



Title:

Historical Aerial Photography – 9th March 1948

FIGURE: 4.2



Project:	Huyton Cricket Club, Knowsley	
Client:	IGE Consulting	
Report Ref:	DRA-25-1854	
Approx. Site Boundary: 	Info Source:	Historic England

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Title:

Lancashire Bomb Mapping

FIGURE: 5



Key:

● Bombing Incident

Project: Huyton Cricket Club, Knowsley

Client: IGE Consulting

Report Ref: DRA-25-1854

Approx. Site Location: X

Info Source:

Lancashire Archives

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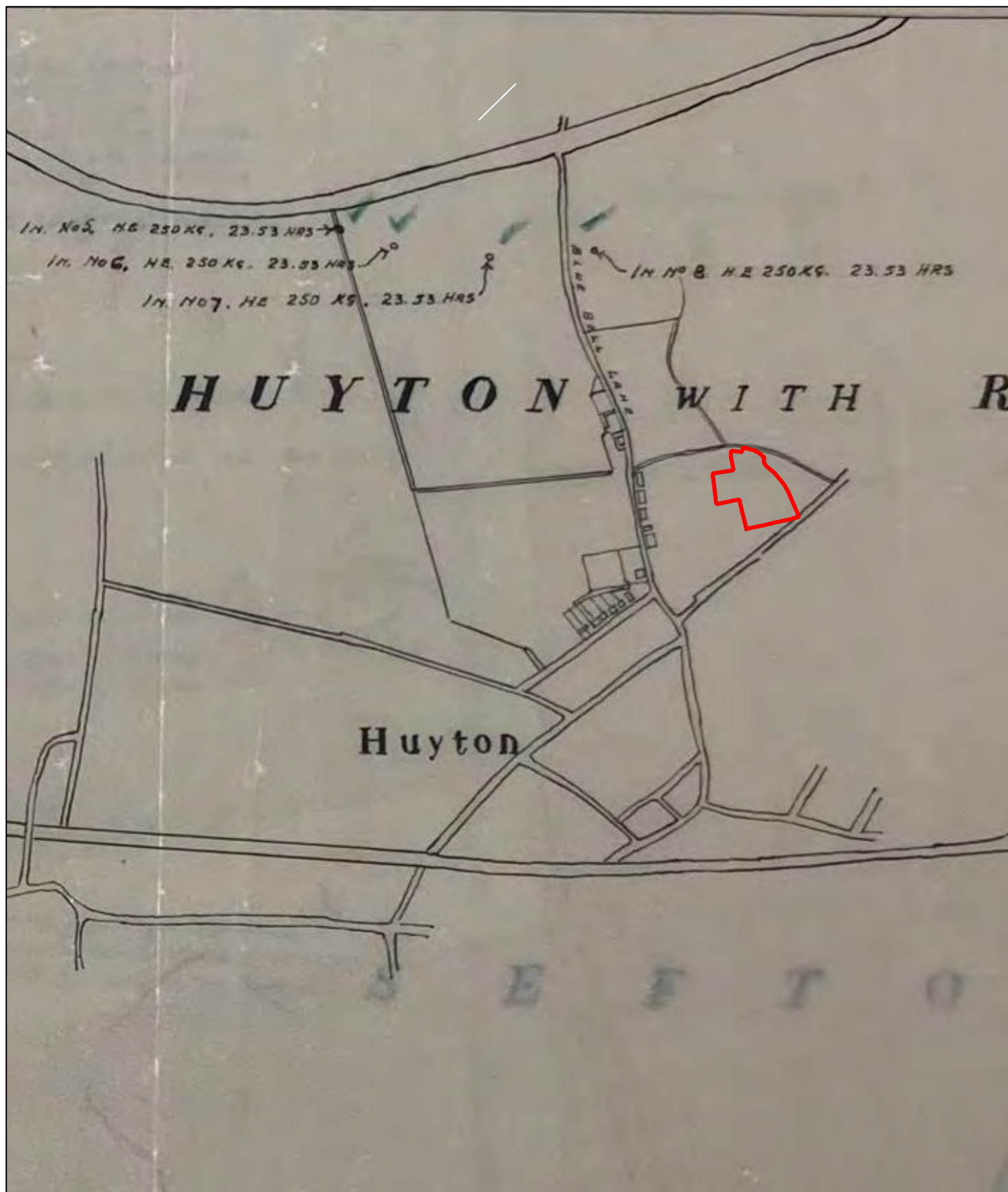
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Title:

