

Geoff Little OBE
Chief Executive



Our Ref CL977.121120.1
Your Ref 66142
Date 12 November 2020
Please ask for Rebecca Jones
Direct Line 0161 253 6392
Direct Fax 0161 253 5562
E-mail rebecca.jones@bury.gov.uk

Donna Ball
Executive Director, Operations

Jennie Townsend
Bury Council Planning Department

Dear Jennie

**Knowsley House, Knowsley Road, Ainsworth, Radcliffe, Bolton, BL2 5PT,
Planning Application: 66142 – Contaminated Land**

I write regarding the above planning application. The Environment Section has received copies of the following reports:

- Phase 1 Preliminary Risk Assessment, Ainsworth Nursing Home, Radcliffe, LK Consult, Reference: CL-602-LKC 20 1567-01, 30 July 2020.
- Phase 2 Geo-Environmental Investigation, Risk Assessment and Remediation Strategy, Knowsley House, Ainsworth Nursing Home, Radcliffe, LK Consult, Reference: CL-602-LKC 20 1567-B3-01 Rev0, October 2020.
- Asbestos Refurbishment and Demolition Survey, Knowsley House, Ainsworth Nursing Home, 24-7 Asbestos Services, Reference: J001447, 2 July 2020.

The Environment Section has reviewed the above information in order to assess the following points:

1. The adequacy of the desk study information available for this site.
2. The adequacy of the site investigation.
3. The adequacy of the final risk assessment.
4. The acceptability of the proposed remediation strategy.
5. Whether the information submitted is sufficient to determine that the site presents a low risk to human health and the environment.

The site is currently occupied by the former Ainsworth Nursing Home. Current uses in the surrounding area include open land and residential properties. Previous uses at the site have included a former farm/country house known as Broom Field followed by Ainsworth Hospital for Infectious Diseases and Smallpox. Previous uses in the surrounding area have included potentially infilled features including ponds and filterbeds. There are no registered landfills within 250m of the main site. The site is not located in close proximity to any major surface watercourses, but there are number of land drains in the surrounding area and a reservoirs to the north east. Drift deposits are thought to be absent beneath the main part of the site which deposits of glacial till present further south. This is underlain by the Lower Coal Measures Secondary A Aquifer.

It is understood that the proposal is to convert part of the main nursing home

Privacy Policy

Please visit www.bury.gov.uk/privacy to read our recently updated Privacy Policy which explains how Bury Council uses and shares your personal data to give you the best possible experience across our services.

Electronic or fax service of Legal documents is not accepted

Town Hall, Knowsley Street, Bury, BL9 0SW
www.bury.gov.uk

building, known as Knowsley House, to a residential property with alterations and a new garage extension.

The proposed conversion of Knowsley House is part of a wider development of 7 residential plots on the site of the former Ainsworth Nursing Home. It is understood that they comprise: The Wash House (Application: 65412), The Bungalow (Application: 65626), The Gate House, The Stables, The Haven, Knowsley House (Application: 66142) and Knowsley Manor.

1. The adequacy of the desk study information available for this site

The desk study submitted covers the entire Ainsworth Nursing Home site, which includes this application for Knowsley House (66142).

The report includes a description of the site including its past historical uses. An appraisal of the site environmental setting is presented including its geology, hydrogeology and hydrological regime, mining activities, waste management issues, and identification of additional environmental sources, pathways and receptors. This information has been used to compile a clear site conceptual model, which identifies potential sources, pathways and receptors and likely pollution linkages.

A site walkover was carried out which identified the following potential sources of contamination: a fuel tank (located towards the centre of the site), a septic tank (located towards the south east) and a 5m tall chimney (located in the east of the site). Evidence of brick made ground was identified in the vicinity of the Wash House and evidence of a past bonfire was noted in the central area of the site. Two hand dug trial holes were excavated (TH1 and TH2) and evidence of made ground was noted at both locations.

The desk study information provided appears to be sufficient to assess the potential risks at the site.

The consultant considers that there is the potential for made ground and contamination to exist at the site associated with the possible use of asbestos containing materials (ACM) in buildings, ash and clinker from boiler house and hearths, and hydrocarbons associated with the above ground fuel tank. Additionally, there is the potential for ground gases associated with on-site made ground, infilled features in the surrounding area and the underlying Coal Measures strata.

