL  
Brick

2) ROOF MATERIALS AND STRUCTURE  
Slate over timber boards with tie beam trusses

3) POWER SOURCE  
Electricity

4) DIMENSIONS i) L 9.5 ii) W 5.7 iii) HT 6.0

5) The building is single storeyed with a rectangular ground plan, it has gabled ends to the north and south. On the west elevation are two double doors giving into the two internal rooms. Each of these rooms is lit by cast iron framed window on the eastern side. The south elevation is featureless. Built into the northern wall and enclosed by a timber framed shed are four iron lockers closed by iron doors. These lockers were apparently served from the northern room of the building.


**THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY**

NUMBER L166	OLD SERIES	RCHME NUMBER	N.G.R. TL 37700 01436
NAME/FUNCTION Laboratory & Office Adjoining L134,L137		START DATE 1969-70?	END DATE
NO PHOTOGRAPHY AVAILABLE			
CARTOGRAPHIC DEPICTION  c1963 WASC 900/97 ; L166 1972 WASC 900/102 ; L166 1972 WASC 900/104 ; L166 1976 WASC 900/113 ; L166		DOCUMENTARY REFERENCES  Plan; L166 B01 - 9/2/1970 ; Office Building Linking L137 & L134  1972 ERDE List ; Laboratories and Offices 1991 Mott McDonald survey 1992 RARDE List ; Laboratories and Offices  1992 FBRC ; Offices	
PHOTOGRAPHY HISTORIC		PHOTOGRAPHY RCHME	
RELATIONSHIPS WITH OTHER MONUMENTS  ABUTTS: L134 and L137			
CONDITION      Good			
DESCRIPTION 1)      CONSTRUCTIONAL MATERIAL Timber Frame  2)      ROOF MATERIALS AND STRUCTURE Felt  3)      POWER SOURCE Electricity  4)      DIMENSIONS i) L 20.2m ii) W    iii) HT Eave 2.73m  5)      The building is a modern prefabricated structure with a rectangular ground plan. It joins L134 to L137.			

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L166/1	OLD SERIES	RCHME NUMBER	N.G.R. TL 37734 01096
NAME/FUNCTION Building		START DATE 1940s	END DATE
NO PHOTOGRAPHY AVAILABLE			
CARTOGRAPHIC DEPICTION 1960 Drg No LSG/7; L166		DOCUMENTARY REFERENCES	
PHOTOGRAPHY HISTORIC		PHOTOGRAPHY RCHME	
RELATIONSHIPS WITH OTHER MONUMENTS  ASSOCIATED WITH:			
CONDITION      Demolished			
DESCRIPTION 1)      CONSTRUCTIONAL MATERIAL  2)      ROOF MATERIALS AND STRUCTURE  3)      POWER SOURCE  4)      DIMENSIONS i) L      ii) W      iii) HT  5)      A curving earthwork scarp marks the site of this building.			

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L167	OLD SERIES 180	RCHME NUMBER	N.G.R. TL 37772 01128
NAME/FUNCTION ?Charcoal Store Reel Drying Store Dining Room & Mineral Jelly Store Glass & Chemical Store	START DATE 1889 ?1898 dining room by 1906 195?	END DATE 1898 1904? 195?	
			
<b>CARTOGRAPHIC DEPICTION</b>  1897      WASC 900/53C Undated map c1900 Reel Drying Store c1910      WASC 900/65 ; Dining Room & Mineral Jelly Store c1910      WASC 900/79 ; Dining Room & Mineral Jelly Store 1917      WASC 900/70 ; Dining Room & Mineral Jelly Store 1917      WASC 900/72 ; 180 1919      WASC 900/74 ; 180 c1920      WASC 900/80 ; 180 1923      WASC 900/84 ; 180 > 1940     WASC 900/91A ; L167 1954      A - B.34 ; L167 c1960      WASC 900/94 ; L167 c1963      WASC 900/97 ; L167 1972      WASC 900/102 ; L167 1972      WASC 900/104 ; L167 1976      WASC 900/113 ; L167		<b>DOCUMENTARY REFERENCES</b>  Plans; L167      B01 - B03 ; Plans and Elevations 1888 to 1952  1908      RGPF Ledger WASC 1509 + WASC 1764 ; Dining Room and Mineral Jelly Store built 1889 p20 c1925      RGPF Ledger WASC 1680 ; Dining Room and Mineral Jelly Store c1945      RGPF Ledger WASC 1508 ; Dining Room and Mineral Jelly Store  1972      ERDE List ; Glass and Chemical Store 1991      Mott McDonald survey 1992      RARDE List ; Glass and Chemical Store  1993      RCHME NBR No.91453	
<b>PHOTOGRAPHY HISTORIC</b>		<b>PHOTOGRAPHY RCHME</b>  1) 206/J/10 From South West 206/R/23 Chemical & glassware store from South East  2) BB92/26080 From South West BB92/26084 From North West BB92/26085 From South West  3) 225/C/14-5 South elevation 225/C/16 South West	



RELATIONSHIPS WITH OTHER MONUMENTS

ASSOCIATED WITH: Steam Incorporating Mills

CONDITION Good

DESCRIPTION

- 1) CONSTRUCTIONAL MATERIAL  
Brick
- 2) ROOF MATERIALS AND STRUCTURE  
Slate over timber boards
- 3) POWER SOURCE  
Steam Electricity
- 4) DIMENSIONS i) L 22.65 ii) W 9.31 iii) HT Eave 3.4
- 5) See attached RCHME Threatened Buildings Section report.

## ROYAL COMMISSION ON THE HISTORICAL MONUMENTS OF ENGLAND

MOD Building No. L167  
?Charcoal Store  
The Royal Gunpowder Factory  
Waltham Abbey  
Essex

NBR No: 91453  
NGR: TI 37772 00128

Built in 1889, probably as a Charcoal Store, this building is single-storeyed with a rectangular plan and is constructed of yellow brick laid in Flemish bond. It had a hipped roof.

Originally of nine bays by two bays, the building comprised a seven-bay room at the northern end and a smaller room in the two bays at the south end.

It functioned as a Reel Drying Stove by 1897.

The building has later been truncated and the south room was removed.

-ooOoo-

Situated approximately 15 metres south-east of the "Group C" Incorporating Mills (L157), the building appears to have been constructed in 1889 as a New Charcoal Store.<sup>40</sup> The Gas Works, with Charcoal Burning Houses, was sited approximately 100 metres to the north-east of the building.

Constructed of yellow brick laid in Flemish bond, the building has a chamfered brick plinth, a stepped brick cornice, and chamfered "capitals" to the brick piers which separate the bays and which support a cambered arch spanning each bay.

The building is single-storeyed and has a height of 3.4 metres to the eave. It has a rectangular plan, aligned north to south,<sup>41</sup> which was originally of nine bays by two bays. The northernmost bay on both the east and west elevations is wider (3.65 metres between piers) than the remaining bays on those elevations (2.25 metres between piers). Separating the seven bays at the north end from the two bays at the south end was an internal brick wall with a doorway and another opening above. The roof was hipped and it has trusses of angle-and round-iron. The roof coverings are slate.

The two-bay south room has since been demolished and the former internal brick wall is now the south exterior. The present truncated building is of seven bays by two bays (22.65 x 9.31 metres). Following truncation, the south end hip of the roof was removed.

It is not clear how the original building was lit. There are windows in each of the bays on the east and north elevations and in each of the three bays on either side of a central door on the west elevation. The windows have cambered brick heads and cast iron glazing bars. The absence of brick closers around the windows and the use of a different mortar here suggests the possibility that the windows may be secondary insertions.

By c1895 the building functioned as a Reel Drying Stove.<sup>42</sup> This relates to the production of cordite at the Gunpowder Factory. Cordite reels would have been brought here for drying before reeling in a separate building (eg H10). At this time steam pipes were fitted in the building for drying the cordite reels which would have been laid out on racks. Steam pipes entered the

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<sup>40</sup> Drawing of "New Charcoal Store" of 1888-9, cat. L167.B.01 (MOD Central Disposals Unit, Chessington). OS County Series 1:2500 maps, 2nd ed. 1897 (surveyed 1865-9, revised 1895), sheet refs XLIX.14, XLI.8.12, XLII.5.9.

<sup>41</sup> The building 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.

<sup>42</sup> "Royal Gunpowder Factory, Waltham Abbey, General Plan", 1865, corrected May 1886, cat. SUPP5/975 (PRO, Kew).

building on either side of the door on the west elevation and at the north-west and south-east corners. The pipes have been removed and the holes where they entered the building have been blocked.

By c1908 the small two-bay room at the south end was used as a Mineral Jelly Store and the northern part was a Dining Room.<sup>43</sup> Like the earlier Reel Drying function, the Mineral Jelly is associated with cordite production on the site. In c1908 the Mineral Jelly Store is described as having wood blocks on the floor and the Dining Room had floorboards. By that date, a timber porch, with a slate-covered lean-to roof, had been added against the central bay of the west side of the Dining Room. It is possible that the present windows were added at this time. Given the quite different functions of the two rooms, it is also likely that circulation between the two rooms was no longer required and the doorway and window in the internal brick wall were blocked at this time.<sup>44</sup>

At a later date, some time after 1923, the two-bay south room was removed.<sup>45</sup> A brick buttress, positioned off-centre to the west on the south elevation, was probably added at this time. The timber porch has also been removed. In 1972 and 1992 the building is described as a Glass and Chemical Store.<sup>46</sup>

Surveyed March 1993  
Report by R L Burgess

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<sup>43</sup> Ledger c1908, cat. WASC 1509 (PRO, Hayes Repository).

<sup>44</sup> The present south elevation has an arch of header brick at the ground level, presumably originally the head of a doorway, and another arch above, presumably the head of a window.

<sup>45</sup> "Royal Gunpowder Factory, Waltham Abbey" site plan 1:2500, as named 13th September 1917, revised March 1923, cat. WASC 900/84.

<sup>46</sup> 1972 ERDE Building Lists, 1992 RARDE Building Lists.

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L168	OLD SERIES 195	RCHME NUMBER	N.G.R. TL 37720 01050
NAME/FUNCTION Millwrights, Engineers Store Engine House Stores/Machine Shop Store Whiskers Factory	START DATE 1857-1859 1881 1900? 1965?	END DATE 1881 1900? 1965?	



CARTOGRAPHIC DEPICTION	DOCUMENTARY REFERENCES
<p>1861-1868 WASC 900/10A ; 71,72,75</p> <p>1865 WASC 900/13 ; Incorp Mills/ Engine Room / Millwrights Shed</p> <p>1865 WASC 900/14 ; Engine Room / Millwrights Shed</p> <p>1865 WASC 900/38 + SUPP5 975 ; Engine Room / Millwrights Shed</p> <p>1865 WASC 900/41A</p> <p>1865 WASC 900/42</p> <p>1897 WASC 900/53C</p> <p>c1910 WASC 900/65 ; Machinery Shop</p> <p>c1910 WASC 900/79 ; Machinery Shop</p> <p>1917 WASC 900/70 ; Machinery Shop</p> <p>1917 WASC 900/72 ; 195</p> <p>1919 WASC 900/74 ; 195</p> <p>c1920 WASC 900/80 ; 195</p> <p>1923 WASC 900/84 ; 195</p> <p>&gt; 1940 WASC 900/91A ; L168</p> <p>1954 A - B.34 ; L168</p> <p>c1960 WASC 900/94 ; L168</p> <p>c1963 WASC 900/97 ; L168</p> <p>1972 WASC 900/102 ; L168</p> <p>1972 WASC 900/104 ; L168</p> <p>1976 WASC 900/113 ; L168</p>	<p>Plans;</p> <p>L168 B01 - B15 ; Plans and Elevations 1856 to 1966</p> <p>1856 WASC 901/102 17 Nov 1856 Plan Sections Elevations showing proposed additions to New Steam mills (Group A corrected from Group B)</p> <p>1856 WASC 901/103 19 Jan 1856 Elevations Sections of proposed New Mills &amp; Charge magazines (Group A corrected from Group B)</p> <p>1856 WASC 901/104 19 Jan 1856 Plan showing dimensions &amp; position of proposed new buildings Has "Group A Mills" written on reverse</p> <p>1856 WASC 901/105 14 Jan 1856 Plan of Engine House &amp; foundations for <u>A compound Steam Engine of Thirty Horses power</u></p> <p>WASC 901/106 Ground plan &amp; Elevations showing 6 Incorporating Mills arranged to be driven by one Steam Engine</p> <p>1861 Illustrated London News June 8th 1861 Gunpowder Explosion Near Waltham</p> <p>1874 WASC 901/107A 1st July 1874 no title WASC 901/117 Sketch showing proposed additions to the Artificers shops</p> <p>1887 WASC 901/143 30 April 1887 Group A Mills reconstruct fence to coal yard</p> <p>1908 RGPF Ledger WASC 1509 + WASC 1764 ; Machinery Shop, Motor Room built 1857</p> <p>c1925 RGPF Ledger WASC 1680 ; Machinery Shop, Motor Room</p> <p>c1945 RGPF Ledger WASC 1508 ; Machinery Shop, Motor Room</p> <p>1972 ERDE List ; BWD and acceptance Stores</p> <p>1991 Mott McDonald survey</p> <p>1992 RARDE List ; Stores/Machine Shop Store</p> <p>1993 RCHME NBR No: 91461</p>

<p>PHOTOGRAPHY HISTORIC</p> <p>PRO Supply 5/860 6 Explosion 27-may-1861</p> <p>WASC 1467 Converted to Whisker factory mid 1960's x3</p>	<p>PHOTOGRAPHY RCHME</p> <p>1) 206/J/15 From South West 206/L/9 From East 206/R/20 Millwrights shop from South West 206/R/21 Engine house from South East</p> <p>2) BB92/26077 From North BB92/26078 From East BB92/26144 From North BB92/26145 From North</p> <p>3) 225/B/26-29 Exterior views 225/B/31 Exterior view 225/B/32-5 Roof details 225/B/36 Interior showing columns 225/C/2-4 Roof details</p> <p>4) 4788/2 06.05.1993 4788/6 06.05.1993 4788/12 06.05.1993</p>
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<p>RELATIONSHIPS WITH OTHER MONUMENTS</p> <p>ASSOCIATED WITH: L169, L170a, L176 UNDERLIES:</p>
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<p>CONDITION      Good</p>
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<p>DESCRIPTION</p> <p>1)      CONSTRUCTIONAL MATERIAL Brick</p> <p>2)      ROOF MATERIALS AND STRUCTURE Slate over Iron frame</p> <p>3)      POWER SOURCE Electricity</p> <p>4)      DIMENSIONS i) L 22.45 ii) W 19.5 iii) HT 6.0</p> <p>5)      A stone on the north side of the engine house is inscribed 'Erected 1857'.</p> <p>See attached RCHME Threatened Buildings Section report.</p>
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ROYAL COMMISSION ON THE HISTORICAL MONUMENTS OF ENGLAND

MOD Building No. L168  
Engine House and Mechanics Shop      NBR No: 91461  
The Royal Gunpowder Factory      NGR: TL 37720 01050  
Waltham Abbey  
Essex

Building L168 was constructed in 1857 as a Mechanics Shop and an Engine House to power the mills of the first of the Incorporating Mills buildings to have been built at the Gunpowder Factory site, namely Group A Incorporating Mills (L169) which was adjacent to the east of L168 but which has since been demolished.

It is constructed of yellow brick laid in English bond. Originally it comprised a single-storeyed block with a rectangular plan of ... bays by three bays on the western side and a tower with a rectangular plan at the north-east side. The former was the Mechanics Shop and the tower was the Engine House.

In 1859 a single-storeyed Motor Room was on the south side of the Engine House. In 1861 there was an explosion in the adjacent Group A Incorporating Mills and it is likely that building L168 suffered some damage at this time also. Later, probably in c1881, the was extended to the south by a further two bays and the whole was extended to the west by two bays. By 1960 a square structure had been added on the south side of the 1881 extension but it has since been removed.