Liverpool Bomb Census Tracings

FIGURE: 6



Project:	Huyton Cricket Club, Knowsley	
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Approx. Site Boundary: 	Info Source:	Liverpool Central Library & Record Office

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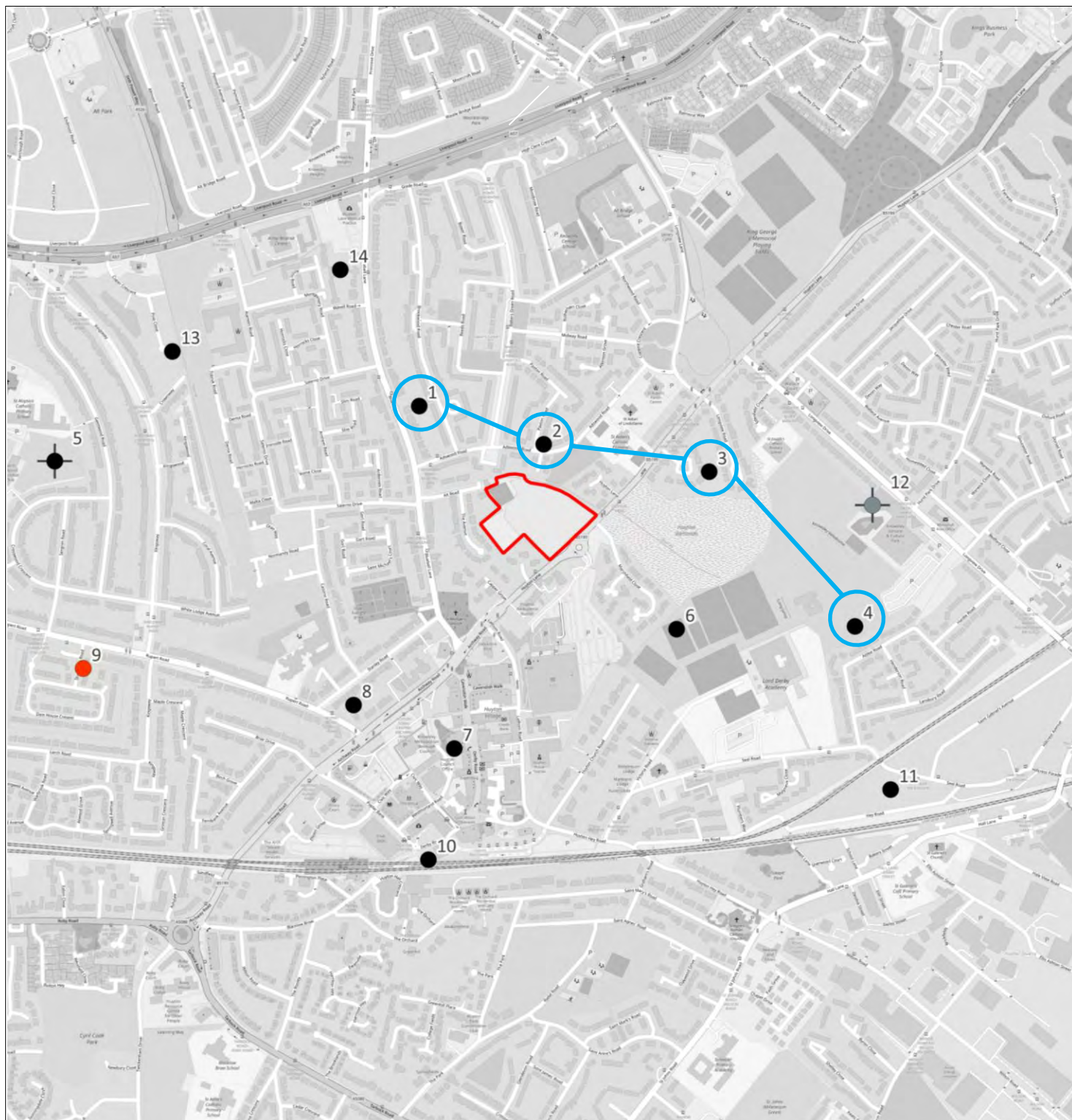
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Title:

