

4. Site History

Historical analysis of the site area was carried out employing historic mapping and historic aerial photography. The table below depicts in chronological order the changes that the site has undergone from 1945 to 2022.

Research has not indicated any specific military use of the site. The former airfield RAF GRAVESEND was located approximately 250m southeast of the site boundary.

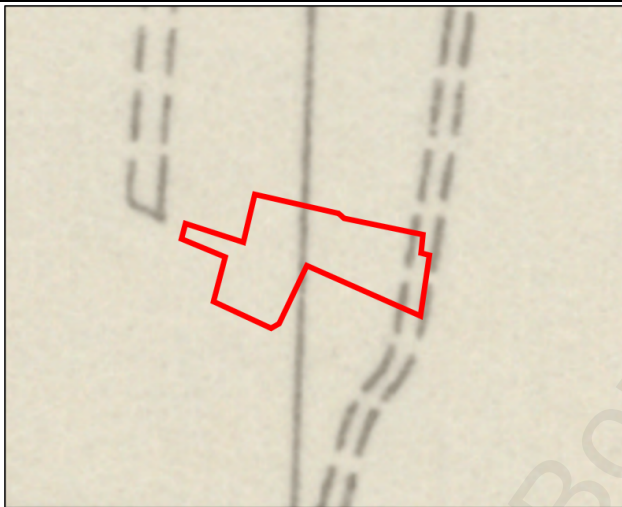
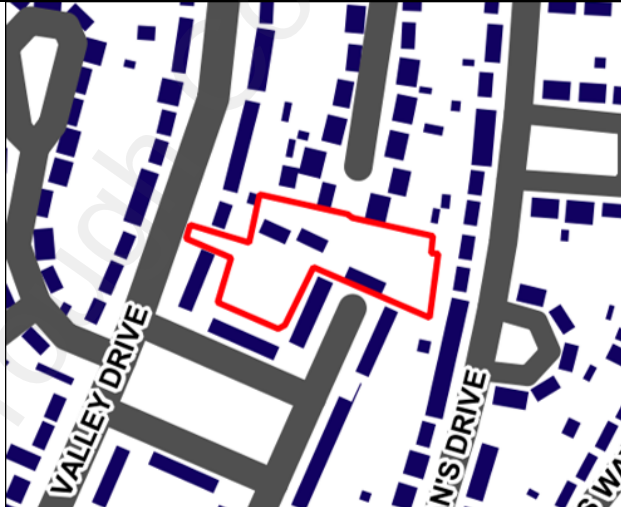
Mapping	
	
Showing a section of the 1945-65 revision of mapping showing the site area during the Second World War period. The site occupies an area of open land. An unpaved track traverses the eastern site footprint.	Showing a section of the 2022 revision of mapping. Detailing development within the site and areas surrounding the site.

Table 1. Summary table showing development of the site.

Proposed scope of works

Fellows understands that the works comprise the demolition of existing structures within the site area, construction of five blocks of three-story buildings, new parking areas and groundworks within the site area.

Ground conditions

Currently, the site is comprised of three separate residential structures, paved access, and grassed areas.

5. UXO Risk at the Site

Air Service Ordnance

It is assessed that there is a **medium risk** of encountering unexploded air service munitions.

World War One Aerial bombing

WW1 bombs were generally smaller than those used in WW2 and were dropped from a lower altitude, resulting in limited UXB penetration depths. Aerial bombing was often such a novelty at the time that it attracted public interest and even spectators to watch the raids in progress. A single raid was recorded within the vicinity of the site during the night of 02/03 September 1916 when one HE and one incendiary bomb strike were reported at the Gravesend Golf Course, approximately 1.3km southwest of the site footprint. German Zeppelin and Gotha bomber raids in and around London were recorded in detail, and it is unlikely that further unobserved bomb strikes took place in the vicinity of the site. Consequently, the threat from World War One German UXBs will, therefore, not be considered further in this report.

World War Two Aerial bombing

Fellows has reviewed Air Raid Precaution (ARP) records, Bombing Density Records, aerial photography, bomb damage maps, historical images of bomb damage held by The National Archives and internal Fellows documents related to the site area.

It is worth noting historical records and Air Raid Precaution (ARP) reports cannot establish a full description of air raids that may have occurred during WW2 as the accuracy of wartime records are frequently difficult to verify.

During WW2 the site was located within the administrative area of the Municipal Borough of Gravesend.

During the Second World War Gravesend was targeted by Luftwaffe bombing raids between September 1940 and February 1944, and German V weapon strikes in 1944. Two HE bomb strikes and one unexploded bomb were recorded within a 600m radius of the site, with a further 11 HE bomb strikes recorded at unknown locations within the perimeter of RAF GRAVESEND, located approximately 250m south east of the site boundary. The closest recorded bomb strike was recorded approximately 460m northwest of the site. During the Second World War, the site occupied open land and was in close proximity to the RAF GRAVESEND airfield, which was targeted in at least two separate raids, with both HE and oil bomb strikes recorded.

The map and table below show recorded bombing activity, and severity of bomb strikes in the vicinity of the site.

Administrative Area (Municipal Borough)	Land Area		Numbers of items of Ordnance Recorded								Ordnance Density	
	Acres	Hectares	High Explosive Bombs	Parachute Mines	Oil Bombs	Phosphorus Bombs	Fire Pots	V1	V2	Total	Per 1,000 Acres	Per 100ha
Gravesend (MB)	4,014	1,626	272	0	14	9	0	4	2	301	75.0	18.5

Table 2. Ministry of Home security record of German Ordnance dropped within Municipal Borough of Gravesend during WW2.

