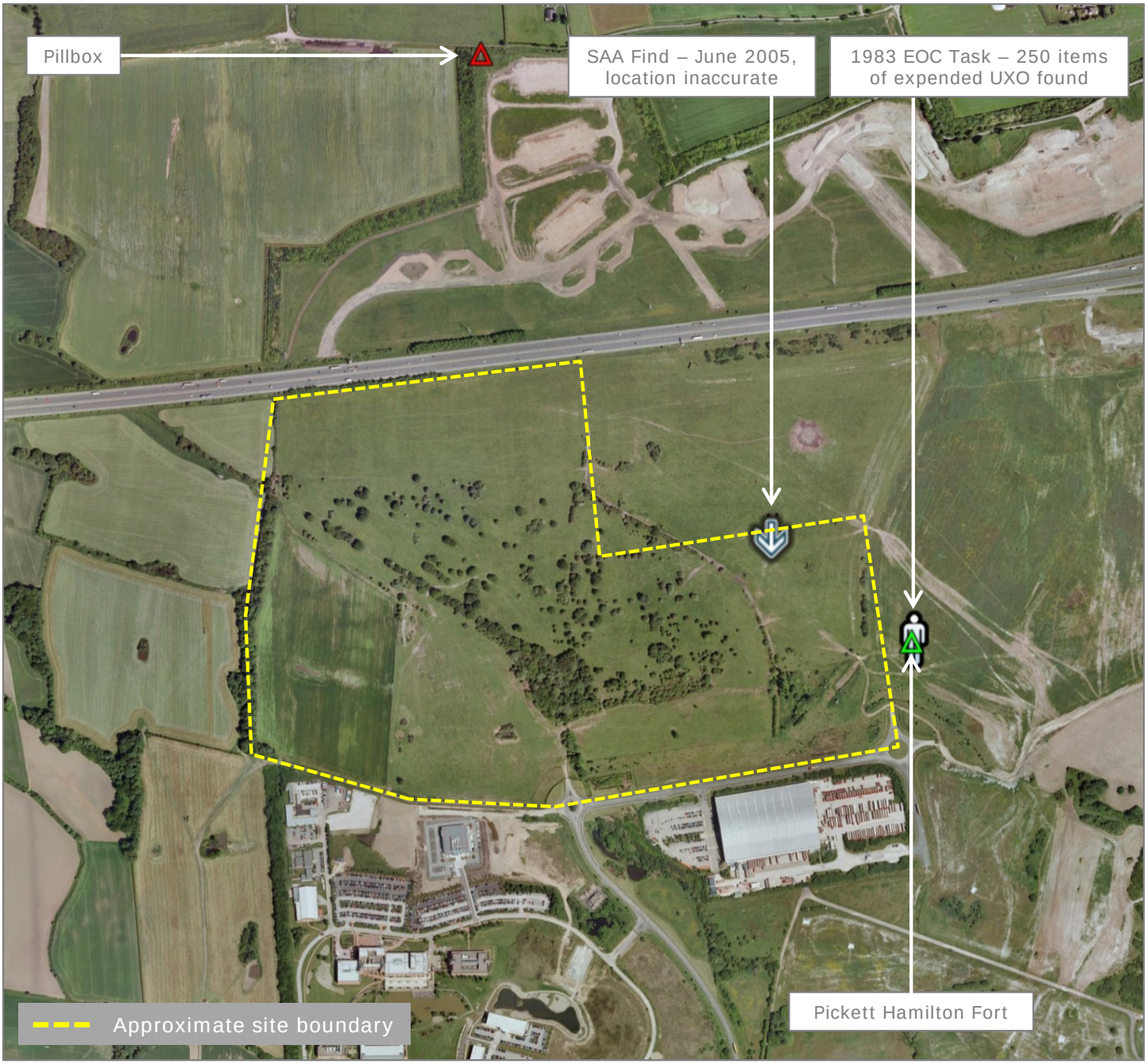