Huyton Written Records Bombing Overlay

FIGURE: 7



(Unexploded)



Incendiary



High Explosive



AA Shell

Note: Numbers correspond to ID of bombing incident at **Section 5.3.7**

Blue circles and lines indicate likely bomb sticks

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Huyton Cricket Club, Knowsley

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Approx. Site Boundary: 

Info Source:

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Title:

Blue Bell Camp Plan

FIGURE: 8



Project:

Huxton Cricket Club, Knowsley

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Client:

IGE Consulting

Info Source:

Knowsley Archives

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APPENDICES: 1 - 5

Recent German UXB Finds in the UK + Historical Analysis

The Ministry of Defence (MOD) says that bomb disposal teams around the UK deal with approximately 60 German WWII-era UXBs per year.

- **20th February 2024** – An SC500 (standard 500kg HE bomb) was found during shallow excavations in a residential garden in Keyham, Plymouth. *Historical Analysis: The UXB landed in a small residential back garden belonging to an undamaged terraced house. It came to rest at approximately 1 to 2m bgl.*
- **10th February 2023** – An SC250 (standard 250kg HE bomb) was dredged out of the River Yare in Great Yarmouth. The UXB detonated unexpectedly in situ during an attempt to disarm it. *Historical Analysis: The UXB landed in the River Yare; the precise location of its initial impact is unknown. UXBs in water are often affected by migration, whereby the item can travel along the riverbed.*
- **26th February 2021** – An SC1000 (standard 1,000kg HE bomb) was discovered during shallow excavations in Exeter, adjacent to the University of Exeter. The item was detonated in situ and caused structural damage to nearby properties, leaving some inhabitable. *Historical Analysis: The UXB landed in undeveloped land of no obvious significance. It came to rest at approximately 2 to 3m bgl with its nose facing upwards, highlighting the potential of J-curve occurring.*
- **23rd May 2019** – An SC250 (standard 250kg HE bomb) was found during shallow excavations at a building site in Kingston upon Thames, London. *Historical Analysis: The UXB landed in a small residential back garden belonging to an undamaged terraced house. It came to rest approximately 3 to 4m bgl.*
- **11th February 2018** – An SC500 (standard 500kg bomb) was discovered in George V Dock in London during planned work at London City Airport. *Historical Analysis: George V Dock was identified as a primary target by the Luftwaffe during WWII and was bombed on multiple occasions.*
- **15th May 2017** – An SC250 (standard 250kg HE bomb) was found during shallow excavations at a building site in Aston, Birmingham. *Historical Analysis: The UXB landed in a small back garden belonging to a terraced house, part of a row. It J-Curved under a neighbouring garden and came to rest at just 1.4m bgl. NB: These houses had not sustained bomb damage.*
- **2nd March 2017** – A 250kg HE bomb was found during deep excavations at a building site in Brondesbury Park, London. *Historical Analysis: UXB landed in a large residential back garden. A single storey building was built on top of the UXB post WWII.*

Recent Allied UXB finds in Europe

- **27th June 2024** – A 250kg HE UXB of Allied origin was discovered in a wooded area in Gruenheide (Germany).
- **26th April 2024** – A 500kg American HE UXB was discovered during construction work in Mainz (Germany), nearby the MEWA Arena stadium.
- **3rd April 2024** – A 500kg UXB of Allied origin was discovered during construction work on a shipping channel in Deutz, Cologne (Germany). The device was defused in situ.
- **28th March 2024** – A 500lb American HE UXB was discovered during construction work in Aachen (Germany). The device was defused in situ.
- **11th August 2023** – A 250kg HE UXB of Allied origin was discovered in Lublin (Poland). The device was discovered in an area where an aircraft factory had been located prior to WWII.
- **8th August 2023** – An unexploded “one-tonne shell” (1000kg HE UXB) of anticipated Allied origin was discovered near Dusseldorf city zoo (Germany).
- **5th July 2023** – A UXB of unspecified origin and calibre (alleged to have been Russian but no confirmation) was discovered on a construction site in Hohenschönhausen, Berlin (Germany). The device was defused in situ.
- **17th March 2022** – A farmer ploughing a field discovered a British INC30 (incendiary) bomb, which contained phosphorous, in Viersen (Germany). The plough became embedded in the device, which did not explode.