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Building L168 was built in 1857 as a Mechanics Shop and Engine House.<sup>47</sup> It is situated approximately 10 metres to the north of a Boiler House Building (L176) of contemporary date. Its engine drove six incorporating mills in a building which was adjacent on its east<sup>48</sup> side, namely Group A Incorporating Mills (L169), the first of the Incorporating Mills buildings to have been built at the Gunpowder site.

The building originally comprised a single-storeyed block with a rectangular plan of approximately 32' x 63' (9.6 x 18.9 m) on the western side and at the north-east side a tower, 24'6" (approximately 7.4 m) in height, with a rectangular plan of approximately 18' x 41' (5.4 x 12.3 m).<sup>49</sup> It is constructed of yellow brick laid in English bond and has brick pilasters at the building's corners and brick dentil cornices. The original roofs are hipped and have coverings of slate and zinc.<sup>50</sup>

The Engine House had a tall window with a semi-circular head on the south elevation. Also with semi-circular heads with keystones are three small windows on the upper part of the west elevation and, on the north elevation, a doorway and a small window above, the sill of which is inscribed "Erected 1857". The Engine House carried a Compound Steam Engine of 30 horse power.<sup>51</sup> A proposal drawing for the Engine House specifies that there was to be a fly wheel of 18' (5.4 m) diameter, a spur mortise wheel on a crank shaft, a spur wheel on a motion shaft, a spur wheel on fly wheel arms, a spur mortise pinion on a second motion shaft, steam pipes for supplying the incorporating mills, and escape pipes from a hot water pump.<sup>52</sup>

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<sup>47</sup> Ledger c1908, cat. WASC 1509 (PRO, Hayes Repository).

<sup>48</sup> 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.

<sup>49</sup> Ledger c1908, cat. WASC 1509 (PRO, Hayes Repository).

<sup>50</sup> Ledger c1908, cat. WASC 1509 (PRO, Hayes Repository).

<sup>51</sup> "Plan of Engine House and Foundations for a Compound Steam Engine of Thirty Horses Power to be Erected for The Honourable Board of Ordnance at Waltham Abbey, 1856.", prepared by Soho Iron Works, Bolton, 14 January 1856, cat. WASC 901/105 (PRO, Hayes Repository).

<sup>52</sup> "Plan of Engine House and Foundations for a Compound Steam Engine of Thirty Horses Power to be Erected for The Honourable Board of Ordnance at Waltham Abbey, 1856.", prepared by Soho Iron Works, Bolton, 14 January 1856, cat. WASC 901/105 (PRO, Hayes Repository).

The single-storeyed western block was the Mechanics Shop, also known as Engineers/Carpenters Shop, Artificers Shop, Millwrights Shed and Machinery Shop.<sup>53</sup> Its windows may originally have been of a style similar to those in the Engine House, that is, with semi-circular heads with keystones.<sup>54</sup> Its south elevation originally had a door and a pair of windows.<sup>55</sup> On the interior its main compartments are separated by a rank of cast iron columns which are octagonal in section and which have ornate capitals. The north-east column, although octagonal, has a rounded section which was probably for carrying a swing jib. There is a matrix of pierced iron joists which may have doubled as building ties and for locating beams for brackets for line shafting and pulleys. The roof trusses are of round and tee iron and have decorative compression members which are similar to those found in a number of other buildings built at the site at around this time.<sup>56</sup>

In c1859 a single-storeyed block with a flat roof was added on the south side of the Engine House.<sup>57</sup> It functioned as a Motor Room to the engine in the Engine House.

In 1861 there was an explosion in the adjacent Group A Incorporating Mills and it is likely that building L168 suffered some damage at this time also.<sup>58</sup>

Later, probably in c1881<sup>59</sup>, the Mechanics Shop was extended to the south by a further two bays and the whole was extended to the west by two bays.<sup>60</sup> The north elevation may have been replaced at this time also. The brickwork matches the original. The new windows have cambered heads of red brick and carry sash windows. The former western and southern wall would have been removed and it was presumably only then that a series of three columns were added to support a metal gully

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Repository).

<sup>53</sup> For example, a proposal plan it is labelled as Mechanics Shop in a drawing of "Ground Plan and Elevations Shewing 6 Incorporating Mills arranged to be driven by One Steam Engine," no date, ?uncatalogued (?L169/LE168/6), (PRO, Hayes Repository). A drawing of "Plan, Sections and Elevations Shewing the Proposed Additions to the New Steam Mills", signed I. Randall, Clerk of Works, 1856, gives it as Engineers Shop and Carpenters Shop, ?uncatalogued, (PRO, Hayes Repository). A site plan of 1821, updated in the mid nineteenth century, shows the building as Artificers Shop, "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 c1850s-60s], (PRO, Hayes Repository). A General Plan of "Royal Gunpowder Factory, Waltham Abbey", 1865 corrected 1886, gives it as Millwrights Shed, cat SUPP5/975 (PRO Kew). The Ledger of c1908 labels it as "Machinery Shop", cat. WASC 1509 (PRO, Hayes Repository).

<sup>54</sup> A woodcut in the Illustrated London News, vol. xxxviii, 8 June 1861, p519, shows the windows of the Mechanics Shop as being of that style.

<sup>55</sup> Drawing showing west elevation, dated 1856-7, ?uncatalogued (PRO, Hayes Repository).

<sup>56</sup> For example in the Boiler House Building L176 to the south.

<sup>57</sup> Ledger c1908, cat. WASC 1509 (PRO, Hayes Repository).

<sup>58</sup> Illustrated London News, vol. xxxviii, 8 June 1861, p537 and woodcut p519.

<sup>59</sup> Ledger c1908, cat. WASC 1509 (PRO, Hayes Repository).

<sup>60</sup> A drawing of "Plan, Sections and Elevations Shewing the Proposed Additions to the New Steam Mills", signed I. Randall, Clerk of Works, 1856, but later altered, ?uncatalogued, (PRO, Hayes Repository).

between the original roof and a sloped monopitch roof of the extension to the west. Unlike the iron roof of the original part of the range, the roof of the southern extension has a pair of timber trusses which have transverse longitudinal tie beams carrying king posts with expanded heads and feet, and raking struts. The southernmost truss carries a hip and its transverse beam is supported by a cast iron column which is round in plan. The redundant southern hip of the iron roof survives within the present roof structure.

After 1923 a timber hut with a square plan had been added on the south side of the 1881 extension.<sup>61</sup> It was demolished after 1960.<sup>62</sup>

After 1959-60 the building underwent minor alteration.<sup>63</sup> The former Motor Room had timber stud partitions added to create a storeman's office, reception and passage and a false ceiling was inserted. In the former Mechanics Shop a new concrete floor was laid, probably over a wooden one<sup>64</sup>, a new doorway opening was fitted on the south elevation, a doorway to the Engine House was blocked, a doorway to the former Motor Room was converted into a window and a new doorway added.<sup>65</sup>

The Group A Incorporating Mills building, which had been converted to Cordite Reeling Houses by 1897, and later became a services shop, was demolished in 1992.<sup>66</sup> Concrete foundations and a scar of its gable roof against the Engine House are all that remain of building L169.

Surveyed March 1993  
Report by R L Burgess

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<sup>61</sup> "Royal Gunpowder Factory, Waltham Abbey" site plan 1:2500, as named 13 September 1917, revised March 1919 and March 1923, cat. WASC 900/84.

<sup>62</sup> A drawing showing plans and elevations for "Building L168 - Proposed Rehabilitation", drawn 1/7/1959, shows that the hut and its foundations were to be removed, ?uncatalogued (MOD Central Disposals Unit, Chessington). However, the hut still appears on a site plan of "Waltham Abbey ERDE, Record Survey, Drawing No. LSG/7, MOW, London, dated August 1960 (MOD Central Disposals Unit, Chessington).

<sup>63</sup> Drawing showing plans and elevations for "Building L168 - Proposed Rehabilitation", drawn 1/7/1959, ?uncatalogued (MOD Central Disposals Unit, Chessington).

<sup>64</sup> Ledger c1908, cat. WASC 1509 (PRO, Hayes Repository).

<sup>65</sup> Drawing showing plans and elevations for "Building L168 - Proposed Rehabilitation", drawn 1/7/1959, ?uncatalogued (MOD Central Disposals Unit, Chessington).

<sup>66</sup> OS County Series 1:2500 maps, 2nd ed. 1897 (surveyed 1865, revised 1895), sheet refs XLIX.14, XLI.8.12, XLII.5.9).



**THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY**


NUMBER	OLD SERIES 193	RCHME NUMBER	N.G.R. TL 37790 01068
NAME/FUNCTION Magazine Rework Magazine Gauge Cleaning House		START DATE 1857 1898 by 1923	END DATE 1898 by 1923
NO PHOTOGRAPHY AVAILABLE			
CARTOGRAPHIC DEPICTION 1897 O.S. Essex XCIX.14 c1900 WASC 900/79 1923 WASC 900/84; 193 Guage cleaning house		DOCUMENTARY REFERENCES 1908 RGPF Ledger WASC 1509 p21 Rework Magazine built 1857 p21	
PHOTOGRAPHY HISTORIC		PHOTOGRAPHY RCHME	
RELATIONSHIPS WITH OTHER MONUMENTS  ASSOCIATED WITH: L168, L169, L170a, L176			
CONDITION      Demolished			
DESCRIPTION 1)      CONSTRUCTIONAL MATERIAL Brick  2)      ROOF MATERIALS AND STRUCTURE  3)      POWER SOURCE None  5)      No surface remains.			

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER	OLD SERIES	RCHME NUMBER	N.G.R.
L169	194		TL 37750 01060
NAME/FUNCTION		START DATE	END DATE
Group A Incorp. Mills		1857	1898?
Cordite Reeling House		1898	by 1908
Cordite Press House No. 6		by 1908	
Cordite Press House Group A - demolished			1955
Store/ Press House		1955	
NO PHOTOGRAPHY AVAILABLE			
CARTOGRAPHIC DEPICTION		REFERENCES	
1861-1868 WASC 900/10A 1865 WASC 900/13 ; Incorp Mills 1865 WASC 900/14 ; Group A Incorp. Mills 1865 WASC 900/38 + SUPP5 975 ; Group A Incorp. Mills 1865 WASC 900/41A ; Group A Incorp. Mills 1865 WASC 900/42 1897 WASC 900/53C c1910 WASC 900/65 ; Press House Group A c1910 WASC 900/79 ; Press House Group A 1917 WASC 900/70 ; Press House No.6 1917 WASC 900/72 ; 194 1919 WASC 900/74 ; 194 c1920 WASC 900/80 ; 194 1923 WASC 900/84 ; 194 > 1940 WASC 900/91A 1954 A - B.34 c1960 WASC 900/94 c1963 WASC 900/97 1972 WASC 900/102 1972 WASC 900/104 1976 WASC 900/113		Plans; L169 B01 - B25 ; Plans and Elevations 1856 to 1964 1856 WASC 901/102 17 Nov 1856 Plan Sections Elevations showing proposed additions to New Steam mills (Group A corrected from Group B) 1856 WASC 901/103 19 Jan 1856 Elevations Sections of proposed New Mills & Charge magazines (Group A corrected from Group B) 1856 WASC 901/104 19 Jan 1856 Plan showing dimensions & position of proposed new buildings Has "Group A Mills" written on reverse WASC 901/106 Ground plan & Elevations showing 6 Incorporating Mills arranged to be driven by one Steam Engine WASC 901/107 Not Dated Boiler House 1861 Illustrated London News June 8th 1861 p519 Gunpowder Explosion Near Waltham Abbey  Account of explosion in:Parliament 1874 Explosives Select Committee - Report with minutes of evidence and appendix p49  1874 WASC 901/107A 1st July 1874 no title 1908 RGPF Ledger WASC 1509 + WASC 1764 ; Press House Group A built 1857 p21 c1925 RGPF Ledger WASC 1680 ; Press House Group A c1945 RGPF Ledger WASC 1508 ; Press House Group A  1972 ERDE List ; Store and Press House 1991 Mott McDonald survey 1992 RARDE List ; Store and Press House	

<p>PHOTOGRAPHY HISTORIC</p> <p>PRO Supply 5/860 6 Explosion 27-may-1861  PRO Supply 5/860 99 1898 Removal of edge runners  PRO Supply 5/860 105, 106 1898 Removal of edge runners</p>	<p>PHOTOGRAPHY RCHME</p> <p>2) BB92/26455 Plan showing 6 Incorporating Mills  BB92/26465 Plans Sections Elevations for Group A  Steam Mills  BB92/26467 Plan of Engine House for 30 Horse power  Steam Engine</p> <p>4) 4788/2 06.05.1993  4788/6 06.05.1993  4788/12 06.05.1993</p>
<p>RELATIONSHIPS WITH OTHER MONUMENTS</p> <p>ASSOCIATED WITH: L168, L170A, L176</p>	
<p>CONDITION Demolished</p>	
<p>DESCRIPTION</p> <p>1) CONSTRUCTIONAL MATERIAL  Brick and Concrete</p> <p>4) DIMENSIONS i) L 42.3 ii) W 23.3</p> <p>5) The latest building on the site was demolished in 1992 a concrete floor slab remains.</p> <p>Historic artefacts - It is thought unlikely that the underground central machine drive shaft tunnel survives for its full height. As a semi-circular blocked opening, relieving arch is visible on the east wall of L168. However if slab L169 is lifted the base of the shaft and some remains of the gunpowder mills drive shaft may be encountered.</p>	

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L170a	OLD SERIES 192	RCHME NUMBER	N.G.R. TL 37781 01095
NAME/FUNCTION Magazine No.1 Rework Magazine Dough Store No.4 Experimental Stove	START DATE 1857 1898? by 1917 by 1923	END DATE 1898? by 1917 by 1923	
			
<p><b>CARTOGRAPHIC DEPICTION</b></p> <p>1861-1868 WASC 900/10A  1865 WASC 900/13 ; Magazine  1865 WASC 900/14 ; Magazine  1865 WASC 900/38 + SUPP5 975 ; Magazine  1865 WASC 900/41A  1865 WASC 900/42  1897 WASC 900/53C  c1910 WASC 900/65 ; Rework Magazine  c1910 WASC 900/79 ; Rework Magazine  1917 WASC 900/70 ; Dough Store No.4  1917 WASC 900/72 ; 192  1919 WASC 900/74 ; 192  c1920 WASC 900/80 ; 192  1923 WASC 900/84 ; 192 Experimental Stove  &gt; 1940 WASC 900/91A ; L170  1954 A - B.34 ; L170  c1960 WASC 900/94 ; L170  c1963 WASC 900/97 ; L170  1972 WASC 900/102 ; L170  1972 WASC 900/104 ; L170  1976 WASC 900/113 ; L170</p>		<p><b>DOCUMENTARY REFERENCES</b></p> <p>1908 RGPF Ledger WASC 1509 + WASC 1764 ;  Rework Magazine built 1857 p21  c1925 RGPF Ledger WASC 1680 ; Rework Magazine  c1945 RGPF Ledger WASC 1508 ; Rework Magazine</p> <p>1972 ERDE List ; Store Shed  1991 Mott McDonald survey  1992 RARDE List ; Store Shed</p> <p>Illustrated London News June 8 1861 p519 engraving  showing explosion in L169</p>	
<p><b>PHOTOGRAPHY</b> HISTORIC</p>		<p><b>PHOTOGRAPHY</b> RCHME</p> <p>1) 206/J/12 From South West  206/T/31 From West</p>	
<p><b>RELATIONSHIPS WITH OTHER MONUMENTS</b></p> <p>ASSOCIATED WITH: 193, L168, L169, L176</p>			
<p><b>CONDITION</b>      Good</p>			

DESCRIPTION

1) CONSTRUCTIONAL MATERIAL  
Brick

2) ROOF MATERIALS AND STRUCTURE  
Felt over timber boards supported on RSJ

3) POWER SOURCE  
Electricity

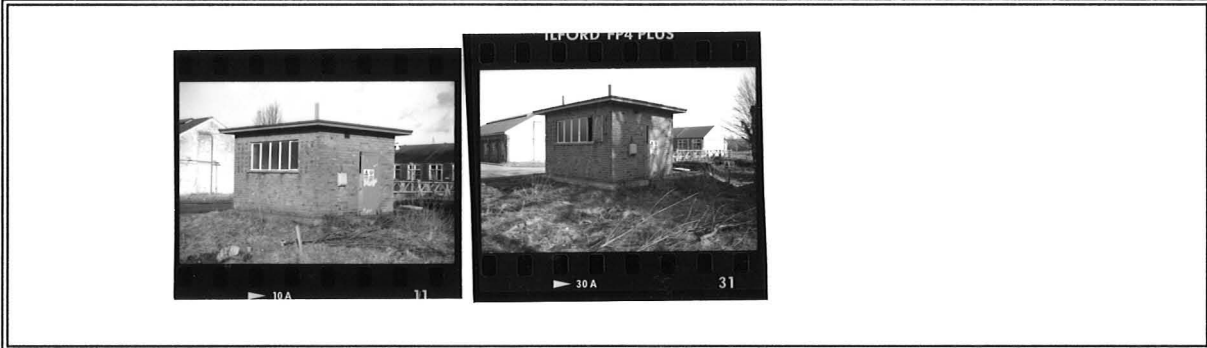
4) DIMENSIONS i) L 4.4 ii) W 14.5 iii) HT 3.45

5) The magazine is a single storeyed building with a rectangular ground plan and gabled ends to the east and west. It is entered through a raised door on the north side formerly served by a railway on a trestle. There is a single window on the east elevation. The building has a brick vault with a slate roof over.