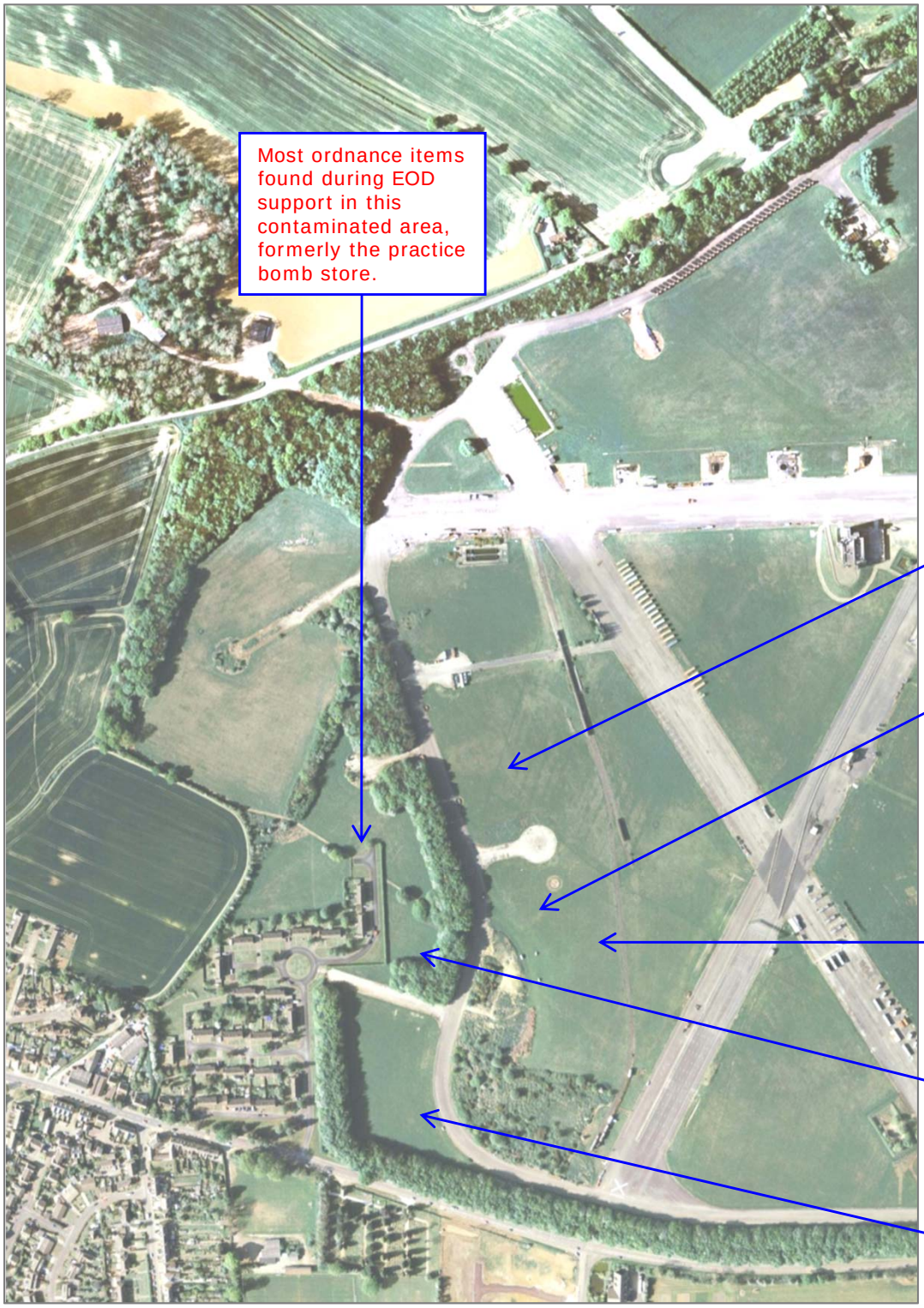
North