NB: Domestic UXO finds in the UK are too numerous to list. Between 2006 and 2009, over 15,000 items of British / Allied UXO (excluding small arms ammunition) were found on UK construction sites (CIRIA).

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Info Source:	Various

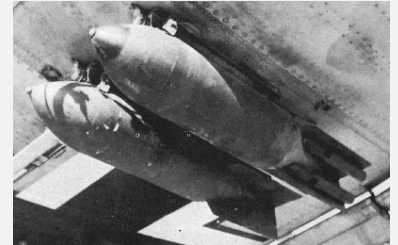
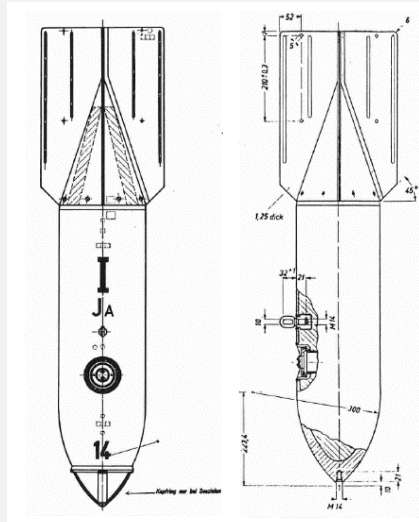

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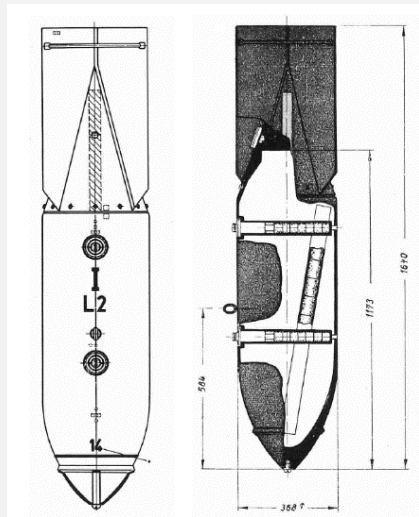
SC 50

Bomb Weight: 40-54kg (110-119lb)
Explosive Weight: 25kg (55lb)
Filling: TNT, Amatol or Trialen
Charge/Weight Ratio: 46%
Fuse Type: Electrical impact fuse or mechanical delayed action fuse
Body Dimensions: 1,100mm length x 200mm diameter
Appearance: Bomb body and tail painted grey/green with a yellow stripe on the tail unit. Steel construction.
Variants: 8 x variants. Additional fittings: Kopfring nose for limited penetration and Stabbo nose for dive-bombing.



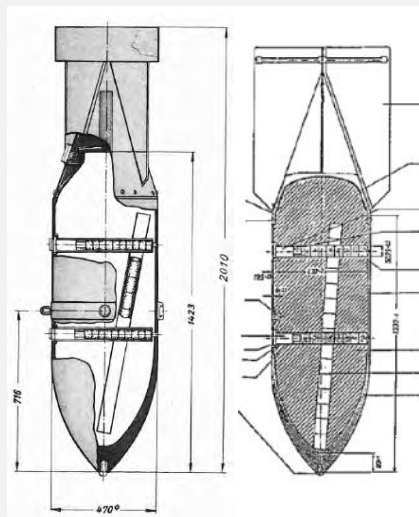
SC 250

Bomb Weight: 245-256kg (540-564lb)
Explosive Weight: 125-130kg (276-287lb)
Filling: TNT, Amatol and Trialen mix
Charge/Weight Ratio: 44%
Fuse Type: 1 or 2 electrical impact fuse(s) or mechanical delayed action fuse(s)
Body Dimensions: 1,173mm length x 368mm diameter
Appearance: Bomb body and tail painted grey/green with a yellow stripe on the tail unit. Steel construction.
Variants: 8 x variants. Kopfring nose for limited penetration. Stabbo nose for dive-bombing.