Consequently, there is a potential risk to future site users and the environment and therefore, an intrusive investigation has been recommended by the consultant. A site investigation proposal was previously submitted and approved. The investigation was to include the following:

- 2 window samples and 3 Hand dug pits OR 5 hand dug pits
- Soil samples tested for metals, PAH and asbestos
- Soil leachability testing if gross contamination is encountered

A Pre-Refurbishment Asbestos Survey Report has been submitted. A survey was undertaken on 28 June 2020 by 24-7 Asbestos Services and no asbestos containing materials were identified within Knowsley House.

2. The adequacy of the site investigation

Two phases of site investigation were carried out on 20 and 30 September 2020 and comprised the following:

Technique	No.	Comments
Hand dug trial pits	10	Excavated to a depth of between 0.9m and 2.15m bgl (HD101-HD105 and HD201-HD205).
Soil samples	8	Samples of made ground taken and tested for a suite of analysis that included metals, pH, water soluble sulphate, speciated PAHs, SOM and asbestos screen.

Site Ground Conditions: Ground conditions at the site comprise of cohesive silty made ground to between 0.5 and 0.7m bgl containing brick, coal, pottery, glass, slate and rootlets. Locally significantly deeper made ground was identified to the north of the property to in excess of 1.85m and 2.15m bgl. The base of the made ground was not encountered in HD103, HD104, HD105, HD204 and HD205. A well was identified in this area and may explain the presence of the deep made ground. Reworked silt was encountered in HD103. The natural strata comprises of clay deposits. Bedrock was not encountered.

No visual or olfactory evidence of contamination was noted during the investigation.

Site Water Conditions: No groundwater was encountered during the site investigation. No soil leachability samples were taken.

Site Ground Gas Conditions: No gas monitoring was undertaken. However forensic logging on the deeper made ground and SOM testing was undertaken as part of an RB17 assessment.

3. The adequacy of the final risk assessment

Ground Assessment: Elevated concentrations of arsenic (83mg/kg in HD101 and 55mg/kg in HD102), lead (410mg/kg in HD101, 310mg/kg in HD102, 250mg/kg in HD104 and 360mg/kg in HD204) were identified. No asbestos fibres were identified in any of the soil samples.

The consultant considers that there is evidence of widespread contamination in the made ground across the site which could present a potential risk to future site users in garden and soft landscaped areas. Consequently, remedial action is considered necessary.

This assessment appears reasonable.

Controlled Waters Assessment: No mobile contamination was identified and the aquifer beneath the site is overlain by cohesive silt deposits. Therefore, the consultant considers that the probability of contamination affecting underlying and off-site controlled waters receptors is unlikely and no remediation is required.

This assessment appears reasonable.

Ground Gas Assessment: The consultant has used the methodology set out in RB17 'A Pragmatic Approach to Ground Gas Risk Assessment' to assess the gas regime at

the site. The deeper made ground (>1.0m deep) identified at the north of the site (HD104, HD105, HD204 and HD205) is considered to be a potential source of ground gas.

Forensic logging of the made ground from different depths was undertaken to split the soil into its varying components – Fines <10mm (organic and inorganic) and Coarse >10mm (inert, wood, vegetation, textiles, inorganic, paper/card and other degradable). The organic and inorganic fines components were tested for Soil Organic Matter (SOM) and the Total Organic Carbon (TOC) calculated ($SOM/1.72=TOC$). The calculated TOC were 1.6% (1.6-1.8m bgl), 1.9% (0.4-0.9m bgl) and 4.7% (0.0-0.4m bgl) with an average of 2.8%.

However, during the forensic logging it was noted that the clinker present in the soil readily degraded to ash sized particulates that would be part of the Fines. In order to remove the effects on TOC from non-degradable organic material, an adjustment factor of 63% was applied giving an adjusted TOC of between 1.0 and 3.0% (average 1.7%). The adjustment factor was based on the assumption that 37% of the organic fines were non-degradable and using adjustment factor of 60% for ash and 13% for the soil portions.