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L170	OLD SERIES	RCHME NUMBER	N.G.R. TL 37776 01094 TL 37781 01095
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NAME/FUNCTION Sewer Pump House	START DATE	END DATE
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<p><b>CARTOGRAPHIC DEPICTION</b></p> <p>c1960    WASC 900/94 ; L170  c1963    WASC 900/97 ; L170  1972    WASC 900/102 ; L170  1972    WASC 900/104 ; L170  1976    WASC 900/113 ; L170</p>	<p><b>DOCUMENTARY REFERENCES</b></p> <p>1972    ERDE List ; Sewer Pump House  1991    Mott McDonald survey  1992    RARDE List ; Sewer Pump House</p>
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<p><b>PHOTOGRAPHY HISTORIC</b></p>	<p><b>PHOTOGRAPHY RCHME</b></p> <p>1) 206/J/11 From South West  206/R/31 Pump House from South West</p>
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<p><b>RELATIONSHIPS WITH OTHER MONUMENTS</b></p> <p>ASSOCIATED WITH: L126, H17, H31</p>
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<p><b>CONDITION</b>      Good</p>
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<p><b>DESCRIPTION</b></p> <ol style="list-style-type: none"> <li>1)      <b>CONSTRUCTIONAL MATERIAL</b>            Brick in english bond</li>   <li>2)      <b>ROOF MATERIALS AND STRUCTURE</b>            Slate over Brick vault</li>   <li>4)      <b>DIMENSIONS</b>    i) L 4.15    ii) W 3.8    iii) HT 4.1</li>   <li>5)      The pump house is a single storey building. The building is sited a low mound and concrete slab. It is entered through a single blue door on the south elevation and is lit by a window on the north wall.</li> </ol>
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## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L172	OLD SERIES	RCHME NUMBER	N.G.R. TL 37786 01072
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NAME/FUNCTION Store	START DATE	END DATE
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NO PHOTOGRAPHY  
AVAILABLE

### CARTOGRAPHIC DEPICTION

1954      A - B.34 ; L172  
c1960     WASC 900/94 ; L172  
c1963     WASC 900/97 ; L172  
1972      WASC 900/102 ; L172  
1972      WASC 900/104 ; L172  
1976      WASC 900/113 ; L172

### DOCUMENTARY REFERENCES

Plan;  
L172      Bo1 - 22/5/1957 ; Detail  
  
1972      ERDE List ; Store  
1991      Mott McDonald survey  
1992      RARDE List ; Store

PHOTOGRAPHY  
HISTORIC

PHOTOGRAPHY  
RCHME

### RELATIONSHIPS WITH OTHER MONUMENTS

ASSOCIATED WITH:

CONDITION      Demolished

### DESCRIPTION

- 1)          CONSTRUCTIONAL MATERIAL  
              Brick wall
  
- 4)          DIMENSIONS i) L 12.8 ii) W 7.6
  
- 5)          The building has been demolished a concrete floor slab remains.

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L173	OLD SERIES	RCHME NUMBER	N.G.R. TL 37694 01036
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NAME/FUNCTION Telephone Exchange	START DATE 1952?	END DATE
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NO PHOTOGRAPHY  
AVAILABLE

### CARTOGRAPHIC DEPICTION

c1960 WASC 900/94 ; L173  
c1963 WASC 900/97 ; L173  
1972 WASC 900/102 ; L173  
1972 WASC 900/104 ; L173  
1976 WASC 900/113 ; L173

### DOCUMENTARY REFERENCES

Plans;  
L173 B01 - B08 ; Plans and Elevations 1952-3  
  
1972 ERDE List ; Disused Telephone Exchange  
1991 Mott McDonald survey  
1992 RARDE List ; Disused Telephone Exchange

### PHOTOGRAPHY HISTORIC

### PHOTOGRAPHY RCHME

1) 206/J/18 From South

### RELATIONSHIPS WITH OTHER MONUMENTS

ASSOCIATED WITH:


CONDITION Demolished

### DESCRIPTION


- 1) CONSTRUCTIONAL MATERIAL  
Brick walls
  
- 3) POWER SOURCE  
Electricity
  
- 4) DIMENSIONS i) L 12.2 ii) W 13.0
  
- 5) The building, T shaped in plan, was demolished in 1992 a concrete slab remains.




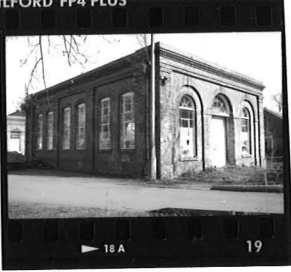
## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L174	OLD SERIES L157/2	RCHME NUMBER	N.G.R. TL 37747 01181
NAME/FUNCTION Magazine		START DATE 1959	END DATE
			
<b>CARTOGRAPHIC DEPICTION</b>  c1960    WASC 900/94 ; L174 c1963    WASC 900/97 ; L174 1972     WASC 900/102 ; L174 1972     WASC 900/104 ; L174 1976     WASC 900/113 ; L174		<b>DOCUMENTARY REFERENCES</b>  Plans; L174    B01,B02 ; Plans and Elevations 1959,1982  1972    ERDE List ; Magazine 1991    Mott McDonald survey 1992    RARDE List ; Magazine	
<b>PHOTOGRAPHY HISTORIC</b>		<b>PHOTOGRAPHY RCHME</b>  1) 206/F/27 From West 206/J/26 From South	
<b>RELATIONSHIPS WITH OTHER MONUMENTS</b>  ASSOCIATED WITH: L157			
CONDITION    Good			
<b>DESCRIPTION</b> 1)    CONSTRUCTIONAL MATERIAL Brick in flemish bond  2)    ROOF MATERIALS AND STRUCTURE Flat concrete slab  3)    POWER SOURCE Electricity and steam heating  4)    DIMENSIONS i) L 2.29m ii) W 2.29m iii) HT 2.55m  5)    The building is single storied with a square ground plan. It has a single red door on the west side and the building is protected by a copper earth wire.			

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L175	OLD SERIES	RCHME NUMBER	N.G.R. 37615 01692
NAME/FUNCTION Firing Control Burning Ground		START DATE 1963	END DATE
			
<b>CARTOGRAPHIC DEPICTION</b>  1972      WASC 900/102 ; L175 1972      WASC 900/104 ; L175 1976      WASC 900/113 ; L175		<b>DOCUMENTARY REFERENCES</b>  1972      ERDE List ; Firing Control Burning Ground 1991      Mott McDonald survey 1992      RARDE List ; Firing Control Burning Ground	
<b>PHOTOGRAPHY HISTORIC</b>		<b>PHOTOGRAPHY RCHME</b>  1) 206/F/3 From South East	
<b>RELATIONSHIPS WITH OTHER MONUMENTS</b>  ASSOCIATED WITH: L178, Burning Ground			
<b>CONDITION</b> Good			
<b>DESCRIPTION</b> 1) <b>CONSTRUCTIONAL MATERIAL</b> Breeze Block  2) <b>ROOF MATERIALS AND STRUCTURE</b> Flat Concrete slab  3) <b>POWER SOURCE</b> Electricity  4) <b>DIMENSIONS</b> i) L 3.7    ii) W 2.73    iii) HT 2.2  5)      This single storey building is rectangular in plan. It has a single door on the eastern elevation and armoured windows on the north and west elevations. The south elevation is featureless.			

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L176	OLD SERIES 204	RCHME NUMBER	N.G.R. TL 37734 01024
NAME/FUNCTION Boiler House Store EFDC/Riggers Shop	START DATE 1857 1958	END DATE 1958	
<div style="display: flex; justify-content: space-around;">   </div>			
<b>CARTOGRAPHIC DEPICTION</b>  1861-1868 WASC 900/10A ; 73 1865 WASC 900/13 ; Boiler House 1865 WASC 900/14 ; Boiler House 1865 WASC 900/38 + SUPP5 975 ; Boiler House 1865 WASC 900/41A ; Boiler House 1865 WASC 900/42 1897 WASC 900/53C c1910 WASC 900/65 ; Boiler House c1910 WASC 900/79 ; Boiler House 1917 WASC 900/70 ; Group A Boiler House 1917 WASC 900/72 ; 204 1919 WASC 900/74 ; 204 c1920 WASC 900/80 ; 204 1923 WASC 900/84 ; 204 > 1940 WASC 900/91A ; L176 1954 A - B.34 ; L176 c1960 WASC 900/94 ; L176 c1963 WASC 900/97 ; L176 1972 WASC 900/102 ; L176 1972 WASC 900/104 ; L176 1976 WASC 900/113 ; L176	<b>DOCUMENTARY REFERENCES</b>  Plans; L176 B01,B02 ; Plans and Elevations 1902 to 1958  1908 RGPF Ledger WASC 1509 + WASC 1764 ; Boiler House built 1857 p23 c1925 RGPF Ledger WASC 1680 ; Boiler House c1945 RGPF Ledger WASC 1508 ; Boiler House  1972 ERDE List ; Store EFDC/Riggers Shop 1991 Mott McDonald survey 1992 RARDE List ; Store EFDC/Riggers Shop  1992 FBRC; Storage  1993 RCHME NBR No.91452		
<b>PHOTOGRAPHY HISTORIC</b>	<b>PHOTOGRAPHY RCHME</b>  1) 206/J/16 From South West 206/J/19 North wall from North 206/R/19 From South West  2) BB92/26143 Interior of Boiler house from North BB92/26079 From North West  3) 225/B/22 Interior 225/B/23 Interior 225/B/24 Exterior  4) 4788/2 06.05.1993 4788/6 06.05.1993 4788/12 06.05.1993		

RELATIONSHIPS WITH OTHER MONUMENTS

ASSOCIATED WITH: L168, L169, L170a ABUTTED BY: L177

CONDITION Good

DESCRIPTION

- 1) CONSTRUCTIONAL MATERIAL  
Brick
- 2) ROOF MATERIALS AND STRUCTURE  
Slate over Timber Roof Frame
- 3) POWER SOURCE  
Formerly Steam , Electricity
- 4) DIMENSIONS i) L 17.6 ii) W 11.0 iii) HT 6.0
- 5) See attached RCHME Threatened Buildings Section report.

ROYAL COMMISSION ON THE HISTORICAL MONUMENTS OF ENGLAND

MOD Building No. L176  
Boiler House  
The Royal Gunpowder Factory  
Waltham Abbey  
Essex

NBR No: 91452  
NGR: TL 37734 01024

Built in c1857 as a Boiler House for the earliest of the incorporating mills buildings (L168) on the Gunpowder Factory site, this building is single-storeyed with a rectangular plan and is constructed of yellow brick laid in English bond. Originally it had a brick chimney attached at its north side.

In 1902 a Dynamo House was added at the centre of the east elevation. In 1903 a Smith's Shop was built in the re-entrant angle on the south side of the Dynamo House, against the east wall of the Boiler House. The latter addition has since been demolished.

-oo0oo-

Building L168 was built in c1857 as a Boiler House.<sup>1</sup> It is situated approximately 10 metres north of the western fork of the main canal and approximately 15 metres south of a contemporary Engine House and Mechanics Shop building (no. L168).<sup>2</sup> In conjunction with the latter building, it powered Group A Incorporating Mills (L176, now demolished) which adjoined the east side of L168.

It has a rectangular plan, of six bays by three bays<sup>3</sup> (17.6 x 11 m), which is aligned north to south.<sup>4</sup> It is single-storeyed and rises to height of approximately six metres. Originally it had an octagonal chimney on its north side and a coal yard on the east side.

Constructed of yellow brick laid in English bond, the building has a chamfered brick plinth and a brick dentil cornice. There are brick pilasters at the corners of the building on each side as well as an evenly-spaced pair of pilasters on each of the west and east elevations. The windows have cambered heads of rubbed red-brick. Originally the windows were sash and each had a rectangular blind panel below.<sup>5</sup> There were three windows on the north elevation and windows flanking a central door on the south elevation. In pairs between the pilasters, there are six windows on the west elevation and six blind windows on the east elevation. The blind windows on the north side appear to be an original feature, as they are shown as such in a drawing of the building of 1856-7.<sup>6</sup>

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<sup>1</sup> Although the building is shown on a map of 1821, it is likely that such a representation is part of an updating of the map in the 1850s-60s, "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). A drawing of the plan has alterations which are dated 1856 and 1857 (PRO, Hayes Repository). The Ledger of c1908 dates the building to 1857, cat. WASC 1509 (PRO, Hayes Repository)

<sup>2</sup> Ledger c1908, cat. WASC 1509 (PRO, Hayes Repository).

<sup>3</sup> The bays are described with reference to the number of windows (ie six by three), although pilasters divide the sides into three main bays by a single main bay.

<sup>4</sup> The building is aligned north-north-west to south-south-east but for the clarity of this report it is described as if it was aligned north to south.

<sup>5</sup> Undated elevation drawing, cat. LE179/1 (PRO, Hayes Repository).

<sup>6</sup> Drawing of plan with alterations dated 1856 and 1857 (PRO, Hayes Repository).

The floor was of stone.<sup>7</sup> The roof truss is of iron and incorporates decorative cast iron compression members. The roof is hipped and has slate coverings and a central skylight. The chimney was brick-built.

In 1902 new boilers were installed in building no. L176 and a Dynamo House with a lean-to roof was built at the centre of the east elevation.<sup>8</sup> Constructed of brick, with a concrete floor and slate roof, it had two dynamos and an accumulator shelf. Also known as the Switchboard House, this addition points to a change in the building from steam power to electric power at this time and may coincide with a conversion in building no. L169 from gunpowder incorporating to cordite reeling.<sup>9</sup>

In the following year, 1903, a Smith's Shop was built in the south-east angle between the Boiler House and Dynamo House.<sup>10</sup> Of a similar size as the Dynamo House, it also had a lean-to roof and was constructed of brick, with a concrete floor and corrugated iron roof.

The building has undergone several other alterations. The windows on the west elevation were enlarged by replacing the sashes with taller windows which extend to incorporate the former blind rectangular panels below. One of the blind windows on the east elevation was opened up and the open windows on the north elevation were made blind. A wide doorway was inserted at the centre of the north elevation. The Smith's Shop has been demolished some time after 1923.<sup>11</sup> By 1958 the Boiler House was used as a Store and a Riggers Shop.