SC 500

Bomb Weight: 480-520kg (1,058-1,146lb)
Explosive Weight: 220kg (485lb)
Filling: TNT, Amatol and Trialen mix
Charge/Weight Ratio: 44%
Fuse Type: 2 electrical impact fuses or mechanical delayed action fuses
Body Dimensions: 1,423mm length x 470mm diameter
Appearance: Bomb body and tail painted grey/green or buff with a yellow stripe on the tail unit. Steel construction.
Variants: 3 x variants. Kopfring nose for limited penetration.

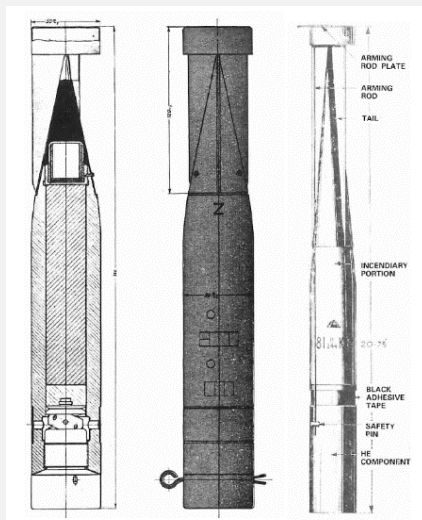


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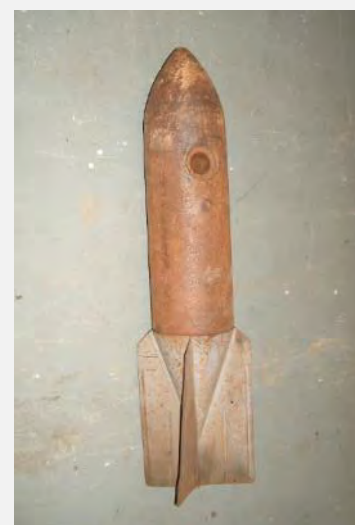
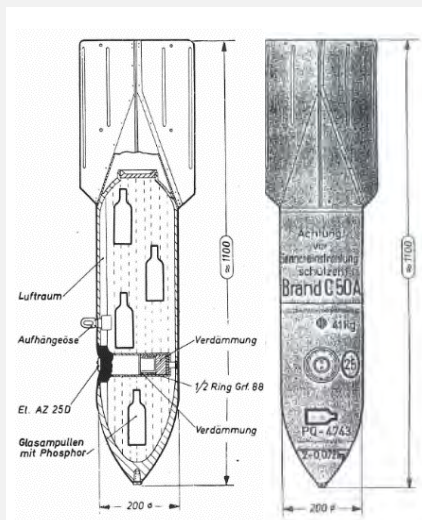
B-1E Sub-Munition

Bomb Weight:	1-1.3kg (2.2-2.87lb)
Incendiary Weight:	680g (1.4lb)
Filling:	Thermite
Fuse Type:	Simple impact fuse
Body Dimensions:	247mm length x 50mm diameter
Appearance:	Grey body and dark green painted tail unit. Magnesium alloy case.
Operation:	Small percussion charge ignites Thermite (>1,000°C burn).
Variants:	Most common variant: B 2EZ (2kg) included a small HE charge
Remarks:	Drop containers varied in size. The smallest cluster bomb held 36 x B-1Es and the largest 620 x B-1Es.



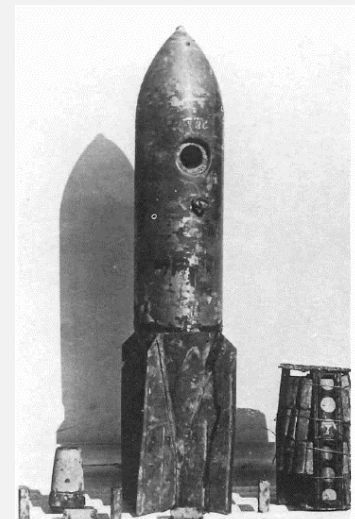
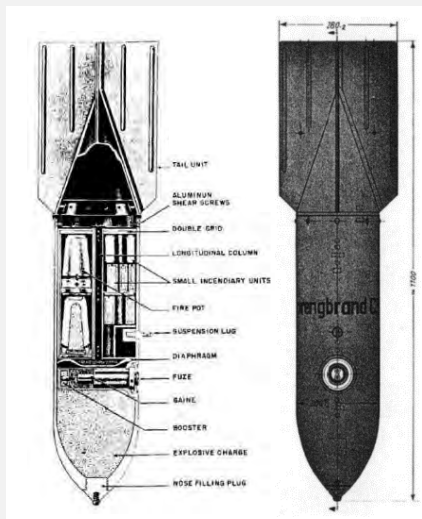
Brand C50

