

## Desk Study Data Review

**Project Details** Geosphere Environmental Ltd was commissioned by Savills to undertake a Phase 1 Desk Study and Phase 2 Site Investigation Report on land to the north west of Haverhill, Suffolk,

It was understood that the site is to be developed to include a number of residential properties with associated gardens and parking, primary school, areas of public open space, roads and associated infrastructure.

**Site Location / Description** The site was situated to the north west of Haverhill, adjacent and to the west of the A143 and north of Ann Suckling Road, and approximately 0.4km to the north east of Withersfield Road. The site may be located by National Grid Reference (NGR) TL 670 469.

The site covered an area of approximately 47ha and comprised of open undeveloped agricultural land together with a number of field boundaries and drainage ditches.

**History** A review of historical maps provided information about changes to the site and its surroundings between 1884 and 2014.

Based on the historical information it has been concluded that the site has undergone limited change from the earliest maps studied, with the exception of the rifle range located on site between 1924 and 1967. The site mostly comprised of open undeveloped agricultural land together with a number of field boundaries and drainage ditches.

The surrounding area had largely remained open and undeveloped from the earliest maps studied with large scale residential development occurring to the south of the site from 1971 until present day.

**Basic Conceptual Model** It has been assessed that the former rifle range on site are likely to result in potential contamination that could pose risks to human health through heavy metal contamination. However, the presence of contaminants is considered constrained in a specific area rather than being site-wide, and therefore the risk is considered to be very low.

## Site Investigation Data Review

**Site Works** Site works were carried out between 20<sup>th</sup> October and 19<sup>th</sup> November 2014 and comprised the following:

- Excavation of eight boreholes extending to depths ranging from 8.4m to 10.0m bgl using light cable percussion techniques;
- Excavation of twenty-eight window sampler boreholes extending to depths ranging from 1.8m to 4.0m bgl;
- Excavation of thirty-two trial holes to depths ranging from 1.05m to 1.90m bgl using a mechanical digger;
- Soil logging, environmental and geotechnical sampling and in-situ testing of the soils encountered within excavations;
- Undertaking of soil infiltration tests within a number of excavations broadly in line with the guidance of BS5930: 1999; and
- Installation of ground gas monitoring wells within eleven window sample boreholes and subsequent monitoring.

Ground Conditions	<p>The geotechnical ground conditions at the site largely comprised of Topsoil at the surface and was underlain by cohesive Lowestoft Formation soils. Head was encountered overlying the Lowestoft Formation within a number of excavations.</p> <p>Groundwater was encountered within the Head Deposits and Lowestoft Formation and was considered to be perched.</p>
Gas Monitoring	<p>A total of six ground gas monitoring visits were undertaken between 21<sup>st</sup> November and 19<sup>th</sup> December 2014. The results of the gas monitoring showed no significant methane or carbon dioxide generation within soil. In addition to this, no significant gas flow was detected across the site.</p> <p>Based upon the results of the ground gas monitoring visits the site has been placed in the NHBC Green category for low rise developments with ventilated underfloor voids.</p>
Environmental testing	<p>A total of sixteen samples across the site were tested for the following:</p> <ul style="list-style-type: none"> <li>- Metals screen;</li> <li>- Organic screen (including polyaromatic hydrocarbons);</li> <li>- Inorganics screen;</li> <li>- pH; and</li> <li>- Organic Matter.</li> </ul> <p>From the findings of the desk study, asbestos was not considered to pose a risk to the site and therefore testing was not required.</p>
Laboratory Results	<p>The chemical analyses were carried out on sixteen soil samples and were assessed with regards to a residential development with plant uptake. The results from the analysis indicated all relevant contaminants within samples to be below the respective screening values and therefore the risk to human health and controlled waters is considered to be low.</p>
Advanced Conceptual Model	<p>Based on the results of chemical analysis the former rifle range on site, is not considered to pose a high risk to the site and therefore the risk rating for the future development of the site has been reduced to a low risk.</p>
Conclusions	<p>Results of chemical analysis did not indicate the presence of contaminants above the thresholds for human health. It is therefore considered that the risk of contamination is very low and a remediation strategy is not considered necessary for the site.</p>

This Executive Summary only provides a summary of the site data and its assessment. It does not provide a definitive engineering analysis and is for guidance only. It is recommended that the reader reviews the reporting its entirety and any material referenced therein.