These results would suggest that the regime at the site is representative of CS2. However, due to age of the made ground (likely to date back to the construction of the present building around 1893-1910) and the fact that the deeper made ground has lower TOC of 1.0% the consultant considers that the risk from gas ingress is lower than the results suggest and that the characteristic situation can be reduced to CS1.

With regard to the potential risks from off-site sources, these comprise potentially infilled features including ponds and filterbeds. They are generally considered to have low gas generating potential and the presence of silt/clay deposits beneath the site are likely to impede any migration from such features.

This Section is satisfied that the risks to the development from gas ingress is low and that no specific measures are required.

4. The acceptability of the proposed remediation strategy

The following measures are proposed so that the contamination identified on site no longer presents a risk:

- The following options have been given to deal with the arsenic, lead and PAH contamination identified in the made ground in the three main areas of the site:

South of the Site – Front Garden and Shared Landscaping

- Removal of all made ground from garden and soft landscaping and raise levels (as required) with suitably chemically validated subsoil and topsoil.
OR
- Remove 300mm of made ground and replace with a cover system comprising either:
 - 200mm of clean imported soil over a 100mm physical break layer of Type 1 MOT.
 - 300mm of clean imported soil over a geotextile marker membrane.

North of Site – Rear Garden

- Remove 600mm of made ground and replace with a cover system comprising either:
 - 500mm of clean imported soil over a 100mm physical break later of Type 1 MOT.
 - 600mm of clean imported soil over a geotextile marker membrane.

Proposed Garage and Hardstanding Areas (patio and parking area)

- Placement of hardstanding to generally comprise paving over 50mm of concrete over 100mm-150mm of MOT.
- Watching brief to identify and deal with any previously unforeseen contamination including asbestos containing materials.

The above assessment is generally acceptable, however, please note that a minimum of 600mm soil depth should be used in clean cover system installed in private gardens regardless of whether they are front or rear gardens.

All parties involved with waste and soil movement at the site should be aware that materials illegally deposited or deposited at inappropriate sites may be subject to relevant landfill taxes, payable by all parties. Only robust due diligence is a defence against joint liability. Illegal deposits can include moving waste soil material on sites, or between sites, without the appropriate permits, exemptions or duty of care.

5. Whether the information submitted is sufficient to determine that the site presents a low risk to human health and the environment

In order for this Section to be satisfied that this development does not pose a risk to human health or the environment, the following information needs to be submitted to the Council for approval:

- (i) Confirmation that 600mm of clean cover will be used in both front and rear gardens.
- (ii) After completion of site works, a verification report is required to validate that the work undertaken conforms to the remediation proposals received and agreed by this Section. The report would be expected to include the following:
 - Summary of desk study, site investigation report and remediation strategy.
 - Details of who carried out the work.
 - Details and justification of any changes from original remediation strategy.
 - Substantiating validation data that should include:
 - Validation information for all imported soil material, which includes:
 - Details of the source site for the imported material/topsoil i.e. the name and address of the site where the material comes from.
 - Delivery notes for all material.
 - Chemical analysis results for imported material to demonstrate that it is clean and suitable for use. A testing rate of 1 per 50m³ for imported topsoil and 1 per 150m³ for subsoil, with a minimum of three samples per source will be used. The analysis suite should include metals, speciated PAHs and asbestos as a minimum.
 - A photographic record of imported material being placed.
 - Validation information for removal of made ground and the depth of clean cover material installed.

- Photographic record.
 - Trial hole records.
- Details of the findings of the watching brief confirming that no unforeseen contamination was encountered or information of how contamination was dealt with. This should include a photographic record of the development and should focus particularly on the excavations for the foundations in order to illustrate the ground conditions encountered.
- Copies of waste management records to ensure that any material removed from site was disposed of at a suitably licensed waste disposal facility.
- Confirmation that remediation objectives have been met.

The above information will be required by planning conditions, if permission is granted.

Please do not hesitate to contact me if you require any clarification of the above.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Rebecca Jones', with a stylized, cursive script.

Rebecca Jones
Environmental Protection Officer

Please Note:

The Environment Section has used all reasonable endeavours to determine the risk from contaminated land and ground gas based upon the information available to it. However, the comments made above should not be taken to imply that the land is safe or otherwise suitable for this or any other development. The responsibility for safe development rests with the developer.