Bomb Weight:	41kg (90.4lb)
Incendiary Weight:	13kg (30lb)
Filling:	Main fill (86% Benzine, 10% Rubber) plus 4% Phosphorus in glass bottles
Fuse Type:	1 x electrical impact fuse
Bomb Dimensions:	762mm length x 203mm diameter
Appearance:	bomb body and tail painted grey or green with the rear of the bomb painted red and a red band around the centre of the body.
Variants:	C 50 B: 77% White Phos fill C 250 A: 87.7% Petroleum, 11.7% Polystyrene, 0.5% White Phos (185kg version)



Spreng-Brand C50 - Fire Pot

Bomb Weight:	34kg (75lb)
Explosive Weight:	9kg (20lb)
Filling:	TNT burster charge, 6 x Thermite containers (fire pots) and 67 x small triangular incendiary elements.
Fuse Type:	1 x electrical impact fuses or aerial burst fuse
Bomb Dimensions:	711mm length x 203mm diameter
Appearance:	Bomb body and tail painted grey/green or pale blue with red base plug and red or green incendiary markings. Steel construction.
Operation:	A charge blows off the base plate, firing a plume of incendiary mixture 100 yds. Approx 1 second later the HE charge detonates.



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HAA Battery - 3.7" QF Shell

Shell Weight: 12.7kg

Shell Dimensions: 94mm x 438mm

Fill Weight: 1.1kg

Fill Type: TNT

Fuse Type: Mechanical Time Delay fuse

Appearance: Grey body, copper driving bands, brass neck

Rate of Fire: 10 - 20 rpm

Ceiling: 9,000 - 18,000m

Variants: HE or shrapnel shells.
Note, the 4.5" gun was also used in an HAA role throughout the UK.



LAA Battery - 40mm Bofors Shell

Shell Weight: 0.84kg

Shell Dimensions: 40mm x 180mm

Fill Weight: 70g

Fill Type: TNT

Fuse Type: Impact fuse

Appearance: Grey body, copper driving bands, brass neck

Rate of Fire: 120 rpm

Ceiling: 7,000m

Variants: HE or AP shells. Both with rear tracer compartment



Z Battery - 3" U.P Rocket

Rocket Weight: 24.5kg

Warhead Weight: 1.94kg

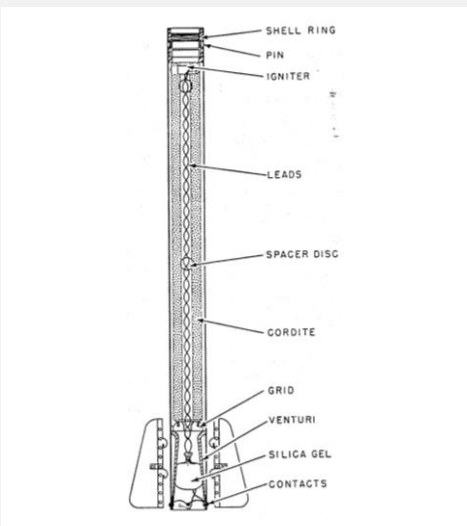
Filling: TNT warhead. Black Powder solid fuel rocket motor.

Fuse Type: Mechanical Time Delay fuse

Rocket Dimensions: 1,930mm x 76mm

Ceiling: 6,770m

Operation: Fired from single, tandem and (later) 36 x rail launchers (Z Batteries). Limited use throughout the UK.