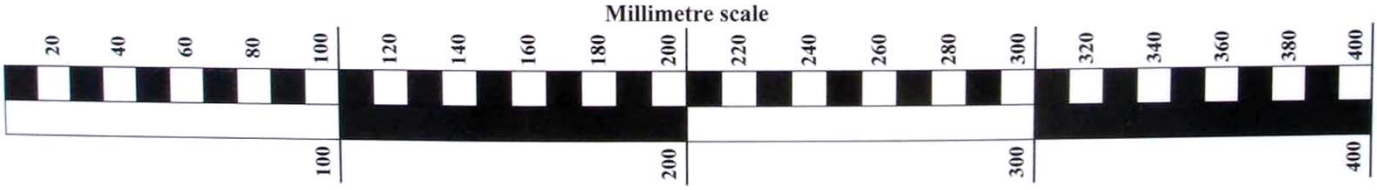
Report Reference:	Client:	
5270TA	WSP Environment & Energy	BACTEC
	Project: Lingley Green Avenue, Warrington	

Source: Council for British Archaeology/various sources/BACTEC International Ltd/Google Earth

North


Most ordnance items found during EOD support in this contaminated area, formerly the practice bomb store.
Brass fuzes found in this general area
Approximate location of former ordnance demolitions pit containing bomb casing fragments
Approximate location of 3” mortar tail units
Approximate location of striker units from 10/11.5lb British practice bombs
Former burning pit identified during target investigation

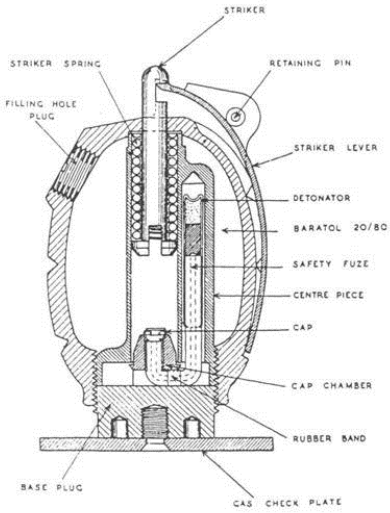
Small arms ammunition and cannon rounds up to 30mm



Recovered British WWII-era SAA

No. 36 'Mills' Grenade

Weight:	0.7kg filled (1lb 6oz)
Type:	Hand or discharger, fragmentation
Dimensions:	95 x 61mm (3.7 x 2.4in)
Filling:	Alumatol, Amatol 2 or TNT
Remarks:	4 second hand-throwing fuse with approximate 30m range. First introduced May 1918.



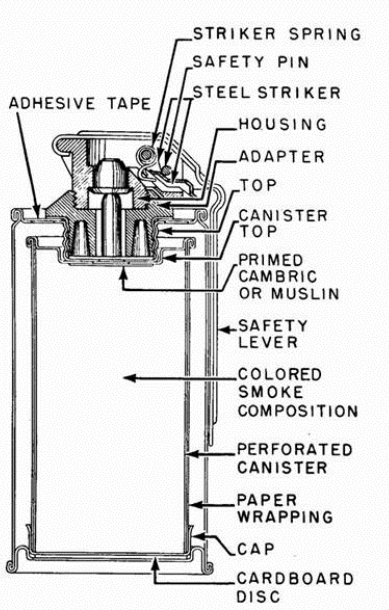
Grenade, .303 inch rifle, No. 36M, Mark I.

No. 69 Grenade

Weight:	0.38kg filled (0.8lb)
Type:	Percussion/Blast
Date Introduced:	December 1940
Remarks:	Black Bakelite body. Blast rather than fragmentation type. After unscrewing the safety cap, a tape is held when throwing the grenade releasing the safety bolt in the throwing motion. Detection is problematic due to its very low metal content.

Typical Smoke Grenade

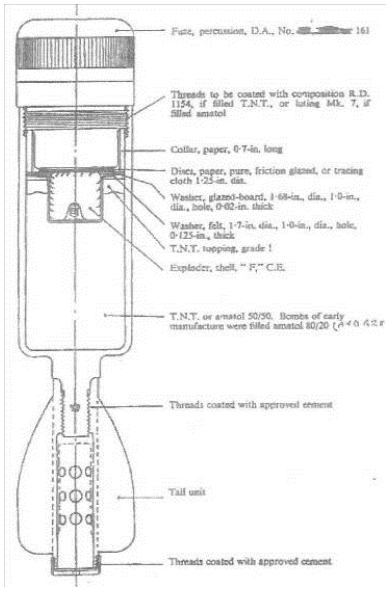
Dimensions:	Approx. 65 x 115mm (2.5 x 4.5in)
Type:	Smoke
Date Introduced:	Current MoD issue
Remarks:	Smoke grenades are used as ground-to-ground or ground-to-air signalling devices, target or landing zone marking devices, and screening devices for unit movement.



