



Date 14 October 2022
Reference CL1011.141022.1
Website www.bury.gov.uk

Department for Operations

Jennie Townsend
Bury Council Planning Department

Dear Jennie

**Land at the junction of Hollins Brook Way and Pilsworth Road, Bury, BL9 8RR.
Planning Application: 68530 – Contaminated Land**

The Environment Section has received copies of the following reports:

- Preliminary Risk Assessment, New Office Block Bury, Groundtech Consulting, Reference: GRO-21438-3118, February 2022
- Geo-Environmental Appraisal, New Office Block Bury, Groundtech Consulting, Reference: GRO-21438-3308, 31 March 2022
- Supplementary Geo-Environmental Appraisal, New Office Block Bury, Groundtech Consulting, Reference: GRO-21438-3375, 20 September 2022

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 was historically in use as a warehouse from the 1980s which has recently been demolished. Prior to this the site was in use as fields with dye, bleach and print works in the surrounding areas along with reservoirs. The site is now vacant and surrounded by industrial, commercial, and residential buildings.

The site is within 250m of one registered landfill site. The site is underlain by the Trencherbone Rock Sandstone and Lower Coal Measures Secondary A Aquifer which is overlain by Glaciofluvial Deposits. Hollins Brook is located 91m south of the site.

The proposal is a Hybrid application: Full application for Zone 1 development of Commercial building No1 (Creche, Use Class E), car parking and internal site roads, a new site access junction to Pilsworth Road, highway improvements to Hollins Brook Way and Pilsworth Road, and continued use of an existing car park exit to Aviation Road. Outline application for Zone 2 development of Commercial building No.2 (Hub

building, Use Class E) car parking and internal site roads and a multi-purpose all-weather sports pitch (Means of access, Layout and Scale included for determination).

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

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.

The site was found to be relatively level across its footprint and roughly rectangular in shape, encompassing an area of approximately 1.5 Ha. The site is predominantly formed by concrete hardstanding. Unsurfaced rough ground is present in the north east in the footprint of the former warehouse building.

The Desk Study Report had identified possible pollutant linkages and recommended that further investigation be carried out.

2. The adequacy of the site investigation

The ROC site investigation was carried out in October 2021:

Technique	No.	Comments
Window Sample Boreholes	3	WS101 to WS103 to 5.45m bgl

Site Ground Conditions: In the 2021 investigation the made ground was encountered at surface level in WS101 and WS102 as tarmac from 0.05m bgl to 0.1m bgl, which was underlain by a limestone gravel subbase to 0.2m bgl. Demolition fill was found between 0.2m bgl to 0.8m bgl in WS103 and WS101 to 0.5m bgl and WS102 to 0.7m bgl.

In WS101 a thin layer of demolition fill material contained within a clay matrix was encountered at 0.50m bgl to 0.75m bgl. Immediately underlying Made Ground deposits at all boreholes was interbedded Sand and Clay deposits. Clay was generally comprised of orangish brown sandy-gravelly Clay. Sand deposits were found to comprise a light brown fine to medium sand/gravelly silty sand. No visual or olfactory evidence of contamination was observed during the site works.

Site Water Conditions: Groundwater strikes were not recorded in the made ground. Groundwater was not encountered within Glacial Clay deposits or Sand deposits

Site Ground Gas Conditions: No gas monitoring was carried out.

The Groundtech site investigation was carried out between 24th January and 4th February 2022.

Technique	No.	Comments
Cable percussive boreholes	4	BH01 to BH04 to depths of between 15m and 20m bgl. Gas and Groundwater monitoring installations constructed in BH01, BH02 and BH04. Follow on rotary hole drilling in BH01 and BH04 to depth of 45.0m bgl.
Trial pits	3	TP01 to TP03 to maximum depth of 3.0m bgl
Soil sampling	22	Samples tested for Arsenic, cadmium, chromium (total and hexavalent), copper, lead, mercury, nickel, selenium, zinc and pH, TPH, Asbestos and WAC testing.

Site Ground Conditions: Made Ground was encountered across the site to a maximum depth of 1.8m bgl and the surface of the site was almost entirely covered with concrete to a maximum depth of 0.3m bg. Where the previously existing building had been demolished, the surface consisted of backfill material.