AA	Anti-Aircraft (defences)
AFS	Auxiliary Fire Service
AP	Anti-Personnel
ARP	Air Raid Precautions
ASW	Anti-Submarine Warfare
BDU	Bomb Disposal Unit (historic term for EOD)
Bgl	Below Ground Level
EOC	Explosive Ordnance Clearance
EOD	Explosive Ordnance Disposal
FP	Fire Pot (German bomb)
GI	Ground Investigation
HAA	Heavy Anti-Air (gun battery)
Ha	Hectare (10,000m2)
HE	High Explosive
IB	Incendiary Bomb
Kg	Kilogram
LAA	Light Anti Air (gun battery)
LCC	London County Council
LRRB	Long Range Rocket Bomb (V2)
LSA	Land Service Ammunition
Luftwaffe	German Air Force
OB	Oil Bomb (German bomb)
PM	Parachute Mine (German bomb)
RAF	Royal Air Force
RFC	Royal Flying Corps
RN	Royal Navy (British)
RNAS	Royal Naval Air Service
ROF	Royal Ordnance Factory
SAA	Small Arms Ammunition
SD2	2kg AP bomb (German bomb)
SI	Site Investigation
U/C	Unclassified (German) bomb
UP	Unrotating Projectile (British 3” AA rocket)
USAAF	United States Army Air Force
UX	Unexploded
UXB	Unexploded Bomb
UXO	Unexploded Ordnance
V1	German Flying (pilotless) bomb - “Doodlebug”
V2	German LRRB - “Big Ben”
WAAF	Women’s Auxiliary Air Force
WWI	World War One
WWII	World War Two

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- **Bates. H. E**, Flying Bombs Over England, Frogletts Publications Ltd, 1994.
- **Bulloch. G**, Steeds J E, Green K, Sainsbury M G, Brockwell J S & Slade N J, Land Contamination: Technical Guidance on Special Sites: MoD Land, Environment Agency, 2001.
- **Castle. I**, London 1914-17: The Zeppelin Menace, Osprey Publishing Ltd, 2008.
- **Castle. I**, London 1917-18: The Bomber Blitz, Osprey Publishing Ltd, 2010.
- **CIRIA**, C681: Unexploded Ordnance (UXO), A Guide for the Construction Industry, 2009.
- **Clarke. N. J**, Luftwaffe Target Reconnaissance, German Aerial Photography 1939-1942, 1996.
- **Clarke. N. J**, Adolf's British Holiday Snaps: Luftwaffe Aerial Reconnaissance Photographs of England, Scotland and Wales, 2012.
- **Cocroft. W. D**, Dangerous Energy, Historic England, 2000.
- **Dobinson. C. S**, AA Command: Britain's Anti-Aircraft Defences of the Second World War, Methuen Publishing Ltd, 2001.
- **Dobinson. C. S**, Fields of Deception - Britain's Bombing Decoys of World War II, Methuen Publishing Ltd, 2013.
- **Fleischer. W**, German Air-Dropped Weapons to 1945, Midland Publishing, 2004.
- **Jappy. M. J**, Danger UXB: The Remarkable Story of the Disposal of Unexploded Bombs during the Second World War. Channel 4 Books, 2001.
- **Morris. J**, German Air Raids on Britain: 1914-1918, Nonsuch Publishing, 2007.
- **Price. A**, Blitz on Britain 1939-45, Sutton Publishing Ltd, 2000.
- **Ramsey. W**, The Blitz Then and Now: Vol 1, Battle of Britain Prints International Limited, 1987.
- **Ramsey. W**, The Blitz Then and Now: Vol 2, Battle of Britain Prints International Limited, 1988.
- **Ramsey. W**, The Blitz Then and Now: Vol 3, Battle of Britain Prints International Limited, 1990.
- **Whiting. C**, Britain Under Fire: The Bombing of Britain's Cities 1940-1945, Pen & Sword Books Ltd, 1999.

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The National Archives

- **HO 196/10/112:** D.Christopherson. (1941-1942) *Penetration of unexploded bombs in earth*, Ministry of Home Security

Knowsley Archives

- **WRDC/4/4/14**– Records of ARP equipment usage and bomb damage
- **HUDC/4/3/3** – Huyton air Raid Warnings and messages
- HUDC/4/3/1 – Huyton Bomb Damage Register
- HUCA – The Huyton Camps Collection
- HUCA/2/1/1 – United States Army Transit Camp Map
- HCC/1/1/3-4 – Huyton Cricket and Bowling Club Minute Book

Lancashire Archives

- **CC/RC/4** Unexploded High Explosive Bombs Records Boks 1. 1940-1941. 2. 1941 - 1944
- **CC/RC/18** A.R.P. Key Maps showing positions of incidents, 1939-1941, and 1945
- **CC/RC/1/1-3** County Control Centre Incident Report Books

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