

Preliminary Unexploded Ordnance (UXO) Risk Assessment

Project Name	Land near 164 Arrowsmith Road, Hainault
Client	Redbridge London Borough Council
Site Address	164 Arrowsmith Road, Chigwell IG7 4PB
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Assessment Objective

This preliminary unexploded ordnance (UXO) risk assessment is a qualitative screening exercise to assess the likely potential of encountering UXO at the land near 164 Arrowsmith Road site in Hainault. The assessment involves the consideration of the basic factors that affect the potential for UXO to be present at a site as outlined in Stage One of the UXO risk management process.

Background

This assessment uses the sources of information available in-house to 1st Line Defence Ltd to enable the placement of a development site in context with events that may have led to the presence of German air-delivered or Allied military UXO. The report will identify any immediate necessity for risk mitigation or additional research in the form of a Detailed UXO Risk Assessment. It makes use of 1st Line Defence's extensive historical archives, library and unique geo-databases, as well as internet resources, and is researched and compiled by UXO specialists and graduate researchers.

The assessment directly follows CIRIA C681 guidelines "Unexploded Ordnance, a Guide for the Construction Industry". The document will therefore assess the following factors:

- Basic Site Data
- Previous Military Use
- Indicators of potential aerial delivered UXO threat
- Consideration of any Mitigating Factors
- Extent of Proposed Intrusive Works
- Any requirement for Further Work

It should be noted that the vast majority of construction sites in the UK will have a low or negligible risk of encountering UXO and should be able to be screened out at this preliminary stage. The report is meant as a common sense 'first step' in the UXO risk management process. The content of the report and conclusions drawn are based on basic, preliminary research using the information available to 1st Line Defence at the time this report was produced. It should be noted that the only way to entirely negate risk from UXO to a project would be to support the works proposed with appropriate UXO risk mitigation measures. It is rarely possible to state that there is absolutely 'no' risk from UXO to a project.

Site Boundary



Risk Assessment Considerations	
Site location and description/current use	<p>The site is located in the Hainault area of the London Borough of Redbridge.</p> <p>Recent aerial imagery shows the site to occupy a section of open ground, paved footpaths, a garage and a semi-detached residential property, 164 Arrowsmith Road.</p> <p>It is bound to the north by St. Paul's Church, a community hall, and Redwood Gardens. Arrowsmith Road, semi-detached properties and gardens lie to the east. Further open ground and terraced properties are situated to the south, while semi-detached properties, gardens, and Arrowsmith Road are located to the west.</p> <p>The site is approximately centred on the OS grid reference: TQ 46254 92273.</p>
Are there any indicators of current/historical military activity on/close to the site?	<p>No information could be found in-house to indicate that the site location has any former or current association with any military features. No features such as WWII defensive positions, encampments or firing ranges are recorded to have been located at the site. In addition, no information on ordnance being stored, produced, or disposed of within the proposed site boundary could be found.</p> <p>The closest recorded Heavy Anti-Aircraft (HAA) battery was situated approximately 2.2km to the south-west of the site. The conditions in which unexploded anti-aircraft ordnance may have fallen unrecorded within the proposed site are generally analogous to that of German aerial delivered ordnance - see below for further information.</p>
What was the pre- and post-WWII history of the site?	<p>Pre-war OS mapping (1920) shows the site to occupy undeveloped open field, likely agricultural in nature. It is bound to the north, east, south, and west by further such terrain.</p> <p>Post-war OS mapping (1964) indicates that significant development has occurred since the previous mapping edition. A residential housing development has been built on, and surrounding, the site. It now comprises Nos. 164, 54, and 57 <i>Arrowsmith Road</i>. This roadway and an area of open ground can now also be found within the site.</p>
Was the area subject to bombing during WWII?	<p>During WWII the site was situated at the junction of Chigwell Urban District, Municipal Borough of Dagenham, and Municipal Borough of Ilford. The site was partially within Ilford in the west and Dagenham in the east, with Chigwell bordering to the north.</p> <p>According to official Home Office bombing statistics both Chigwell and Dagenham sustained a moderate density of bombing.</p> <p>Ilford sustained a moderate-high density of bombing with 926 items of ordnance recorded across the 8,425 acre borough, or an average of 109.9 items per 1,000 acres. This comprised 734 high explosive (HE) bombs, 31 parachute mines, 50 oil bombs, 31 phosphorus bombs, 11 'fire pots', 34 V-1 pilotless aircraft bombs, and 35 V-2 long range rockets.</p> <p>London Bomb Census mapping and local bomb mapping for the Municipal Borough of Dagenham and Municipal Borough of Ilford do not record any HE bomb strikes directly on, or bordering, the site. However, one HE bomb fell some 100m north of the site in December 1940, too far removed to have had any significant impact.</p>
Is there any evidence of bomb damage on/close to the site?	<p>Aerial imagery from 1944 – held in-house on this occasion – does not show any obvious signs of bomb damage. The site appears to retain its pre-war composition and no obvious indicators of damage such as cratering, disturbed ground or scattered earth were visible across the site, or within its immediate vicinity.</p>