Ash was encountered within the Made Ground in BH03 between the depths of 0.4m and 1.8m bgl. No other evidence of potential contamination was noted during the investigation.

The natural strata typically comprised orange brown slightly gravelly occasionally clayey Sand which was encountered underlying the Made Ground to depths between 4.0m and 6.0m bgl. This was generally underlain by interbedded soft to firm sandy Clay and silty clayey Sand to depths between 15.5m and 17.0m bgl where firm to stiff sandy slightly gravelly Clay was encountered to the base of the Cable Percussive boreholes.

Bedrock was encountered within BH01 and BH04 at 23.5m and 27.3m bgl respectively and consisted of Sandstone to the maximum investigation depth of 45.0m bgl where the boreholes were terminated.

Site Water Conditions: Groundwater was recorded within all standpipes, at depths of between 0.47m and 4.0m bgl. No groundwater or leachate testing has been carried out.

Site Ground Gas Conditions: One monitoring visit has been carried out to date on 28th February 2022 and a further three visits were planned. Concentrations of methane were not recorded within any monitoring locations. Carbon dioxide was recorded at a maximum concentration of 4.3% v/v within BH01. Detectable levels of oxygen were recorded within the standpipes at a minimum level of 12.3% v/v. No positive gas flow rates were detected during the monitoring visits. The atmospheric pressure was 1008mb on the monitoring visit.

The consultant has previously been in contact with the Environment Section and informed us that the boreholes are no longer able to be used on site. The following response was given to the consultant:

“Thanks for the borehole logs. I note that each of the boreholes appear to monitor the natural underlying strata rather than the made ground. The response zones in both BH2 and BH4 are flooded, therefore, the results cannot be fully relied upon. Worst case scenario conditions have not been monitored.

I would recommend that new monitoring boreholes are installed. Alternatively, the RB17 assessment could be considered, but it is important to ensure that the method is followed fully. It would involve taking new bulk samples of made ground for forensic logging and additional testing for TOC.”

The site investigation was carried out on 18 and 19 July 2022:

Technique	No.	Comments
Trial Pits	3	TP101 to TP103 excavated to 1.0m bgl.
SuDS Soil Percolation Tests	5	SuDS101 to SuDS105.
Soil analysis	5	Forensic Analysis in line with CL:AIRE:RB17.
	5	TOC.

Site Ground Conditions: In 2022 made ground was found in all locations to depths between 0.66m and 1.35m bgl and comprised two main populations:

- Sandy gravelly cobbles of concrete and brick were in all locations from ground level to a maximum depth of 0.6m bgl.
- Firm brown sandy gravelly clay was in all exploratory locations underlying the granular made ground to depths between 0.66m and 1.35m bgl.

A single main natural stratum was observed in all locations comprising red brown slightly clayey slightly gravelly Sand to a maximum depth of 2.3m bgl. Bedrock was not encountered during this ground investigation. No evidence of contamination was noted.

Site Water Conditions: Groundwater was encountered in SuDS104 and SuDS105 at depths of 2.0m and 1.9m bgl respectively, within the natural Sand.

Site Ground Gas Conditions: No further gas monitoring has been carried out.

3. The adequacy of the final risk assessment.

Ground Assessment: The GACs used for the assessment of soil concentrations have been derived using the CLEA model. The GACs used and their ranking of importance are; Soil Guideline Values (SGVs) which demonstrate minimal risk, LQM/CIEH S4ULs which use the same toxicological data as the SGVs but different exposure criteria, C4SLs which demonstrate low risk. The GQRA was undertaken on the basis that the proposed development site falls under the Commercial land-use scenario.

No elevated concentrations of metals, speciated PAHs or hydrocarbons have been recorded by the laboratory testing based on the site having a commercial end use.

Furthermore, TPH concentrations were almost entirely recorded at levels below the laboratory limits of detection.

As a creche is to be included in the proposed development samples tested were also screened against more stringent screening values of residential without plant uptake. No elevated concentrations of metals, speciated PAHs or hydrocarbons were identified based on using more stringent CoC screening values.