Surveyed March 1993  
Report by R L Burgess

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<sup>7</sup> Ledger c1908, cat. WASC 1509 (PRO, Hayes Repository).


<sup>8</sup> Uncatalogued ink drawing showing Dynamo House and seating plan for new boilers (with a pit to suit footplates) Group A, (?old cat. no. 827), and Ledger c1908, cat. WASC 1509 (PRO, Hayes Repository).

<sup>9</sup> 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) Building L169 is labelled as Reeling Houses Group A.

<sup>10</sup> Ledger c1908, cat. WASC 1509 (PRO, Hayes Repository).

<sup>11</sup> The building is shown as the Smith's Shop in a 1:2500 site plan of the Royal Gunpowder Factory at Waltham Abbey, revised March 1923, cat. WASC 900/84.

**THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY**

NUMBER L177	OLD SERIES 205	RCHME NUMBER	N.G.R. TL 37734 01024
NAME/FUNCTION Switch Board House Battery Charge House	START DATE 1902 1945?	END DATE 1945?	
			
<p>CARTOGRAPHIC DEPICTION</p> <p>c1910 WASC 900/65 ; Switch Board House  c1910 WASC 900/79 ; Switch Board House  1917 WASC 900/70  1917 WASC 900/72 ; 205  1919 WASC 900/74  c1920 WASC 900/80 ; 205  1923 WASC 900/84 ; 205  &gt; 1940 WASC 900/91A ; L177  1954 A - B.34 ; L177  c1960 WASC 900/94 ; L177  c1963 WASC 900/97 ; L177  1972 WASC 900/102 ; L177  1972 WASC 900/104 ; L177  1976 WASC 900/113 ; L177</p> <p><i>(206 shown as square but not numbered)</i></p>		<p>DOCUMENTARY REFERENCES</p> <p>Plan; L177 B01 - 7/3/1902 ; Dynamo House</p> <p>1908 RGPF Ledger WASC 1509 + WASC 1764 ; Switch Board House built 1902 p23  c1925 RGPF Ledger WASC 1680 ; Switch Board House  c1945 RGPF Ledger WASC 1508 ; Switch Board House</p> <p>1972 ERDE List ; Paint Spraying/Battery Charging  1991 Mott McDonald survey  1992 RARDE List ; Battery Charging House</p>	
<p>PHOTOGRAPHY HISTORIC</p>		<p>PHOTOGRAPHY RCHME</p> <p>1) 206/J/20 From North  3) 225/B/30 Exterior</p>	
<p>RELATIONSHIPS WITH OTHER MONUMENTS</p> <p>ABUTTS:L176</p>			
<p>CONDITION Good</p>			

DESCRIPTION

1) CONSTRUCTIONAL MATERIAL  
Brick

2) ROOF MATERIALS AND STRUCTURE  
Slate over timber boards supported purlins on Iron frames with glass roof lights.

3) POWER SOURCE  
Steam, Electricity


4) DIMENSIONS i) L 8.1 ii) W 5.2 iii) HT 6.0

5) A date stone on the north elevation reads '1902-3'. The building is a single storey and has a rectangular plan, the roof is a single gable. The building has two windows on the east elevation and two windows and a double door on the northern elevation.

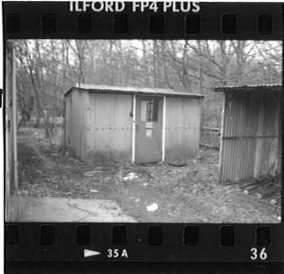
See attached RCHME Threatened Buildings Section report



## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L178	OLD SERIES	RCHME NUMBER	N.G.R. TL 37625 01691
NAME/FUNCTION Burning Ground Solvent Store		START DATE 1963?	END DATE
			
<b>CARTOGRAPHIC DEPICTION</b>  1972      WASC 900/102 ; L178 1972      WASC 900/104 ; L178 1976      WASC 900/113 ; L178		<b>DOCUMENTARY REFERENCES</b>  1972      ERDE List ; Burning Ground Solvent Store 1991      Mott McDonald survey 1992      RARDE List ; Burning Ground Solvent Store 1992      FBRC Flammable Store	
<b>PHOTOGRAPHY</b> HISTORIC		<b>PHOTOGRAPHY</b> RCHME  1) 206/F/2 From South	
<b>RELATIONSHIPS WITH OTHER MONUMENTS</b>  ASSOCIATED WITH: L176			
<b>CONDITION</b> Good			
<b>DESCRIPTION</b> 1)      CONSTRUCTIONAL MATERIAL Brick  2)      ROOF MATERIALS AND STRUCTURE Corrugated Asbestos over wooden frame  4)      DIMENSIONS i) L 2.45 ii) W 1.85 iii) HT 2.65  5)      The building is a single storey with a rectangular ground plan, it has gabled ends to the north and south. On the southern elevation is a single metal grill door.			

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L179	OLD SERIES	RCHME NUMBER	N.G.R. TL 37672 01458
NAME/FUNCTION Store		START DATE 196?	END DATE
			
<b>CARTOGRAPHIC DEPICTION</b>  c1960    WASC 900/94 ; L179 c1963    WASC 900/97 ; L179 1972    WASC 900/102 ; L179 1972    WASC 900/104 ; L179 1976    WASC 900/113 ; L179		<b>DOCUMENTARY REFERENCES</b>  Plan; L179    B02 - no date ; Building to Convert to Acid Store  1972    ERDE List ; Blacksmith Shop 1991    Mott McDonald survey 1992    RARDE List ; Blacksmiths Shop	
<b>PHOTOGRAPHY HISTORIC</b>		<b>PHOTOGRAPHY RCHME</b>  1) 206/D/36 From East	
<b>RELATIONSHIPS WITH OTHER MONUMENTS</b>  ASSOCIATED WITH: L134			
CONDITION    Good			
<b>DESCRIPTION</b> 1)    CONSTRUCTIONAL MATERIAL Corrugated Iron and Fibre Glass  2)    ROOF MATERIALS AND STRUCTURE Corrugated Iron  3)    POWER SOURCE Electricity  4)    DIMENSIONS    i) L 3.65    ii) W 3.6    iii) HT 2.3  5)    The building is single storeyed with a rectangular ground plan. It is constructed on a timber frame covered by corrugated iron and asbestos. There is a single wooden door on the east side.			

**THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY**

NUMBER L180	OLD SERIES 208	RCHME NUMBER	N.G.R. TL 37770 01038
NAME/FUNCTION Pipe Fitters Shop & Store Paint Spraying/Welding Shop		START DATE 1902 194?	END DATE 194?
NO PHOTOGRAPHY AVAILABLE			
<p>CARTOGRAPHIC DEPICTION</p> <p>c1910 WASC 900/65 ; Pipe Fitters Shop &amp; Store  c1910 WASC 900/79 ; Pipe Fitters Shop &amp; Store  1917 WASC 900/70 ; Pipe Fitters Shop &amp; Store  1917 WASC 900/72 ; 208  1919 WASC 900/74 ; 208  c1920 WASC 900/80 ; 208  1923 WASC 900/84 ; 208  &gt;1940 WASC 900/91A ; L180  1954 A - B.34 ; ; L180  c1960 WASC 900/94 ; L180  c1963 WASC 900/97 ; L180  1972 WASC 900/102 ; L180  1972 WASC 900/104 ; L180  1976 WASC 900/113 ; L180</p>		<p>DOCUMENTARY REFERENCES</p> <p>Plan; L180 B01 - 18/10/1904 ; Painter shop</p> <p>1908 RGPF Ledger WASC 1509 + WASC 1764 ; Pipe Fitters Shop &amp; Store built 1905 p23  c1925 RGPF Ledger WASC 1680 ; Pipe Fitters Shop &amp; Store  c1945 RGPF Ledger WASC 1508 ; Pipe Fitters Shop &amp; Store</p> <p>1972 ERDE List ; Paint Spraying and Welding Shop  1991 Mott McDonald survey  1992 RARDE List ; Paint Spraying and Welding Shop</p>	
PHOTOGRAPHY HISTORIC		PHOTOGRAPHY RCHME  4) 4788/12 06.05.1993	
<p>RELATIONSHIPS WITH OTHER MONUMENTS</p> <p>ASSOCIATED WITH: L182</p>			
CONDITION Fair			

DESCRIPTION

1) CONSTRUCTIONAL MATERIAL  
Brick

2) ROOF MATERIALS AND STRUCTURE  
Slate over boards supported on timber purlins.

3) POWER SOURCE  
Electricity


4) DIMENSIONS i) L 10.10 ii) W 10.0 iii) HT 6.0

5) The building is single storeyed with a rectangular ground plans, it has gabled ends to the east and west. The northern elevation has two single doors, the southern elevation has single door in the west side is a modern double door. The west and east elevations each have three windows. Internally the building is divided into two rooms.


**THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY**

NUMBER L181	OLD SERIES	RCHME NUMBER	N.G.R. TL 37757 01029
NAME/FUNCTION Sub Station		START DATE 1941?	END DATE
<p>CARTOGRAPHIC DEPICTION</p> <p>c1960 WASC 900/94 ; L181  c1963 WASC 900/97 ; L181  1972 WASC 900/102 ; L181  1972 WASC 900/104 ; L181  1976 WASC 900/113 ; L181</p>		<p>DOCUMENTARY REFERENCES</p> <p>Plans;  L181 B01 - B07 ; Plans and Elevations 1941 to 1986</p> <p>1972 ERDE List ; Sub Station  1991 Mott McDonald survey  1992 RARDE List ; Sub Station</p>	
<p>PHOTOGRAPHY  HISTORIC</p>		<p>PHOTOGRAPHY  RCHME</p> <p>1) 206/R/34 From East  206/J/21 From North</p>	
<p>RELATIONSHIPS WITH OTHER MONUMENTS</p> <p>Part of: L182</p>			
<p>CONDITION Fair</p>			
<p>DESCRIPTION</p> <p>5) See L182</p>			


## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L182	OLD SERIES	RCHME NUMBER	N.G.R. TL 37770 01038
NAME/FUNCTION Mess Room		START DATE 1942?	END DATE
			
<b>CARTOGRAPHIC DEPICTION</b>  1954     A - B.34 ; L182 c1960    WASC 900/94 ; L182 c1963    WASC 900/97 ; L182 1972     WASC 900/102 ; L182 1972     WASC 900/104 ; L182 1976     WASC 900/113 ; L182		<b>DOCUMENTARY REFERENCES</b>  Plans; L182     B01,B02 ; Plans and Elevations 1942  1972     ERDE List ; BWD 1991     Mott McDonald survey 1992     RARDE List ; Mess Room	
<b>PHOTOGRAPHY HISTORIC</b>		<b>PHOTOGRAPHY RCHME</b> 1) 206/J/22 From South West 206/P/15 From West 4) 4788/12 06.05.1993	
<b>RELATIONSHIPS WITH OTHER MONUMENTS</b>  CONSISTS OF: L180, L181			
CONDITION     Fair			
<b>DESCRIPTION</b>  1)        CONSTRUCTIONAL MATERIAL Brick  2)        ROOF MATERIALS AND STRUCTURE Flat concrete slab  3)        POWER SOURCE Electricity  4)        DIMENSIONS i) L 32.5 ii) W 4.7 iii) HT 3.9  5)        The building is a single storey with a rectangular ground plan. traces of wavy camouflage paint may be discerned on the exterior of the building. Attached to the east end of the buuiling is L181 the west end was used as a gas bottle store.			

**THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY**


NUMBER L183	OLD SERIES	RCHME NUMBER	N.G.R. TL 37760 01112
NAME/FUNCTION Solvent Store		START DATE 1971?	END DATE
			
CARTOGRAPHIC DEPICTION  1976      WASC 900/113 ; L183		DOCUMENTARY REFERENCES  Plan; L183      B01 - 20/11/1971 ; Solvent Store  1991      Mott McDonald survey 1992      RARDE List ; Solvent Store	
PHOTOGRAPHY HISTORIC		PHOTOGRAPHY RCHME  1) 206/J/9 Floor slab from south	
RELATIONSHIPS WITH OTHER MONUMENTS  ASSOCIATED WITH:			
CONDITION      Demolished			
DESCRIPTION 1)      CONSTRUCTIONAL MATERIAL Brick  3)      POWER SOURCE Electricity  4)      DIMENSIONS i) L 11.3 ii) W 7.7  5)      The building rectangular in plan it was demolished in 1992 a concrete floor slab remains.			

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L185	OLD SERIES	RCHME NUMBER	N.G.R. TL 37600 01334
NAME/FUNCTION Green Hut /Sport & Social Club /Laboratory		START DATE 1962?	END DATE
			
<b>CARTOGRAPHIC DEPICTION</b>  c1960    WASC 900/94 ; L185 c1963    WASC 900/97 ; L185 1972     WASC 900/102 ; L185 1972     WASC 900/104 ; L185 1976     WASC 900/113 ; L185		<b>DOCUMENTARY REFERENCES</b>  Plans; L185    B01 - B03 ; Plans and Elevations 1949 to 1954  1972    ERDE List ; Green Hut/Sports and Social Club/Laboratory 1991    Mott McDonald survey 1992    RARDE List ; Green Hut/Sports and Social Club/Laboratory	
<b>PHOTOGRAPHY HISTORIC</b>  WASC 1453 Main Lab from rear		<b>PHOTOGRAPHY RCHME</b>  1) 206/F/30 From South East	
<b>RELATIONSHIPS WITH OTHER MONUMENTS</b>  ASSOCIATED WITH:			
<b>CONDITION</b> Fair			
<b>DESCRIPTION</b> 1) <b>CONSTRUCTIONAL MATERIAL</b> Timber frame and Boards  2) <b>ROOF MATERIALS AND STRUCTURE</b> Corrugated Asbestos over timber boards supported by a King post truss with braces.  3) <b>POWER SOURCE</b> Steam Electricity  4) <b>DIMENSIONS</b> i) L 14.8 ii) W 5.97 iii) HT 4.6  5)        The building is a single storey, rectangular in plan, with gabled ends to the north and south. It is timber framed and covered by timber boards. On the east elevation are two double and one single windows, to the south is a single window, the west has three double windows a single door and a double door.			




## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L186	OLD SERIES	RCHME NUMBER	N.G.R. TL37620 01345
NAME/FUNCTION Locker Magazine		START DATE 1950	END DATE
			
<b>CARTOGRAPHIC DEPICTION</b>  1954     A - B.34 ; L186 c1960    WASC 900/94 ; L186 c1963    WASC 900/97 ; L186 1972     WASC 900/102 ; L186 1972     WASC 900/104 ; L186 1976     WASC 900/113 ; L186		<b>DOCUMENTARY REFERENCES</b>  1972     ERDE List ; Locker Magazine 1991     Mott McDonald survey 1992     RARDE List ; Locker Magazine 1992     FBRC Class 1 Explosives Magazine	
<b>PHOTOGRAPHY</b> HISTORIC		<b>PHOTOGRAPHY</b> RCHME 1) 206/F/31 From South West	
<b>RELATIONSHIPS WITH OTHER MONUMENTS</b>  ASSOCIATED WITH: L191?			
<b>CONDITION</b> Good			
<b>DESCRIPTION</b> 1) <b>CONSTRUCTIONAL MATERIAL</b> Brick  2) <b>ROOF MATERIALS AND STRUCTURE</b> Corrugated Asbestos over timber  3) <b>POWER SOURCE</b> Electricity  4) <b>DIMENSIONS</b> i) L 13.4 ii) W 2.6 iii) HT 2.9  5)     The locker magazine is a single storey building, rectangular in plan with gabled ends north and south. There are two doors on the west elevation. Within the building are six explosive lockers on the west side. It is thought that the magazine was last used in 1982. The building is earthed by a copper strip attached to the walls.			


**THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY**

NUMBER L187	OLD SERIES	RCHME NUMBER	N.G.R. TL 37738 01197
NAME/FUNCTION Locker Magazine		START DATE 1950	END DATE 1982?
NO PHOTOGRAPHY AVAILABLE			
CARTOGRAPHIC DEPICTION  1954     A - B.34 ; L187 c1960    WASC 900/94 ; L187 c1963    WASC 900/97 ; L187 1972     WASC 900/102 ; L187 1972     WASC 900/104 ; L187 1976     WASC 900/113 ; L187		DOCUMENTARY REFERENCES  1972     ERDE List ; Locker Magazine 1991     Mott McDonald survey 1992     RARDE List ; Locker Magazine 1992     FBRC Class 1 Explosives Store	
PHOTOGRAPHY HISTORIC		PHOTOGRAPHY RCHME	
RELATIONSHIPS WITH OTHER MONUMENTS  ASSOCIATED WITH: L157, L156, L158, L174			
CONDITION Demolished			
DESCRIPTION 1)        CONSTRUCTIONAL MATERIAL Brick  4)        DIMENSIONS i) L 11.5 ii) W 3.0  5)        Building demolished concrete slab remains.			

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L188	OLD SERIES	RCHME NUMBER	N.G.R. TL 37750 01327
NAME/FUNCTION Locker Magazine		START DATE 1950	END DATE
			
<b>CARTOGRAPHIC DEPICTION</b>  1954      A - B.34 ; L188 c1960    WASC 900/94 ; L188 c1963    WASC 900/97 ; L188 1972      WASC 900/102 ; L188 1972      WASC 900/104 ; L188 1976      WASC 900/113 ; L188		<b>DOCUMENTARY REFERENCES</b>  1972      ERDE List ; Locker Magazine 1991      Mott McDonald survey 1992      FARDE List ; Locker Magazine 1992      FBRC Class 1 Explosives Magazine	
<b>PHOTOGRAPHY</b> HISTORIC		<b>PHOTOGRAPHY</b> RCHME 1) 206/G/34 From South West	
<b>RELATIONSHIPS WITH OTHER MONUMENTS</b>  ASSOCIATED WITH: L192, L149?			
<b>CONDITION</b> Good			
<b>DESCRIPTION</b>  1) <b>CONSTRUCTIONAL MATERIAL</b> Brick in English bond  2) <b>ROOF MATERIALS AND STRUCTURE</b> Corrugated Asbestos  3) <b>POWER SOURCE</b> Steam Electricity  4) <b>DIMENSIONS</b> i) L 13.45 ii) W 2.6 iii) HT Gable 2.9  5)      The building is single storeyed with arectangular ground plan and gabled ends north and south. It has has two red doors on the south elevation. Internally are six metal lockers numbered '21-26', the temperature within the building was maintained by steam and electric heating. On the exterior a lightning conductor is connected to an earth point.			

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L189	OLD SERIES	RCHME NUMBER	N.G.R. TL 37655 01550
NAME/FUNCTION Proof Stand		START DATE 1953-4	END DATE 198?
			
<p>CARTOGRAPHIC DEPICTION</p> <p>1954    A - B.34 ; L189  c1960    WASC 900/94 ; L189  c1963    WASC 900/97 ; L189  1972    WASC 900/102 ; L189  1972    WASC 900/104 ; L189  1976    WASC 900/113 ; L189</p>		<p>DOCUMENTARY REFERENCES</p> <p>Plans;  L189    B01 - B38 ; Plans and ELevations 1954 to 1976</p> <p>1972    ERDE List ; Sensitivity  1991    Mott McDonald survey  1992    FARDE List ; Proof Stand  1992    FBRC Firing Chamber</p>	
<p>PHOTOGRAPHY  HISTORIC</p> <p>WASC 1795/1-4 Firing point &amp; damage to roof vents 5-Aug-1955</p>		<p>PHOTOGRAPHY  RCHME</p> <p>1) 206/B/35 Firing point from South  206/L/11 From North West</p> <p>2) BB92/26131 firing point from East  BB92/26132 Interior firing point from South East  BB92/26133 Observation chamber West of Firing point from South East</p>	
<p>RELATIONSHIPS WITH OTHER MONUMENTS</p> <p>ASSOCIATED WITH: L195, L199</p>			
<p>CONDITION      Fair</p>			

## DESCRIPTION

- 1) CONSTRUCTIONAL MATERIAL  
Breeze blocks, concrete, steel piles, armour plate, earth
- 2) ROOF MATERIALS AND STRUCTURE  
Concrete, armour plate
- 3) POWER SOURCE  
Electricity
- 5) The proof stand comprises of a number of separate features grouped around a central firing point enclosed within an earthwork traverse.

Separated from the proof stand to the west is a single storey building with a square ground plan 3.66m x 3.66m, 2.7m in height constructed in concrete. This building was entered through a single steel door on the west side. Within the room a sign reads 'L189 Firing Point Charge limit 5lbs Torpex'. The interior has largely been stripped out although a few wires and gauges remain.

Opposite to this building is the entrance to a chamber built into the earthen mound adjacent to the firing chamber. Within the west wall is an armoured glass window and below a small hole through which a control wire could pass. Although the room has largely been stripped out a few gauges and electrical fittings remain. There is a similar chamber on the west side that was used for the taking of photographs of experiments within the chamber. This chamber has an armoured glass window on its east side and a small hole for a control wire. Within the chamber is a teak topped bench and locker.

The central chamber is entered along a staggered passage way lined with steel piles from the north. The firing chamber is constructed from steel girders and is lined with armoured plates, the roof is also of armoured plate. It is rectangular in plan 5.45m x 4.5m. The plates within the chamber exhibit many signs of repair. To the east and west small control wire holes lead to the chambers described above, above these holes are removable armoured plates to protect the observation windows.

On the south wall of the firing chamber a steel firing tube, bore 10cm, connects to a small additional room on the south side of the mound. This chamber is roughly built from breeze block and is connected to the mound by wing walls of cement filled sandbags. It is roofed by a scaffold frame covered by tarpaulins. There are blast scars on the breeze block wall south of the exit from the firing tube. Warnings of test firings was given by klaxons on the east side of the mound.

Historic artefacts - gauges, klaxons, electrical objects fittings

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L190a,b	OLD SERIES	RCHME NUMBER	N.G.R. TL 37555 01425
NAME/FUNCTION Climatic Cubicles Cells A & B		START DATE 1951	END DATE 198?
<p>CARTOGRAPHIC DEPICTION</p> <p>c1960    WASC 900/94 ; L190  c1963    WASC 900/97 ; L190  1972    WASC 900/102 ; L190  1972    WASC 900/104 ; L190  1976    WASC 900/113 ; L190</p>		<p>DOCUMENTARY REFERENCES</p> <p>Plans;  L190    B01 - B08 ; Plans and Elevations 1951-7</p> <p>1972    ERDE List ; Climatic Cubicles  1991    Mott McDonald survey  1992    RARDE List ; Climatic Cubicles</p> <p>1992    FBRC ; Class 1 Explosives</p>	
<p>PHOTOGRAPHY  HISTORIC</p>		<p>PHOTOGRAPHY  RCHME</p> <p>1) 206/C/7 From South East  206/C/8 From South East  206/C/9 From South West</p> <p>2) BB92/26203 From South East  BB92/26204 From North</p>	
<p>RELATIONSHIPS WITH OTHER MONUMENTS</p> <p>OVERLIES; 132a and Steam Cubicles</p>			
<p>CONDITION    Good</p>			

#### DESCRIPTION

- 1) CONSTRUCTIONAL MATERIAL  
Brick with reinforced concrete pillars
- 2) ROOF MATERIALS AND STRUCTURE  
Corrugated Asbestos on concrete rafters
- 3) POWER SOURCE  
Electricity
- 4) DIMENSIONS See below
- 5) The structure comprises of three separate buildings a central control room and two identical cubicle buildings.

The control room is a single storey building built of brick between the cubicles at their southern end. It is square in plan 4.1m x 4.1m, its height is 2.5m. On the south and north elevations are a single metal framed windows. On the west elevation are two metal framed windows, on the east elevation is a single door and window. An overhead wire insulator attached to the building is dated 1963.


North of the control room are the climatic cubicles separated by a narrow central courtyard. The buildings are a mirror image of one another, only the eastern cubicles L190a are described below. The western cubicles are numbered L190b.

The cubicles are a single storey structure with rectangular ground plan. They have gabled ends to the north and south with a central raised clerestory roof vent. The building has a reinforced concrete prefabricated structure of side pillars and roof supports. The end gable walls and parts of the sides are infilled by brick. Access to the cubicles is along a corridor to either side. The cubicles are brick built, they are numbered 1-8 along the east side and 9-14 along the west side.

The building is protected by a lightning conductor.

This building overlies a small wash house [132a] shown on WASC 900/84 in 1923. This inturn was overlaid by a building marked St. Cubicles about 1945 (Plan A-B.35)

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L191	OLD SERIES	RCHME NUMBER	N.G.R. TL 37640 01348
NAME/FUNCTION Stability Test Laboratory		START DATE 1949-1952	END DATE
			
<b>CARTOGRAPHIC DEPICTION</b>  c1960      WASC 900/94 ; L191 c1963      WASC 900/97 ; L191 1972      WASC 900/102 ; L191 1972      WASC 900/104 ; L191 1976      WASC 900/113 ; L191		<b>DOCUMENTARY REFERENCES</b>  Plans; L191      B01 - B13 ; Plans and Elevations 1949 to 1983  1972      ERDE List ; Stability Test Laboratory 1991      Mott McDonald survey 1992      FARDE List ; Stability Test Laboratory  1992      FBRC ; Ovens and Laboratory for Explosives	
<b>PHOTOGRAPHY HISTORIC</b>		<b>PHOTOGRAPHY RCHME</b> 1) 206/F/29 From South West	
<b>RELATIONSHIPS WITH OTHER MONUMENTS</b>  ASSOCIATED WITH: L186, L198			
<b>CONDITION</b> Good			
<b>DESCRIPTION</b> 1) <b>CONSTRUCTIONAL MATERIAL</b> Brick  2) <b>ROOF MATERIALS AND STRUCTURE</b> Flat concrete slab with felt covering  3) <b>POWER SOURCE</b> Steam Electricity  4) <b>DIMENSIONS</b> i) L 11.0 ii) W 6.65 iii) HT 3.3  5)      The building is single storeyed with a rectangular ground plan. On the east and west elevations are a single door and two metal framed windows and on the north elevation are three metal framed windows. On the south elevation are two single doors and access into a heating maintainance chamber. A lightning conductor is attached to the building.			



## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L192	OLD SERIES	RCHME NUMBER	N.G.R. TL 37752 01345
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NAME/FUNCTION Locker Magazine	START DATE 1954	END DATE
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### CARTOGRAPHIC DEPICTION

c1960 WASC 900/94 ; L192  
 c1963 WASC 900/97 ; L192  
 1972 WASC 900/102 ; L192  
 1972 WASC 900/104 ; L192  
 1976 WASC 900/113 ; L192

### DOCUMENTARY REFERENCES

Plans;  
 L192 B01 - B03 ; Plans and Elevations 1954 to 1983  
 1972 ERDE List ; Locker Magazine  
 1991 Mott McDonald survey  
 1992 FARDE List ; Locker Magazine  
 1992 FBRC ; Class 1 Explosives

### PHOTOGRAPHY HISTORIC

### PHOTOGRAPHY RCHME

1) 206/G/33 From South East

### RELATIONSHIPS WITH OTHER MONUMENTS


ASSOCIATED WITH: L188, L146?

CONDITION      Good


### DESCRIPTION

- 1)      CONSTRUCTIONAL MATERIAL  
       Brick in English bond
- 2)      ROOF MATERIALS AND STRUCTURE  
       Corrugated Asbestos
- 3)      POWER SOURCE  
       Steam Electricity
- 4)      DIMENSIONS    i) L 13.43    ii) W 2.6    iii) HT Gable 2.9
- 5)      The locker magazine is a single storey building rectangular in plan with gabled ends west and east. The magazine is entered through two red painted doors on the south elevation. Internally are five metal lockers numbered '7-12', each locker is earthed. A wooden shelf runs along the North wall. The temperature in the magazine was maintained by steam and electric heating.


## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L193	OLD SERIES	RCHME NUMBER	N.G.R. TL 37782 01235
NAME/FUNCTION Locker Magazine		START DATE 1954	END DATE
			
<b>CARTOGRAPHIC DEPICTION</b>  c1960      WASC 900/94 ; L193 c1963      WASC 900/97 ; L193 1972        WASC 900/102 ; L193 1972        WASC 900/104 ; L193 1976        WASC 900/113 ; L193		<b>DOCUMENTARY REFERENCES</b>  Plan; L193      B01 - 24/8/1983 ; Electrical Heating Layout  1972      ERDE List ; Locker Magazine 1991      Mott McDonald survey 1992      RARDE List ; Locker Magazine	
<b>PHOTOGRAPHY HISTORIC</b>		<b>PHOTOGRAPHY RCHME</b>  1) 206/G/27 From South	
<b>RELATIONSHIPS WITH OTHER MONUMENTS</b>  ASSOCIATED WITH: L151, L152			
CONDITION      Good			
<b>DESCRIPTION</b> 1)      CONSTRUCTIONAL MATERIAL Brick  2)      ROOF MATERIALS AND STRUCTURE Corrugated Asbestos  3)      POWER SOURCE Steam Electricity  4)      DIMENSIONS i) L 8.32 ii) W 2.59 iii) HT 3.0  5)      The magazine is single storeyed and is rectangular in plan. It has gabled ends north and south. It was entered through two doors on the west side. Internally are three metal explosive lockers numbered '28A-C'. There is a wooden shelf along the east wall and below this heating pipes.			


## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L194	OLD SERIES	RCHME NUMBER	N.G.R. TL 37705 01420
NAME/FUNCTION Locker magazine Chemical Store		START DATE 1954	END DATE 198?
			
<b>CARTOGRAPHIC DEPICTION</b>  c1960      WASC 900/94 ; L194 c1963      WASC 900/97 ; L194 1972        WASC 900/102 ; L194 1972        WASC 900/104 ; L194 1976        WASC 900/113 ; L194		<b>DOCUMENTARY REFERENCES</b>  1972      ERDE List ; Locker Magazine 1991      Mott McDonald survey 1992      RARDE List ; Chemical Store  1992      FBRC ; Chemical Store	
<b>PHOTOGRAPHY</b> HISTORIC		<b>PHOTOGRAPHY</b> RCHME  1) 206/G/37 From South West	
<b>RELATIONSHIPS WITH OTHER MONUMENTS</b>  ASSOCIATED WITH: L134, L137, L166			
<b>CONDITION</b> Fair			
<b>DESCRIPTION</b> 1)            CONSTRUCTIONAL MATERIAL Brick  2)            ROOF MATERIALS AND STRUCTURE Corrugated Asbestos and Translucent Plastic  3)            POWER SOURCE Steam Electricity  4)            DIMENSIONS    i) L 8.33    ii) W 2.6    iii) HT Gable 2.85  5)            The building is single storeyed with a rectangular ground plan, it has gabled ends north and south. The magazine was entered through two doors to the west. The conversion of the magazine into a store has entailed the removal of the metal lockers and the insertion of a number of translucent roof panels.			

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L195	OLD SERIES	RCHME NUMBER	N.G.R. TL 37670 01550
NAME/FUNCTION Locker Magazine		START DATE 1955	END DATE 198?
			