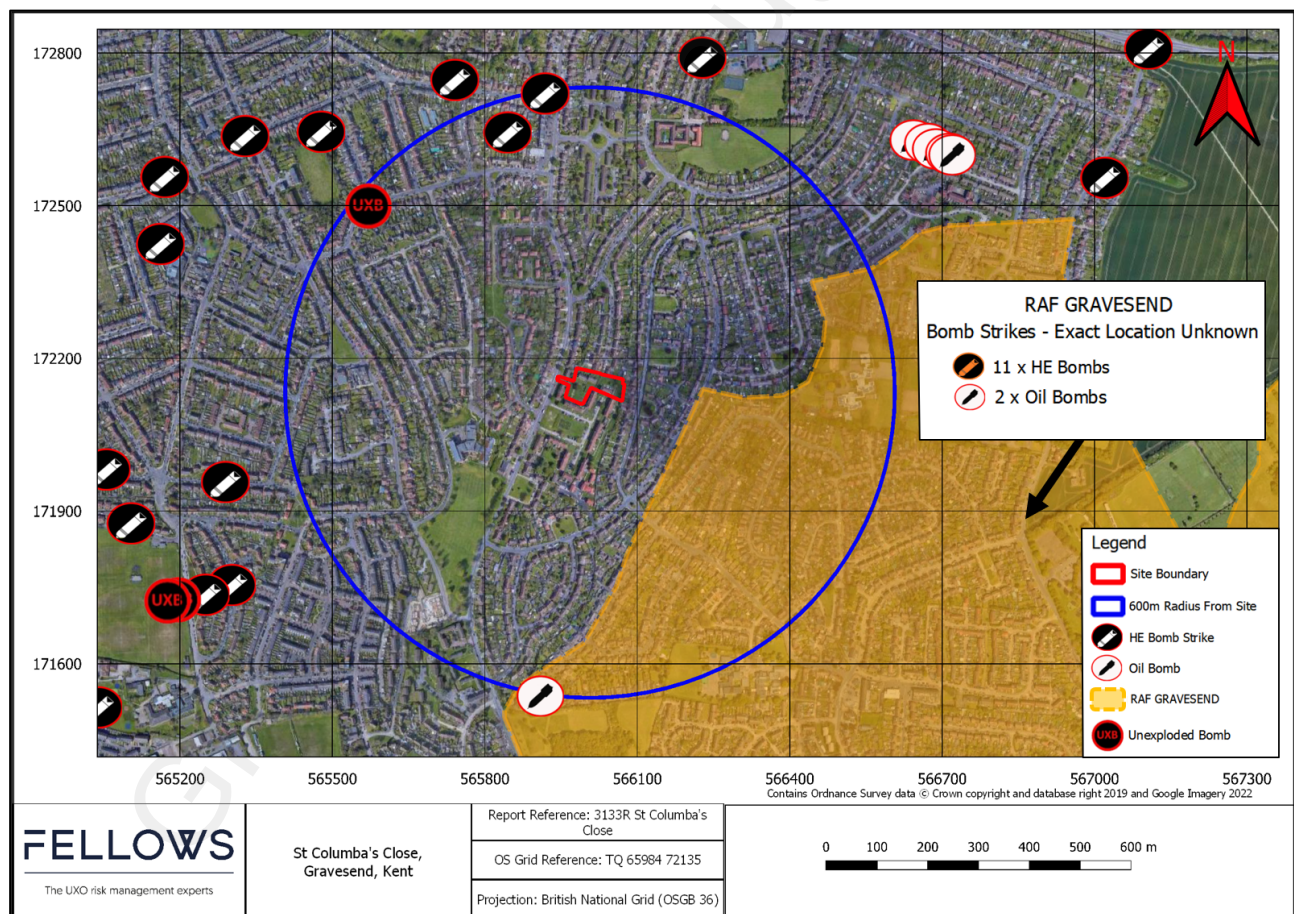


Figure 2. Showing HE bomb strikes on and within approximately 500m of the site.

Post war / previous works

Post-war mitigating works were carried out within the site as part of the wider development of the Parrock Farm Housing Estate from 1949.

Bomb penetration

An important consideration when assessing the risk from a UXB is the likely maximum depth of penetration. There are several factors which determine the depth that an unexploded bomb will penetrate to:

- Size and shape of bomb
- Height of release
- Velocity and angle of bomb
- Nature of the ground cover
- Underlying geology

Geology is perhaps the most important variable. If the ground is soft, there is a greater potential of deeper penetration. For example, peat and alluvial deposits are easier to penetrate than gravel and sand. Layers of hard strata will significantly retard and may stop the trajectory of a UXB.

Due to the local geology, the previous land usage and the history of the area, maximum bomb penetration depth of a SC50 (50kg) bomb is assessed to be 6m bgl. The SC250 (250kg) bomb is considered to have a maximum bomb penetration depth of 10m bgl.

Anti-aircraft Munitions

The risk of encountering fall to earth UXO AAA munitions in the proposed dredging areas, is considered **low**.

Anti-aircraft Gun Emplacements

Records show that there were six HAA emplacements within 5km of the site. These are shown in the table below. Light anti-aircraft defences were also present defending RAF GRAVESEND located near to the site.

AA Site / Location	Distance from Site
Denton	1.86km North
Istead Rise	2.40km Southwest
Cobham	4.15 South East

Table 3. Showing anti-aircraft emplacements within 5km of the site.