To what degree would the site have been subject to access?	It is unknown at this preliminary stage how often the site would have been accessed during WWII and open fields were typically not accessed to any great extent.
To what degree has the site been developed post-WWII?	The site was significantly developed in the immediate post-war period. Construction of the Hainault Estate took place between 1947 and 1953 in the style of a 'Cottage Estate' where 2,779 houses were built.
What is the nature and extent of the intrusive works proposed?	The scope of proposed works was not available at the time of report's production.

Summary and Conclusions

During WWII the site was situated within the Chigwell Urban District, Municipal Borough of Dagenham, and Municipal Borough of Ilford. According to official Home Office bombing statistics both Chigwell and Dagenham sustained a moderate density of bombing. However, Ilford sustained a moderate-high density of bombing with an average of 109.9 items of ordnance per 1,000 acres.

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Given that no positive evidence has been found to suggest a HE bomb strike or any significant bomb damage occurred directly on site, there is not considered to be a significant risk of on-site UXO contamination.

Recommendations

Due to the historically large and open nature of the site, the risk from UXO cannot be entirely reduced. Nonetheless, given the findings of this preliminary report, neither is the risk from UXO considered to be significantly elevated above the 'background risk' of finding UXO in this part of the UK. Whilst it would be possible to conduct a Detailed UXO Risk Assessment for this site, it is not anticipated that any further findings would significantly alter the risk of encountering unexploded ordnance within the site. It is therefore recommended that **no further research** is undertaken.

If the client has any anecdotal or empirical evidence of UXO risk on site, please contact 1st Line Defence.

It should be noted that although the risk from unexploded ordnance on this site has been assessed as low/minimal, this does not mean there is 'no' risk of encountering UXO. This preliminary report has been undertaken with due diligence, and all reasonable care has been taken to access and analyse relevant historical information. By necessity, when dealing with historical evidence, and when making assessments of UXO risk, various assumptions have to be made which we have discussed and justified within this report. Our reports take a common-sense and practical approach to the assessment of UXO risk, and we strive to be reasonable and pragmatic in our conclusions. As referenced, it would be possible to undertake further research into this site, but based on the evidence to hand, this is not deemed strictly necessary, and no reasonably justifiable requirement for proactive on-site mitigation has been identified.

It should however be stressed that if any suspect items are encountered during the proposed works, 1st Line Defence should be contacted for advice/assistance, and to re-assess the risk as necessary. Furthermore, we would recommend that ground personnel are always made aware of the potential for encountering UXO, what to look out for and what to do in the unlikely event that a suspect item is encountered, and that a UXO Risk Management Plan is put together for the proposed works. We would be happy to provide a template and guidance for this – contact us on 01992 245020. Should the scope of works change or additional works be proposed, 1st Line Defence should be contacted to re-evaluate the risk.

This report has been prepared by 1st Line Defence Limited with all reasonable care and skill. The report contains historical data and information from third party sources. 1st Line Defence Limited has sought to verify the accuracy and comprehensiveness of this information where possible but cannot be held accountable for any inherent errors. Furthermore, whilst every reasonable effort has been made to locate and access all relevant historical information, 1st Line Defence cannot be held responsible for any changes to risk level or mitigation recommendations resulting from documentation or other information which may come to light at a later date.

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