<b>CARTOGRAPHIC DEPICTION</b>  c1960    WASC 900/94 ; L195 c1963    WASC 900/97 ; L195 1972     WASC 900/102 ; L195 1972     WASC 900/104 ; L195 1976     WASC 900/113 ; L195		<b>DOCUMENTARY REFERENCES</b>  Plan; L195    B01 - 9/8/1955 ; New single Locker Magazine  1972    ERDE List ; Locker Magazine 1991    Mott McDonald survey 1992    RARDE List ; Locker Magazine	
<b>PHOTOGRAPHY HISTORIC</b>		<b>PHOTOGRAPHY RCHME</b>  1) 206/B/35 From South East	
<b>RELATIONSHIPS WITH OTHER MONUMENTS</b>  ASSOCIATED WITH: L185 ?			
CONDITION Fair			
<b>DESCRIPTION</b> 1)        CONSTRUCTIONAL MATERIAL Brick  2)        ROOF MATERIALS AND STRUCTURE To the North Corrugated Plastic, to the South Corrugated Asbestos  3)        POWER SOURCE Electricity  4)        DIMENSIONS i) L 4.95 ii) W 3.85 iii) HT 2.7  5)        The magazine is a single storey building with a rectangular ground plan, it has gabled ends east and west. On the eastern elevation is a double louvred door providing access to the southern room. A door on the north wall provovides access onto the north room a sign on the door reads 'Explosives Locker'.  The magazine served firing point L189.			

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L196	OLD SERIES	RCHME NUMBER	N.G.R. TL 37589 01389
NAME/FUNCTION Acid Store Locker Magazine		START DATE 1954	END DATE 198?
			
<b>CARTOGRAPHIC DEPICTION</b>  c1960    WASC 900/94 ; L196 c1963    WASC 900/97 ; L196 1972     WASC 900/102 ; L196 1972     WASC 900/104 ; L196 1976     WASC 900/113 ; L196		<b>DOCUMENTARY REFERENCES</b>  Plan; L196    B01 - 24/12/1954 ; Acid Store for Main Laboratory  1972    ERDE List ; Acid Store 1991    Mott McDonald survey 1992    RARDE List ; Locker Magazine	
<b>PHOTOGRAPHY HISTORIC</b>		<b>PHOTOGRAPHY RCHME</b>  1) 206/C/1 From South West	
<b>RELATIONSHIPS WITH OTHER MONUMENTS</b>  ASSOCIATED WITH: L122			
CONDITION    Good			
<b>DESCRIPTION</b> 1)        CONSTRUCTIONAL MATERIAL Brick in English bond  2)        ROOF MATERIALS AND STRUCTURE Concrete slab  3)        POWER SOURCE Electricity  4)        DIMENSIONS i) L 2.75 ii) W 2.44 iii) HT 2.55  5)        The magazine is a single storeyed and almost square in plan. It was entered from a single door on the west side, there is a single small window on the north elevation. Internally are concrete shelves the floor is tiled.			

**THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY**

NUMBER L197	OLD SERIES 9	RCHME NUMBER	N.G.R. TL 37833 01186
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NAME/FUNCTION Air Raid Shelter Store	START DATE 1942?	END DATE 1945
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<p>CARTOGRAPHIC DEPICTION</p> <p>&gt; 1940 WASC 900/91A ; L197          1954 A - B.34 ; L197          c1960 WASC 900/94 ; L197          c1963 WASC 900/97 ; L197          1972 WASC 900/102 ; L197          1972 WASC 900/104 ; L197          1976 WASC 900/113 ; L197</p>	<p>DOCUMENTARY REFERENCES</p> <p>Plan;          L197 B01 - 11/12/47 ; Pipe Trench &amp; Drainage</p> <p>1972 ERDE List ; Store/Air Raid Shelter semi cylindrical          1991 Mott McDonald survey          1992 RARDE List ; Store/Air Raid Shelter semi cylindrical</p>
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PHOTOGRAPHY HISTORIC	PHOTOGRAPHY RCHME  206 & 26
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<p>RELATIONSHIPS WITH OTHER MONUMENTS</p> <p>ASSOCIATED WITH:</p>
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CONDITION Demolished
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<p>DESCRIPTION</p> <p>1) CONSTRUCTIONAL MATERIAL Concrete</p> <p>3) POWER SOURCE Electricity</p> <p>4) DIMENSIONS i) L 9.12 ii) W 3.8</p> <p>5) The building has been demolished a concrete floor slab remains.</p> <p>This building is presumed to have been identical in form to H11 and RCHME 167</p>
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## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L198	OLD SERIES	RCHME NUMBER	N.G.R. TL 37644 01334
NAME/FUNCTION Stability Laboratory		START DATE 1956	END DATE 198?
			
<p>CARTOGRAPHIC DEPICTION</p> <p>c1960 WASC 900/94 ; L198  c1963 WASC 900/97 ; L198  1972 WASC 900/102 ; L198  1972 WASC 900/104 ; L198  1976 WASC 900/113 ; L198</p>		<p>DOCUMENTARY REFERENCES</p> <p>Plans;  L198 B01 - B17 ; Plans and Elevations 1956 to 1982</p> <p>1972 ERDE List ; Laboratory  1991 Mott McDonald survey  1992 RARDE List ; Laboratory</p> <p>1992 FBRC ; Class 1 Explosives</p>	
<p>PHOTOGRAPHY  HISTORIC</p>		<p>PHOTOGRAPHY  RCHME</p> <p>1) 206/F/28 From South West</p>	
<p>RELATIONSHIPS WITH OTHER MONUMENTS</p> <p>ASSOCIATED WITH: L191</p>			
<p>CONDITION      Good</p>			
<p>DESCRIPTION</p> <p>1)      CONSTRUCTIONAL MATERIAL  Brick</p> <p>2)      ROOF MATERIALS AND STRUCTURE  Flat concrete with felt covering and raised roof lights</p> <p>3)      POWER SOURCE  Steam Electricity</p> <p>4)      DIMENSIONS i) L 9.2 ii) W 10.7 iii) HT 2.95</p> <p>5)      The building is a single storey with a rectangular plan. The east and west elevations of the building are featureless in the north elevation is a single door. To the south are double glass doors giving access into a central court surrounded by laboratory benches lit by raised roof lights. Attached to the east and west walls of the building are two tall poles of a lightning conductor connected by wire at their tops.</p>			

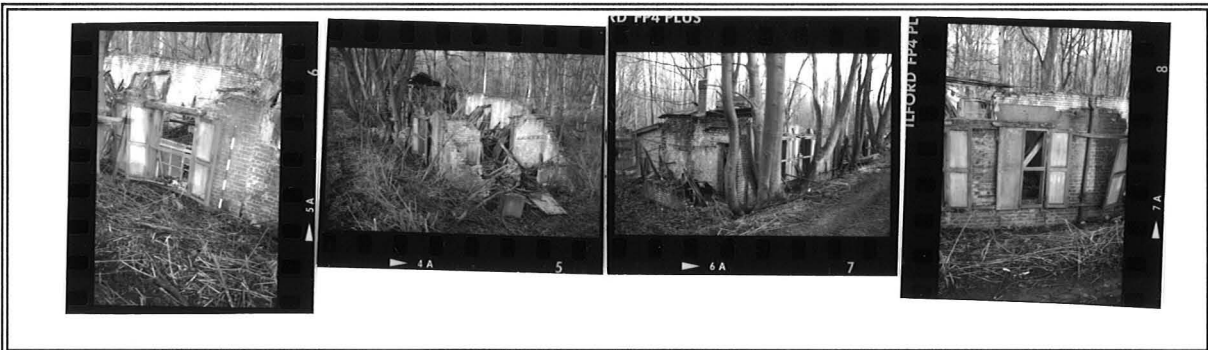
## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER L199	OLD SERIES	RCHME NUMBER	N.G.R. TL 37664 01592
NAME/FUNCTION Proof Stand		START DATE 1959	END DATE 198?
			
<p>CARTOGRAPHIC DEPICTION</p> <p>c1960 WASC 900/94 ; L199  c1963 WASC 900/97 ; L199  1972 WASC 900/102 ; L199  1972 WASC 900/104 ; L199  1976 WASC 900/113 ; L199</p>		<p>DOCUMENTARY REFERENCES</p> <p>Plans;  L199 B01 - B10 ; Plans and Elevations 1956 to 1975</p> <p>1972 ERDE List ; Small Sensitivity  1991 Mott McDonald survey  1992 RARDE List ; Proof Stand</p> <p>1992 FBRC ; Firing Chamber</p>	
<p>PHOTOGRAPHY  HISTORIC</p>		<p>PHOTOGRAPHY  RCHME</p> <p>1)206/L/12 From South</p>	
<p>RELATIONSHIPS WITH OTHER MONUMENTS</p> <p>ASSOCIATED WITH: L189, L195</p>			
<p>CONDITION Fair</p>			
<p>DESCRIPTION</p> <p>1) CONSTRUCTIONAL MATERIAL  Concrete, steel girders, corrugated iron</p> <p>2) ROOF MATERIALS AND STRUCTURE  -</p> <p>3) POWER SOURCE  Electricity</p> <p>4) DIMENSIONS i) L ii) W iii) HT</p> <p>5) The proof stand is a single storeyed structure almost square in plan although with protruding walls. The southern elevation of the stand is of concrete and has a single staggered entrance. The central firing chamber is constructed from steel girders and plates and corrugated iron.</p>			



## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER	OLD SERIES 96	RCHME NUMBER	N.G.R. TL 37536 01780
NAME/FUNCTION Box house Dining room Washing up house		START DATE 1861	END DATE



<p><b>CARTOGRAPHIC DEPICTION</b></p> <p>1865 WASC 900/38 + SUPP5 975 ; Box House          1865 WASC 900/41A ; Box House          1865 WASC 900/42 ; Box House          1897 WASC 900/53C          c1910 WASC 900/65 ; Dining Room          c1910 WASC 900/79 ; Dining Room          1917 WASC 900/70          1917 WASC 900/72 ; 96          1919 WASC 900/74 ; 96          c1920 WASC 900/80 ; 96          1923 WASC 900/84 ; 96          &gt; 1940 WASC 900/91A ; 96          1954 A - B.34 ; 96          c1960 WASC 900/94 ; 96          c1963 WASC 900/97 ; 96          1972 WASC 900/102 ; 96          1972 WASC 900/104 ; 96          1976 WASC 900/113 ; 96</p>	<p><b>DOCUMENTARY REFERENCES</b></p> <p>Plans;          96 B01,B02 ; Plans and Elevations 1861,1871</p> <p>1908 RGPF Ledger WASC 1509 + WASC 1764 ;          Dining Room built 1861 p9          c1925 RGPF Ledger WASC 1680 ; Dining Room          c1945 RGPF Ledger WASC 1508 ; Dining Room</p> <p>1992 RARDE List ; Dining House</p>
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<p><b>PHOTOGRAPHY HISTORIC</b></p>	<p><b>PHOTOGRAPHY RCHME</b></p> <p>1) 206/J/5 From east          206/J/6 Detail of window showing blackout shutters          206/J/7 From North          206/J/8 Detail of window          206/R/24 From east          206/R/25 North elevation from east</p>
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<p><b>RELATIONSHIPS WITH OTHER MONUMENTS</b></p> <p>ASSOCIATED WITH:</p>
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<p><b>CONDITION</b>      Poor</p>
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DESCRIPTION

1) CONSTRUCTIONAL MATERIAL  
Brick

2) ROOF MATERIALS AND STRUCTURE  
Hipped, roofing felt over timber boards

3) POWER SOURCE  
Steam heating and electricity

4) DIMENSIONS i) L 17.1m ii) W 7.7m iii) HT eave 3m

5) The dining room is a single storey building with a hipped roof. A number of additions have been made to the original core of the building. A brick lobby has been added to the eastern end. A timber framed outshot covered by asbestos sheeting attached to the northern wall probably dates from the second world war. Within this room a series of pigeon holes still retained address cards to other explosives factories and a pocket calendar from 1944. All the window openings were protected by canvas blackout shutters.

Originally the building was heated by a number of fireplaces subsequently blocked. In its last phase the building was steam heated, the pipe was attached to the northern wall along with a pressure guage 0-100lbs/sqin.

Historic artefacts - Contraband box near east end, pressure guage on north wall, other items may survive within the building.

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER 103	OLD SERIES L102, L103	RCHME NUMBER	N.G.R. TL 37675 01700
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NAME/FUNCTION Corning House No.2 Press House No.2 Press House No.1	START DATE 1806-19 c1850 by 1923	END DATE 1819  c1941
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CARTOGRAPHIC DEPICTION	DOCUMENTARY REFERENCES
1806 WO78/1352	Plans;
1827 WASC 900/04 + MPH 271 ; site of Former Corning House powered by Horses	L102,L103 B01,B02 ; Plans and Elevations c1894
1830 PRO MP11.15 Drayson; Site of No.2 Corning House	1807 Statement of Property WO55 2694
1830 WO55 2694	1819 'Mr Philpot, of Stanford Street purchased at the late sale of Ordnance property all the Corning Houses, Press Houses etc.....Mr Philpot offers £50 for the machinery of Nos 2 and 3 Corning Houses, which cost the Board £9000. In good state of preservation' Winters 1887 p86
1830 WASC 900/05	1830 Statement of Property WO55 2351
c1830 WASC 900/06	1841 Statement of Property WO55 2856
c1835 WASC 900/07	1851 Statement of Property WO55 3027
1861-1868 WASC 900/10A	1857 Baddeley p14-15 Pressing the Meal by Hydraulic Press. 'The pumps are now set in motion by a water wheel' Baddeley p15
1865 WASC 900/13	1908 RGPF Ledger WASC 1509 + WASC 1764 ; Gunpowder Press House built 1870 p10
1865 WASC 900/14	c1925 RGPF Ledger WASC 1680 ; Gunpowder Press House
1865 WASC 900/38 + SUPP5 975 ; Washing up House and Press House	c1945 RGPF Ledger WASC 1508 ; Gunpowder Press House
1865 WASC 900/41A ; Washing up House and Press House	1972 ERDE List ; Pump House
1865 WASC 900/42	1991 Mott McDonald survey
1897 WASC 900/53C	1992 RARDE List ; Pump House
c1910 WASC 900/65 ; Press House	
c1910 WASC 900/79 ; Press House	
1917 WASC 900/70 ; Pump and Press House	
1917 WASC 900/72 ; 103,104	
1919 WASC 900/74 ; 103,104	
c1920 WASC 900/80 ; 103	
1923 WASC 900/84 ; 103	
> 1940 WASC 900/91A ; 103	
1954 A - B.34 ; L102, L103	
c1960 WASC 900/94 ; L102, L103	
c1963 WASC 900/97 ; L102, L103	
1972 WASC 900/102 ; L102, L103	
1972 WASC 900/104	
1976 WASC 900/113	

PHOTOGRAPHY  
HISTORIC

WASC 788 GP press house No1 1972 x2  
WASC 789 GP press house No1 1940 x10  
WASC 1517 Gen views 05.1986 x3  
WASC 1543/1-4 Views of Gunpowder press house  
WASC 1543/10 Traverse wall  
WASC 1655/58-65 No 1 press house July 1940  
WASC 1543/5-9 Gunpowder press house water wheel  
PRO Supply 5/863 290-1, 294-6, 299 July 1940

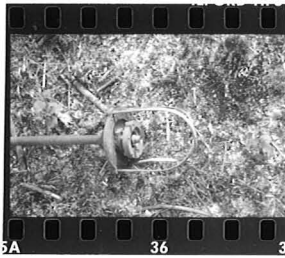
PHOTOGRAPHY  
RCHME

- 1) 206/U/21 From west  
206/U/22 From west  
206/U/23 From north west  
206/F/16 29 Jan 1993 Gunpowder press from West  
206/F/17 29 Jan 1993 Water wheel for Hydraulic pump from South West  
206/F/18 29 Jan 1993 Hydraulic gunpowder press from South  
206/F/19 29 Jan 1993 Danger Building electric light  
206/L/36 09 Mar 1993 Danger Building Electric light  
206/L/37 09 Mar 1993 Gunpowder Press from West  
206/N/24 12 Mar 1993 Press house from South
- 2) BB92/26197 103 & 104 Water Wheel House and Hydraulic Gunpowder Press, view from West.  
BB92/26198 104 Water Wheel House for Hydraulic Pump, view from South West.  
BB92/26199 104 Pit Wheel view from North East.  
BB92/26200 104 Hydraulic Pump view from North East.  
BB92/26201 104 Detail of Water Wheel to Hydraulic Pump view from West.  
BB92/26202 103 Hydraulic Gunpowder Press view from South East.