Amosite asbestos loose fibres were detected at a trace concentration of below 0.001 mass% in TP01 at a depth of 0.7m bgl in the west of the site. Chrysotile loose fibrous debris was detected at a concentration of 0.005 mass% in TP03 at a depth of 0.55m bgl in the south east of the site.

The majority of the site will be covered with hard surfacing which will break the pollution linkage to the made ground containing asbestos fibres. Where soft landscaping areas are present, remediation is required.

Controlled Waters Assessment: No risk to controlled waters has been identified.

Ground Gas Assessment: Based upon the initial results, in accordance with CIRIA Report C665, the risk to the site from ground gases has been assessed by converting the results to gas screening values (GSVs). As no levels of methane have been recorded, a GSV for carbon dioxide only has been calculated. For this assessment, the maximum recorded concentration of carbon dioxide of 4.3%v/v has been used. No positive gas flow rates have been detected therefore the limit of detection of the gas analyser of 0.1l/hr has been adopted to calculate the GSV.

The GSV value for carbon dioxide is below the assessment GSV of 0.07l/hr and typical carbon dioxide concentrations are generally less than 5% v/v therefore the site falls into CS1 based on the monitoring undertaken to date.

As further assessment was required and no further monitoring could be carried out due to standpipes being destroyed, the ground gas risk was further quantified by the RB17 Assessment. Forensic analysis has been undertaken of five bulk samples of made ground, including Total Organic Carbon Testing. Made ground has been found to a maximum depth of 1.8m bgl although it is generally less than 1.00m thick and consists of sandy gravelly cobbles of concrete and brick considered to be demolition material.

RB17 states that made ground deposits less than 1m thick such as general fill below roads and car parks or road construction can be ignored for the purpose of this assessment.

Samples were obtained of both the granular and cohesive made ground soils at the site for forensic analysis, with locations TP101 to TP103 targeting the footprint of the proposed building. The results have shown that the made ground soils predominantly comprise either fine soil or coarse inert particles including gravel, concrete and brick. Proportions of cloth/leather were recorded at 0.5% and 0.4%. Wood was recorded in the sample from location TP102 at a low concentration of 0.2% and metal was present

in the sample from TP103 at a concentration of 7.0%. None of the other fractions tested for were identified in the samples of the made ground.

Based on Table 1 of RB17, the site can be characterised as CS1 if the results of the TOC analysis are less than or equal to 1% and the thickness of made ground is less than 5m maximum and the average thickness is less than 3m. The results of the TOC analysis are all below 1.0% with the exception of TP102 which recorded a slightly elevated TOC percentage of 1.3%.

The forensic analysis testing demonstrates that very little degradable or organic material is present in the made ground soils. TOC testing has generally placed the site in CS1 based on the CL:AIRE RB17 Research Bulletin.

Based on the numerous lines of evidence detailed above, the site has been classified as CS1 and no gas protection measures are considered necessary within the proposed commercial development.

The above assessment is acceptable to this Section.

4. The acceptability of the proposed remediation strategy.

The following recommendations have been made in the report:

- 600mm of suitably clean topsoil is placed including a demarcation layer or a 100mm thick hard dig layer to mitigate the risk of asbestos fibres in the Made Ground.
- A watching brief is recommended during ground works for any previously unseen contamination.
- Where possible, it is advised that any Made Ground soils containing asbestos are left in the ground undisturbed. Where soils will be disturbed as part of the ground works, in accordance with the Joint Industry Working Group (JIWG) decision support tool for CAR2012 work categories, the combined hazard and exposure ranking is Medium for the asbestos detected. The work is classified as non-licenced, and CAR does not apply. The final decision on how asbestos within the soils should be managed should be made by the contractor.

The above recommendations are acceptable however a detailed Remediation Strategy and Validation Plan is required.

Please note: 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) Updated and detailed Remediation Strategy and Validation Plan.
- (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:
 - Details of ground conditions and of any unforeseen contamination.
 - Substantiating validation data that should include where appropriate:
 - Laboratory and *in-situ* test results.
 - Photographic and other media records.
 - Waste management details and records.
 - Confirmation that remediation objectives have been met.

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

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

Yours sincerely



Judith Scott
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.

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