Source: BACTEC International Limited and various historical sources

Typical 2 inch High Explosive Mortar

Bomb Weight: 1.02kg (2.25lb)
Type: High Explosive
Dimensions: 51 x 290mm (2in x 11.4in)
Filling: 200g RDX/TNT
Maximum Range: 457m (500yds)
Remarks: Fitted with an impact fuze which detonates the fuze booster charge (exploder) and, in turn, the high explosive charge. The main charge shatters the mortar bomb body, producing near optimum fragmentation and blast effect at the target.

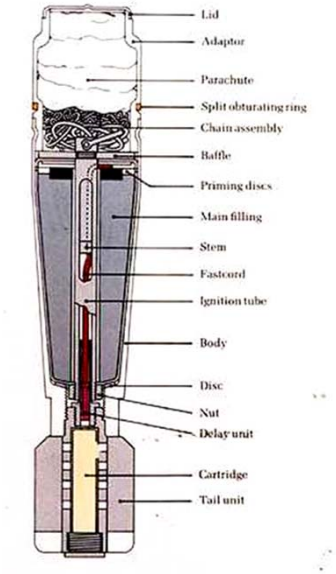


Typical 3 inch Smoke Mortar

Type: Smoke
Dimensions: c490 x 76mm (19.3in x 3in)
Filling: Typically white phosphorous
Maximum Range: 2515m (2,750yds)
Remarks: On impact, the fuze functions and initiates the bursting charge. The bursting charge ruptures the mortar bomb body and disperses the white phosphorous filler. The white phosphorous produces smoke upon exposure to the air.

Typical 2 inch Illuminating Mortar

Type: Illum.
Dimensions: 51 x 290mm
Filling: Various
Remarks: The expulsion charge ignites and ejects the candle assembly. A spring ejects the parachute from the tail cone. The parachute opens, slowing the descent of the burning candle which illuminates the target.



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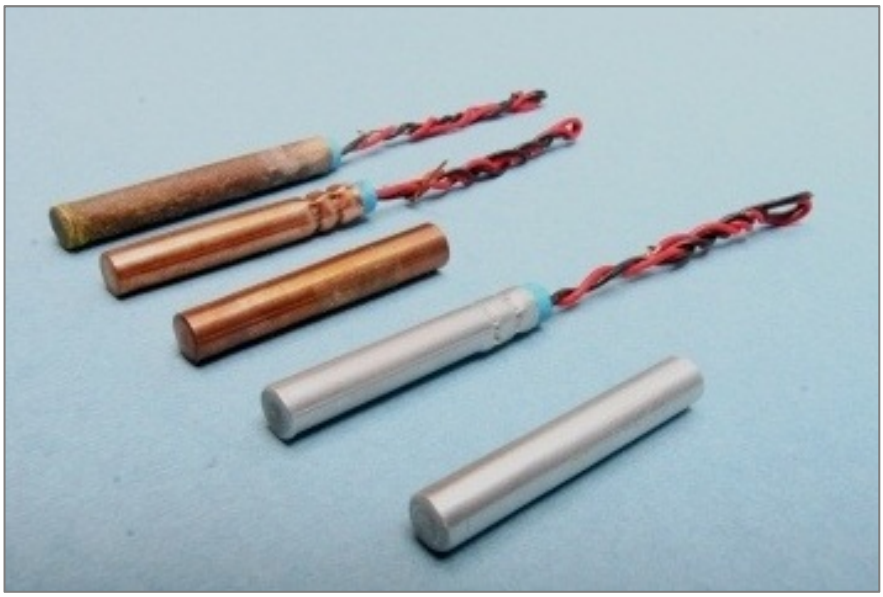
	Project: Lingley Green Avenue, Warrington	