RELATIONSHIPS WITH OTHER MONUMENTS

ASSOCIATED WITH: 103/1, 104

CONDITION Fair



#### DESCRIPTION

- 1) CONSTRUCTIONAL MATERIAL  
Brick formerly carrying a timber frame
- 2) ROOF MATERIALS AND STRUCTURE  
-
- 3) POWER SOURCE  
Waterwheel powering a hydraulic pump, latterly supported by an electric motor and pump, electric lighting
- 4) DIMENSIONS i) L 8.9m ii) W 7.1
- 5) The gunpowder press house was fired probably during the 1940s. The below floor brick foundations, in English bond, survive to their full height. The foundations are divided into three cells, the northern and southern cells are 2.1m in width and the central cell is 2m in width.

In the centre of the building are the substantial remains of the gunpowder press. The process is first described by Baddeley in Pamphlet on the Manufacture of Gunpowder 1857. A similar press is illustrated and described Smith F M 1871 A Handbook of the Manufacture and Proof of Gunpowder 45-49 and Wardell W H 1888 Handbook of Gunpowder and Guncotton 49-50, although the press is of a slightly different design. Oscar Guttman 1895 in The Manufacture of Explosives however illustrates a press that appears to be identical to the one remaining insitu.

Scattered around the building are fragments of slate upto 1cm in thickness some of which retain brass screws. Also lying loose in the building was a danger building light formerly attached to the outside of the window (similar to the one illustrated in Proc Inst Civil Engrs V.110 1891 p373). These lights are clearly visible in the photographs in Supply 5/863.

Historic Artifacts- a considerable number of fittings relating to this building survive on the surface. Archaeological advice should be sort about its recording and recovery. During clearance work in the canal basin to the west of the press house copper press plates and the iron gearing to the pebble powder cutting machine were found along with a copper chisel and other smaller artefacts. Nb further deposits containing important artefacts may still remain in this canal basin.

**THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY**

NUMBER	OLD SERIES 103/1	RCHME NUMBER	N.G.R. TL 37675 01693
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NAME/FUNCTION Traverse	START DATE 1806-18	END DATE
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NO PHOTOGRAPHY  
AVAILABLE

<p><b>CARTOGRAPHIC DEPICTION</b></p> <p>1827 WASC 900/04 + MPH 271  1830 WO55 2694  1830 WASC 900/05  c1830 WASC 900/06  c1835 WASC 900/07  1861-1868 WASC 900/10A  1865 WASC 900/13  1865 WASC 900/14  1871 SUPP5 682  1865 WASC 900/38 + SUPP5 975  1865 WASC 900/41A  1865 WASC 900/42  1897 WASC 900/53C  c1910 WASC 900/65  c1910 WASC 900/79  1917 WASC 900/70  1917 WASC 900/72  1919 WASC 900/74  c1920 WASC 900/80  1923 WASC 900/84  &gt; 1940 WASC 900/91A  1954 A - B.34  c1960 WASC 900/94  c1963 WASC 900/97  1972 WASC 900/102  1972 WASC 900/104  1976 WASC 900/113</p>	<p><b>DOCUMENTARY REFERENCES</b></p> <p>Plans;  L102 B01,B02 ; Plans and Elevations 1894</p> <p>1908 RGPF Ledger WASC 1509 + WASC 1764 ;  Traverse built 1870 p10  c1925 RGPF Ledger WASC 1680 ; Traverse  c1945 RGPF Ledger WASC 1508 ; Traverse</p>
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PHOTOGRAPHY HISTORIC	PHOTOGRAPHY RCHME  See 103 and 104
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**RELATIONSHIPS WITH OTHER MONUMENTS**

ASSOCIATED WITH: 103, 104

CONDITION Fair

DESCRIPTION

- 1) CONSTRUCTIONAL MATERIAL  
Brick
- 2) ROOF MATERIALS AND STRUCTURE  
-
- 3) POWER SOURCE  
None
- 4) DIMENSIONS i) L 14.5m ii) W 4.6m iii) HT estimate 6m
- 5) The traverse is oval in shape and is constructed with battered brick walls which are in part cement redendered. No indication is present of the interior filling of the traverse.

The traverse appears to have been constructed during the first years of the nineteenth century. It was originally associated with a gunpowder corning mill that then fell into disuse. Around 1850 the mill site was reused for the siting of a water powered hydraulic pump 104 and a gunpowder press 103.

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER	OLD SERIES	RCHME NUMBER	N.G.R.
104	L102, L103		TL 37675 01700
NAME/FUNCTION		START DATE	END DATE
Corning House No.2		1806-18	1819
Pump house for Press House No.2		c1850	by 1923
Pump house for Press House No.1		by 1923	1941
NO PHOTOGRAPHY AVAILABLE			
CARTOGRAPHIC DEPICTION		DOCUMENTARY REFERENCES	
1827	WASC 900/04 + MPH 271 ; site of Former Corning House powered by Horses	Plans; L102,L103	B01,B02 ; Plans and Elevations c1894
1830	PRO MP11.15 Drayson Site of Corning House No.2		
1830	WO55 2694	1807	Statement of Property WO55 2694
1830	WASC 900/05	1830	Statement of Property WO55 2351
c1830	WASC 900/06	1841	Statement of Property WO55 2856
c1835	WASC 900/07	1851	Statement of Property WO55 3027
1861-1868	WASC 900/10A	1857	Baddeley Pressing the Meal by the Hydraulic Press p14-15
1865	WASC 900/13	1908	RGPF Ledger WASC 1509 + WASC 1764 ; Gunpowder Press House built 1870 p10
1865	WASC 900/14	c1925	RGPF Ledger WASC 1680 ; Gunpowder Press House
1865	WASC 900/38 + SUPP5 975 ; Washing up House and Press House	c1945	RGPF Ledger WASC 1508 ; Gunpowder Press House
1865	WASC 900/41A ; Washing up House and Press House		
1865	WASC 900/42		
1897	WASC 900/53C		
c1910	WASC 900/65 ; Press House	1972	ERDE List ; Pump House
c1910	WASC 900/79 ; Press House	1991	Mott McDonald survey
1917	WASC 900/70 ; Pump and Press House	1992	RARDE List ; Pump House
1917	WASC 900/72 ; 103,104		
1919	WASC 900/74 ; 103,104		
c1920	WASC 900/80 ; 103		
1923	WASC 900/84 ; 103		
> 1940	WASC 900/91A ; 103		
1954	A - B.34 ; L102, L103		
c1960	WASC 900/94 ; L102, L103		
c1963	WASC 900/97 ; L102, L103		
1972	WASC 900/102 ; L102, L103		
1972	WASC 900/104		
1976	WASC 900/113		



PHOTOGRAPHY  
HISTORIC

WASC 788 GP press house No1 1972 x2  
WASC 789 GP press house No1 1940 x10  
WASC 1517 Gen views 05.1986 x3  
WASC 1543/1-4 Views of Gunpowder press house  
WASC 1543/10 Traverse wall  
WASC 1655/58-65 No 1 press house July 1940  
WASC 1543/5-9 Gunpowder press house water wheel  
PRO Supply 5/863 297 Shows starting mechanism near  
fly wheel  
PRO Supply 5/863 298 Detail of pump and interior

PHOTOGRAPHY  
RCHME

- 1) 206/U/21 From west  
206/U/22 From west  
206/U/23 From north west  
206/F/16 29 Jan 1993 Gunpowder press from West  
206/F/17 29 Jan 1993 Water wheel for Hydraulic  
pump from South West  
206/F/18 29 Jan 1993 Hydraulic gunpowder press  
from South  
206/F/19 29 Jan 1993 Danger Building electric light  
206/L/36 09 Mar 1993 Danger Building Electric light  
206/L/37 09 Mar 1993 Gunpowder Press from West  
206/N/24 12 Mar 1993 Press house from South
- 2) BB92/26197 103 & 104 Water Wheel House and  
Hydraulic Gunpowder Press, view from West.  
BB92/26198 104 Water Wheel House for Hydraulic  
Pump,view from South West.  
BB92/26199 104 Pit Wheel view from North East.  
BB92/26200 104 Hydraulic Pump view from North  
East.  
BB92/26201 104 Detail of Water Wheel to Hydraulic  
Pump view from West.  
BB92/26202 103 Hydraulic Gunpowder Press view  
from South East.

RELATIONSHIPS WITH OTHER MONUMENTS

ASSOCIATED WITH: 103/1, 103

CONDITION Fair

## DESCRIPTION

- 1) CONSTRUCTIONAL MATERIAL  
Brick

- 2) ROOF MATERIALS AND STRUCTURE

The roof is barrel shaped, formed from corrugated iron (possibly of nineteenth century date) fixed to L irons running along the top of the wall and braced by two horizontal tension rods.

- 3) POWER SOURCE

Water powering a hydraulic pump latterly supplemented by an electric pump. Electric lighting probably of late nineteenth century date.

- 4) DIMENSIONS i) L 9.55m ii) W 5.35 iii) HT estimate 7.5m

- 5) The pump house is a single storey brick building, painted in small figures on its exterior is its former number L103. The pump house is divided into two cells the larger eastern cell 5.75m x 4.45m and smaller western cell 2.45m x 4.45m.

The smaller cell was originally a shoe room and was entered from the canal side through a single door and was lit by a single window. The room was originally timber lined, the positions of charred fixing timbers may be made out on the wall. Artificial lighting was originally supplied by a danger building light suspended on the outside of the window. The upper part of the light some of the iron pipe that encased the wiring survives fixed to the exterior of the building. This room was subsequently converted to house an electrically powered hydraulic pump to supplement the water wheel. The sandstone base and four mounting bolts to this pump survive. Pipes running at floor level from this room to the pump room are thought to be the remains of the steam heating system.

The larger cell housed the water powered hydraulic pump. This room was entered from the shoe room originally across a fender (L.102.B.02), defining a dirty and clean area, and through a door on the north east corner. The room was lit by a single window in the eastern gable. In the centre of the room are the largely intact remains of the water driven hydraulic pump. This is believed to be the only surviving water wheel driven pump in England. Horizontal holes in the wall mark the former positions of timbers to which a wall covering was fixed.

The water driven hydraulic pump was powered by a water wheel on the southern side of the building. The water to turn the wheel was brought along a canal from Millhead Stream RCHME 294 through the wheel before tipping into the tail race and into the old River Lee. The wheel is a low breast shot of cast iron construction. This was formerly covered by a corrugated iron roof.

Above the tailrace the brickwork is supported by sheets of thick slate this inturn supported a toilet cubicle.

Historic Artefacts: All fittings, corrugated iron roof may be of nineteenth century date and further advice ought to be sort.

**THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY**

NUMBER	OLD SERIES 105	RCHME NUMBER	N.G.R. TL 37545 01660
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NAME/FUNCTION Press House Magazine	START DATE 1807-27	END DATE 194?
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NO PHOTOGRAPHY  
AVAILABLE

<p>CARTOGRAPHIC DEPICTION</p> <p>1806 WO78/1352  1827 WASC 900/04 + MPH 271  1830 WO55 2694  1830 WASC 900/05  c1830 WASC 900/06  c1835 WASC 900/07  1861-1868 WASC 900/10A  1865 WASC 900/13  1865 WASC 900/14  1871 SUPP5 682  1865 WASC 900/38 + SUPP5 975 ; Press House Magazine  1865 WASC 900/41A ; Press House Magazine  1865 WASC 900/42 ; Press House Magazine  1897 WASC 900/53C  c1910 WASC 900/65  c1910 WASC 900/79  1917 WASC 900/70  1917 WASC 900/72 ; 105  1919 WASC 900/74 ; 105  c1920 WASC 900/80 ; 105  1923 WASC 900/84 ; 105  &gt; 1940 WASC 900/91A ; 105  1954 A - B.34  c1960 WASC 900/94  c1963 WASC 900/97  1972 WASC 900/102  1972 WASC 900/104  1976 WASC 900/113</p>	<p>DOCUMENTARY REFERENCES</p> <p>1830 WO55/2694; 140 Receiving Magazine  1841 WO55/2856; 140 Receiving Magazine  1851 WO55/3027  1908 RGPF Ledger WASC 1509 + WASC 1764 ; Press House Magazine built pre 1870 p11  c1925 RGPF Ledger WASC 1680 ; Press House Magazine  c1945 RGPF Ledger WASC 1508 ; Press House Magazine</p>
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PHOTOGRAPHY HISTORIC	PHOTOGRAPHY RCHME
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RELATIONSHIPS WITH OTHER MONUMENTS

ASSOCIATED WITH: 106, 107, 108

CONDITION Demolished

DESCRIPTION

5) No surface remains are visible. The survival of the foundations of the brick footings of 106 adjacent to this magazine may imply a below ground survival.

**THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY**

NUMBER	OLD SERIES 106	RCHME NUMBER	N.G.R. TL 37535 01656
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NAME/FUNCTION Press House Magazine	START DATE 1865-70	END DATE 194?
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NO PHOTOGRAPHY  
AVAILABLE

<p>CARTOGRAPHIC DEPICTION</p> <p>1865 WASC 900/38 + SUPP5 975 ; Press House Magazines</p> <p>1865 WASC 900/41A ; Press House Magazines</p> <p>1865 WASC 900/42 ; Press House Magazines</p> <p>1897 WASC 900/53C</p> <p>c1910 WASC 900/65 ; Receiving Magazines</p> <p>c1910 WASC 900/79</p> <p>1917 WASC 900/70</p> <p>1917 WASC 900/72 ; 106</p> <p>1919 WASC 900/74 ; 106</p> <p>c1920 WASC 900/80 ; 106</p> <p>1923 WASC 900/84 ; 106</p> <p>&gt;1940 WASC 900/91A ; 106</p> <p>1954 A - B.34</p> <p>c1960 WASC 900/94</p> <p>c1963 WASC 900/97</p> <p>1972 WASC 900/102</p> <p>1972 WASC 900/104</p> <p>1976 WASC 900/113</p>	<p>DOCUMENTARY REFERENCES</p> <p>1908 RGPF Ledger WASC 1509 + WASC 1764 ; Press House Magazine built pre 1870 p11</p> <p>c1925 RGPF Ledger WASC 1680 ; Press House Magazine</p> <p>c1945 RGPF Ledger WASC 1508 ; Press House Magazine</p>
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PHOTOGRAPHY HISTORIC	PHOTOGRAPHY RCHME
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RELATIONSHIPS WITH OTHER MONUMENTS

ASSOCIATED WITH: 105, 107, 108

CONDITION Demolished

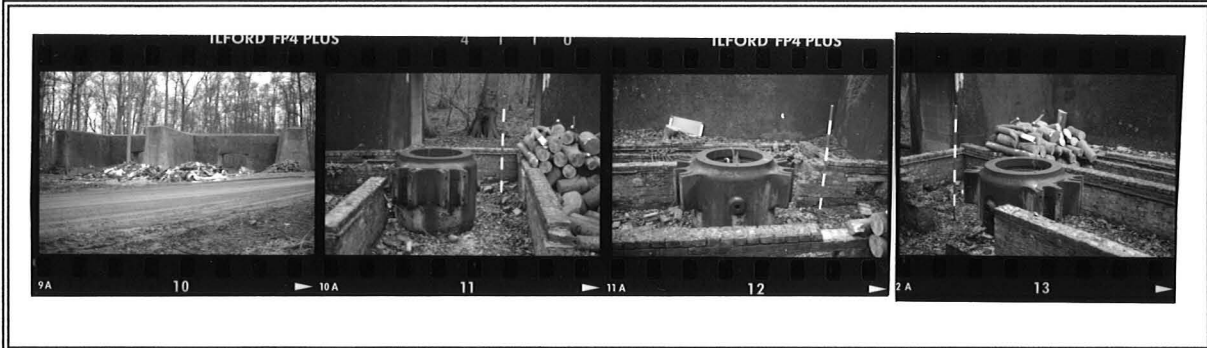
DESCRIPTION

5) The west wall and a section of the north wall of this building is visible as wall footing.

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER	OLD SERIES 107	RCHME NUMBER	N.G.R. TL 37482 01660
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NAME/FUNCTION	START DATE	END DATE
Moulding house No.4	1884-5	1898?
Cordite blending house No.3	1898?	1910?
Blank Expense Magazine	1910?	1914?
Tetryl Packing House	1914?	1945?



<p><b>CARTOGRAPHIC DEPICTION</b></p> <p>1865 WASC 900/38 + SUPP5 975 ; Moulding House No.4</p> <p>1865 WASC 900/41A ; Moulding House No.4</p> <p>1897 WASC 900/53C</p> <p>c1900 WASC 900/42 ; No.3 Cordite Blending House</p> <p>c1910 WASC 900/65 ; Blank Expense Magazine</p> <p>c1910 WASC 900/79 ; Blank Expense Magazine</p> <p>1917 WASC 900/70 ; Blank Expense Magazine</p> <p>1917 WASC 900/72 ; 107</p> <p>1919 WASC 900/74 ; 107</p> <p>c1920 WASC 900/80 ; 107</p> <p>1923 WASC 900/84 ; 107 C.E. Packing House</p> <p>&gt;1940 WASC 900/91A ; 107</p> <p>1954 A - B.34 ; 107</p> <p>c1960 WASC 900/94 ; 107</p> <p>c1963 WASC 900/97 ; 107</p> <p>1972 WASC 900/102</p> <p>1972 WASC 900/104</p> <p>1976 WASC 900/113</p>	<p><b>DOCUMENTARY REFERENCES</b></p> <p>Plan;</p> <p>1884 O.107.B.02 17.06.1884 No3 Moulding House 108 11 i place No4 Moulding House 1.1.107 an addition</p> <p>107 B01 - 30/4/1894 ; Moulding House No.4</p> <p>1908 RGPF Ledger WASC 1509 + WASC 1764 ; Blank Expense Magazine built 1884-5 p11</p> <p>c1925 RGPF Ledger WASC 1680 ; Blank Expense Magazine</p> <p>c1945 RGPF Ledger WASC 1508 ; Blank Expense Magazine</p> <p>1992 RARDE List ; Tetryl Packing House</p>
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<p><b>PHOTOGRAPHY HISTORIC</b></p>	<p><b>PHOTOGRAPHY RCHME</b></p> <p>1) 206/F/10 28 Jan 1993 From South East</p> <p>206/F/11 28 Jan 1993 Hydraulic Press Base from South East</p> <p>206/F/12 28 Jan 1993 Detail of Hydraulic press base</p> <p>206/F/13 28 Jan 1993 Detail of Hydraulic press base</p> <p>206/N/23 12 Mar 1993 Detail of Danger Building lighting</p> <p>206/Q/28 16 Mar 1993 From West</p> <p>206/Q/29 16 Mar 1993 From South</p> <p>2) BB92/26220 107 and 108 Moulding House view from South East.</p>
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RELATIONSHIPS WITH OTHER MONUMENTS

ASSOCIATED WITH: L102, L103, 105, 106, 108a ABUTS: 108

CONDITION Good

DESCRIPTION

- 1) CONSTRUCTIONAL MATERIAL  
Cast concrete
- 2) ROOF MATERIALS AND STRUCTURE  
Galvanised sheet
- 3) POWER SOURCE  
(i) Hydraulic (ii) Electricity
- 4) DIMENSIONS 107 and 108 i) L 26.4m ii) W 12.8m iii) HT estimate 6m
- 5) Buildings 107 and 108 are described together

The Press houses were screened by a cast concrete E shaped traverse. Two construction phases are visible in the traverse, a near vertical joint on the north side marks where 107 abuts against 108. It is also noticeable that the concrete of 107 is more roughly finished than 108.

The press house each sat within one of the compartments, the press houses were timber framed structures set on brick foundations. In 107 the foundations measure 7.65m x 6.33m. Within the building is a large concrete block placed slightly off centre, presumably the press mounting block. In 108 the brick foundations measure 7.78m x 6.3m. Within this building in a similar off centre position is a large cast iron press base set on a concrete block. It is presumed that the press base would have been underneath the floor when the building was in operation.

The press houses were served by a canal and landing stage to the south and were served by four expense magazines L102, L103, 105 and 106. The building could also be entered through two large openings on the north wall.

Within the building are fragments of galvanised roof sheeting and galvanised gutters. Attached to the north wall of the building are conical shaped insulators, of late nineteenth century type, and a cast iron switch box. All the wiring serving the building was encased in small bore metal pipes.

Historic Artifacts- Press base, metal building fittings



## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER 108	OLD SERIES	RCHME NUMBER	N.G.R. TL 37467 01658
NAME/FUNCTION Moulding House No.4 Cordite Blending House No.3 Tetryl Packing House No.1		START DATE 1882-3 1898? 1917?	END DATE 1898? 1917? 1945



### CARTOGRAPHIC DEPICTION

1865 WASC 900/38 + SUPP5 975 ; Moulding House No.4  
 1865 WASC 900/41A ; Moulding House No.4  
 1865 WASC 900/42 ; No.3 Cordite Blending House  
 1897 WASC 900/53C  
 c1910 WASC 900/65  
 c1910 WASC 900/79  
 1917 WASC 900/70  
 1917 WASC 900/72 ; 108  
 1919 WASC 900/74 ; 108  
 c1920 WASC 900/80 ; 108  
 1923 WASC 900/84 ; 108 C.E Magazine  
 >1940 WASC 900/91A ; 108  
 1954 A - B.34 ; 108  
 c1960 WASC 900/94 ; 108  
 c1963 WASC 900/97  
 1972 WASC 900/102  
 1972 WASC 900/104  
 1976 WASC 900/113

### DOCUMENTARY REFERENCES

1908 RGPF Ledger WASC 1509 + WASC 1764 ; Packing House built 1884-5 p11  
 c1925 RGPF Ledger WASC 1680 ; Packing House  
 c1945 RGPF Ledger WASC 1508 ; Packing House  
 1992 RARDE List ; Tetryl Packing House

### PHOTOGRAPHY HISTORIC

### PHOTOGRAPHY RCHME

- 1) 206/C/18 02 Feb 1993 Hydraulic press base
- 206/C/19 02 Feb 1993 Hydraulic press base
- 206/F/10 28 Jan 1993 From South East
- 206/F/11 28 Jan 1993 Hydraulic Press Base from South East
- 206/Q/28 16 Mar 1993 From West
- 206/Q/29 16 Mar 1993 From South
- 2) BB92/26220 107 and 108 Moulding House view from South East.
- BB92/26221 108 Hydraulic Press Base view from South West.

RELATIONSHIPS WITH OTHER MONUMENTS

ASSOCIATED WITH: 105, 106, L102, L103, 108a ABUTTED BY: 107


CONDITION      Good

DESCRIPTION

5)      Described with 107



## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER	OLD SERIES 108a	RCHME NUMBER	N.G.R. TL 37448 01664
NAME/FUNCTION Earth closet		START DATE 1914-20	END DATE
			
<b>CARTOGRAPHIC DEPICTION</b>  1919      WASC 900/74 c1920    WASC 900/80 1923      WASC 900/84 > 1940    WASC 900/91A 1954      A - B.34 c1960    WASC 900/94 c1963    WASC 900/97 1972      WASC 900/102 1972      WASC 900/104 1976      WASC 900/113		<b>DOCUMENTARY REFERENCES</b>  c1925    RGPF Ledger WASC 1680 ; EC c1945    RGPF Ledger WASC 1508 ; EC	
<b>PHOTOGRAPHY</b> HISTORIC		<b>PHOTOGRAPHY</b> RCHME  1) 206/F/15 28.Jan.1993 From North West	
<b>RELATIONSHIPS WITH OTHER MONUMENTS</b>  ASSOCIATED WITH: 107, 108			
<b>CONDITION</b> Good			
<b>DESCRIPTION</b> 1) <b>CONSTRUCTIONAL MATERIAL</b> Brick  2) <b>ROOF MATERIALS AND STRUCTURE</b> Corrugated asbestos  3) <b>POWER SOURCE</b> None  4) <b>DIMENSIONS</b> i) L 2.83m ii) W 1.37m iii) HT 2.25m  5)      Entrance to the earth closet was from the north, a small door at the base of the east side was used for removing the bucket.			

## THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY

NUMBER	OLD SERIES 114	RCHME NUMBER 303	N.G.R. TL 37680 01573
NAME/FUNCTION Experiment House re-erected on a new site	START DATE 1879 1903	END DATE 1903 by 1917	
NO PHOTOGRAPHY AVAILABLE			
CARTOGRAPHIC DEPICTION  1902 Nathan <u>Proc. Court Enquirey attending an explosion RGPF Waltham Abbey 15-Dec-1902</u> Map B		DOCUMENTARY REFERENCES  1908 RGPF Ledger WASC 1509 ; p11 Experiment House built 1879 re-erected on a new site 1903 p11	
PHOTOGRAPHY HISTORIC	PHOTOGRAPHY RCHME		
RELATIONSHIPS WITH OTHER MONUMENTS  ASSOCIATED WITH:			
CONDITION	Demolished		
DESCRIPTION  5)     The experiment house was erected on this site in 1903. The building is no longer shown on any mapping after 1917. The site of the building lies beneath a dump of river gravel.			

**THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY**

NUMBER	OLD SERIES	RCHME NUMBER 167	N.G.R. TL 37705 01682
NAME/FUNCTION Building		START DATE 1940?	END DATE
NO PHOTOGRAPHY AVAILABLE			
CARTOGRAPHIC DEPICTION		DOCUMENTARY REFERENCES	
PHOTOGRAPHY HISTORIC		PHOTOGRAPHY RCHME	
RELATIONSHIPS WITH OTHER MONUMENTS ASSOCIATED WITH:			
CONDITION      Fair			
<p>DESCRIPTION</p> <p>1)      CONSTRUCTIONAL MATERIAL          Cast concrete</p> <p>2)      ROOF MATERIALS AND STRUCTURE          Concrete</p> <p>3)      POWER SOURCE          None?</p> <p>4)      DIMENSIONS i) L 9.2m ii) W 4m iii) HT 2.35m</p> <p>5)      Semi-circular concrete shelter, cast over corrugated iron sheeting. The shelter was formerly entered through double doors on the south side and a single door on the north side. The north side is screened by a timber traverse packed with earth, length 4.11m, width 1.2m, height 2.05m, a painted sign reads 'No 4'.</p> <p>         This is identical in form to H11 &amp; L197 structure.</p> <p>         Historic Artifacts- hand cranked air raid siren on the north wall.</p>			

**THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY**

NUMBER	OLD SERIES	RCHME NUMBER 178	N.G.R. TL 37532 01656
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NAME/FUNCTION Sentry box	START DATE	END DATE
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NO PHOTOGRAPHY  
AVAILABLE

CARTOGRAPHIC DEPICTION	DOCUMENTARY REFERENCES
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PHOTOGRAPHY HISTORIC	PHOTOGRAPHY RCHME
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RELATIONSHIPS WITH OTHER MONUMENTS

ASSOCIATED WITH: Burning ground

CONDITION      Good?

DESCRIPTION

- 1)      CONSTRUCTIONAL MATERIAL  
        Brick
- 2)      ROOF MATERIALS AND STRUCTURE  
        Corrugated asbestos
- 3)      POWER SOURCE  
        None
- 4)      DIMENSIONS i) L 1.3m ii) W 1.2m iii) HT 2.2m
- 5)      The sentry box is placed on a concrete slab, the eastern side is open. There is an open slit window on the south side.

**THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY**

NUMBER	OLD SERIES	RCHME NUMBER 254	N.G.R. TL 3784 0114
NAME/FUNCTION Edge Runners		START DATE	END DATE
NO PHOTOGRAPHY AVAILABLE			
CARTOGRAPHIC DEPICTION		DOCUMENTARY REFERENCES	
PHOTOGRAPHY HISTORIC		PHOTOGRAPHY RCHME	
RELATIONSHIPS WITH OTHER MONUMENTS  ASSOCIATED WITH: L162    OVERLIES: RCHME 278			
CONDITION      Fair			
<p>DESCRIPTION</p> <p>1)      CONSTRUCTIONAL MATERIAL          Limestone</p> <p>4)      DIMENSIONS See below</p> <p>5)      During the re-excavation of canal RCHME 278 two edge runners were removed from the site of building L162. It was unclear whether the stones were set into the floor of the building or in the adjacent yard, both sat on a thick bed of mortar.</p> <p>         The stone runners measure:</p> <p>         1) Diameter 1.4m, thickness 38.5cm, square hole in the centre 30.5cm x 30.5cm</p> <p>         2) Diameter 1.4m, centre hole 33cm x 31.5cm</p>			

**THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY**

NUMBER	OLD SERIES see below	RCHME NUMBER 333	N.G.R. TL 37852 01170
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NAME/FUNCTION Charcoal Works/Cylinder House Gas Works	START DATE 1830 1865?	END DATE 1904?
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NO PHOTOGRAPHY  
AVAILABLE

**CARTOGRAPHIC DEPICTION**

1830 PRO MP11.15 Drayson ; New Cylinder House  
 1844 OS Sheet 72 Brentwood ; Cylinder ho  
 1865 WASC 900/38 + SUPP5 975  
 1865 WASC 900/41A  
 1865 WASC 900/42  
 1897 WASC 900/53C  
 1897 OS 2nd Ed Essex XLIX. 10  
 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

**DOCUMENTARY REFERENCES**

1830 Drayson F p4, p5, p28, p35  
  
 1908 RGPF Ledger WASC 1509 + WASC 1764;Charcoal works Cylinder house

**PHOTOGRAPHY  
HISTORIC**

**PHOTOGRAPHY  
RCHME**

**RELATIONSHIPS WITH OTHER MONUMENTS**

ASSOCIATED WITH: RCHME 278

CONDITION Demolished

**DESCRIPTION**

Old Numbers ; 168,169,170,171,173,174,174a,175,176 constitute the Gas Works including Gasometers around 1923. A Cylinder House is illustrated in the Drayson Treatise of 1830. Probably two major building phases associated with the change of function.

A committee of the Board of Ordnance recommended in 1829 that the charcoal cylinders from the Royal Gunpowder Factory should be moved to Waltham Abbey, where until this date there was no facility for producing cylinder charcoal. This recommendation appears to have been acted upon fairly swiftly for in 1830 Drayson marks 'New Cylinder House' on his map of the factory. In 1831 men employed in the cylinder house at Faversham are transferred to Waltham Abbey (Winters 1887, 102).

**THE ROYAL GUNPOWDER FACTORY - WALTHAM ABBEY**

NUMBER	OLD SERIES	RCHME NUMBER 265	N.G.R. TL 37598 01722
NAME/FUNCTION Building	START DATE post war		END DATE
NO PHOTOGRAPHY AVAILABLE			
CARTOGRAPHIC DEPICTION		DOCUMENTARY REFERENCES	
PHOTOGRAPHY HISTORIC		PHOTOGRAPHY RCHME	
RELATIONSHIPS WITH OTHER MONUMENTS ASSOCIATED WITH: Burning Ground			
CONDITION      Destroyed			
<p>DESCRIPTION</p> <p>1)      CONSTRUCTIONAL MATERIAL          Timber</p> <p>2)      ROOF MATERIALS AND STRUCTURE          Flat wooden board</p> <p>3)      POWER SOURCE          None</p> <p>4)      DIMENSIONS i) L 3.2m ii) W 2m iii) HT 1.6m</p> <p>5)      Small roughly built timber structure to the North East of the burning ground.</p>			





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