Source: BACTEC International Limited and various historical sources

Detonators



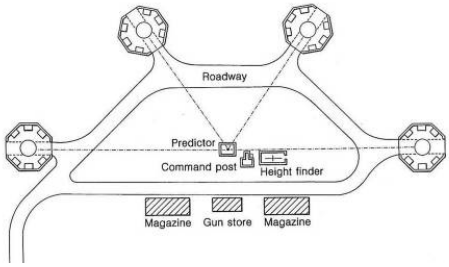
Fuzes

Flares

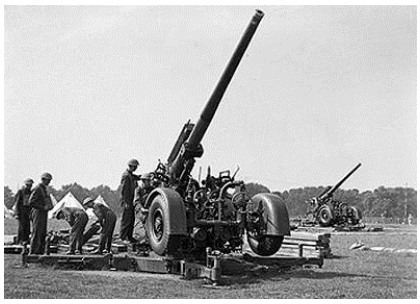
3.7 inch Anti-Aircraft Projectile

Weight:	12.7kg (28lb)
Dimensions:	94 x 360mm (3.7 x 14.7in)
Carriage:	Mobile and Static Versions
Rate of Fire:	10-20 rounds per minute
Ceiling:	9-18,000m (29-59,000ft)
Muzzle Velocity:	792m/s (2,598ft/s)
Remarks:	4.5 inch projectiles were also commonly utilised

This AA shell was uncovered on a construction site in North London in February 2009.



Layout plan for a typical HAA battery site.

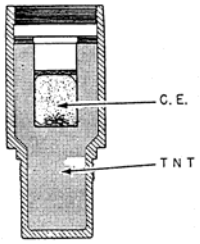


Hyde Park 1939 3.7 Inch QF gun on mobile mounting

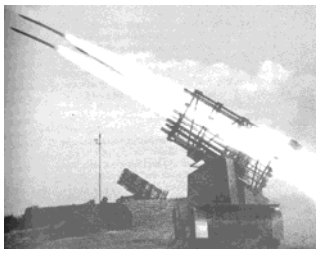
3.7 inch AA Projectile Minus Fuze

Rockets / Unrotated Projectiles

Weight:	Overall: 24.5kg (54lb) Warhead: 1.94kg (4.28lb)
Dimensions:	1930mm x 82.6mm (76 x 3.25in)
Carriage:	Mobile – transported on trailers
Ceiling:	6770m (22,200ft)
Maximum Velocity:	457mps (1,500 fps)

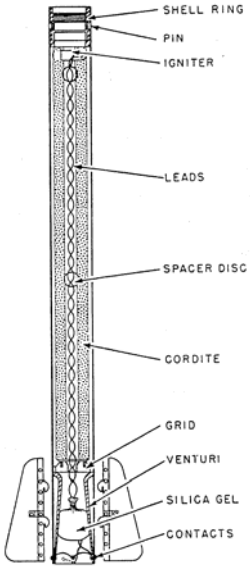


MK II HE Shell (3.5kg)



Rocket Battery in action

Home Guard soldiers load an anti-aircraft rocket at a 'Z' Battery



2" U.P AA Rocket

40mm Bofors Gun Projectile

Weight:	0.86kg (1.96lb)
Dimensions:	40mm x 310mm (1.6in x 12.2in)
Rate of Fire:	120 rounds per minute
Ceiling:	23,000ft (7000m)
Muzzle Velocity:	2,890 ft/s (881m/s)
Remarks:	Mobile batteries – normally few records of where these guns were located

Unexploded 40mm Bofors projectile recovered from a marine environment

40mm Bofors gun and crew at Stanmore in Middlesex, 28 June 1940.

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	Project: Lingley Green Avenue, Warrington	

Source: BACTEC International Limited and various historical sources

North

Brownfield Site – Former airfield

Greenfield Site - Agricultural fields

Although it is known that much of the original WWII building foundations, areas of hard-standing and runways/taxiways have been removed, the possibility that Made Ground remains at shallow depths within the Brownfield section of the study area indicates that a non-intrusive magnetometer survey may not provide satisfactory results due to high levels of magnetic “noise”.

If results of a non-intrusive magnetometer were to come back as unsatisfactory for a particular location, it would be recommended that, as the alternative risk mitigation option, an EOD Engineer be present on site to support intrusive work in that location.

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