



DEPARTMENT OF OPERATIONS

Helen Leach
Bury Council Development Control

Date 25 October 2023
Reference CL295.251023.1

Dear Helen

Site of Radcliffe Leisure Centre, Spring Lane, Radcliffe, Manchester, M26 2SZ, Planning Application: 70071 – Contaminated Land

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

- Desk Study, Star Radcliffe, Geotechnics, Reference: PN228400 Rev 1, May 2022.
- Preliminary Ground Investigation Report with Interpretative Chapter, Star Radcliffe, Geotechnics, Reference: PN224390 Rev 1, August 2022.

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 and risk assessment.
3. The acceptability of the proposed remediation strategy.
4. 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 in use as Spring Lane School (a pupil referral unit) and a Leisure Centre including a temporary swimming pool, and a former electricity sub-station. Current uses in the surrounding area include housing, a Metrolink Line and station and commercial buildings. Previous uses at the site have included open land associated with a farm, followed by railway land including a goods shed and goods station, a cricket ground and allotment gardens. By 1979 the site had been developed as a school. Surrounding former land uses have included a former railway line, a gravel pit, mineral water works, iron works, a rope walk, sawmill, unspecified works, a colliery and residential developments. The site is within 250m of one landfill site, known as Darbyshire Street Landfill, which is an infilled railway cutting. There are two surface watercourses situated within 250m of the site including the Manchester, Bury and Bolton Canal which flows along the northwest boundary of the site and the River Irwell to the south. The site is situated above the Carboniferous Middle Coal Measures Secondary A Aquifer which is overlain by Glacial Till and River Terrace Deposits. It is likely that deposits of made ground exist at the site. The site is not located within a Radon Affected Area.



It is understood that the proposed development comprises the construction of a new secondary school alongside supporting sports facilities, car parking, landscaping, site infrastructure, new access road and associated access infrastructure.

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. A site walkover was carried out on 24 January 2022 and evidence of the presence of made ground and construction rubble was noted.

The desk study information provided appears to be sufficient to assess the potential risks at the site. The report concluded that there was a potential risk to future site users and the environment from potential contamination at the site. Consequently, a site investigation was proposed.

It is recommended that an invasive species/Japanese Knotweed survey is completed.

It is understood that the demolition of the current buildings will be carried out under Application 70002, therefore, any issues relating to the presence of asbestos containing materials in the building will be dealt with under that application.

2. The adequacy of the site investigation and risk assessment

The preliminary site investigation in May 2022 and comprised the following:

Technique	No.	Comments
Cable percussion with rotary follow-on boreholes	5	Excavated to a depth of between 15.10m and 21.66m bgl (BH01, BH02, BH03A and BH04). BH03 was terminated at 2.45m due to the presence of hydrocarbon contamination. BH01, BH02, BH03A and BH04 were extended to depths of between 45.0m and 51.5m bgl.
Window samples	7	Excavated to a depth of between 3.45m and 5.45m bgl (DS01, DS02, DS03, DS04, DS05, DS06 and DS07).
Trial pits	6	Excavated to a depth of between 3.7m and 4.0m bgl (TP01, TP02, TP03, TP04, TP05 and TP06).
Hand dug pits	5	Excavated to a depth of between 0.6m and 1.2m bgl (HD01, HD02, HD03, HD04 and HD05).
Soil sampling	16	Samples of made ground were analysed for a suite of analysis that included metals, TPH CWG, MTBE, speciated PAHs, phenol, VOCs and asbestos.

Soil leachability sampling	4	Samples of made ground were analysed for a suite of analysis that included metals, inorganics and phenol.
Groundwater sampling	4	Samples of groundwater were tested for a suite of analysis that included metals, inorganics, speciated TPH, speciated PAHs.
Ground gas monitoring	6 visits over 6 weeks	Monitoring wells were installed in BH01, BH02 Deep (glacial sand and gravel) and BH02 Shallow, BH03A, BH04 (made ground/glacial sand and gravel).

Site Ground Conditions and Human Health Risk Assessment: Ground conditions at the site comprised locally of tarmac, concrete, sub-base, concrete slabs or topsoil, over granular made ground (of various ages) generally less than 2.0m deep (but in excess of 3.45m bgl in DS07) containing ash, brick, concrete, coal, glass. Cohesive made ground was identified locally in TP05, DS01, DS02 and DS04. Inclusions of tarmac were noted in the made ground in DS05 along with a slight hydrocarbon odour. Evidence of hydrocarbons were also noted at BH03 (strong odour and sheen at the top of the glacial sand) and DCP05 (slight odour in made ground).

The natural strata comprises glacial clays and glaciofluvial sand and gravel deposits to between 12.6 to 20.5m bgl. Bed rock of interbedded mudstone, siltstone and sandstone (Middle Coal Measures) were identified in all rotary boreholes with thin coal seams. No evidence of former coal workings were found.

The soil analysis results have been compared to the Defra C4SL and CIEH/LQM S4ULs residential without homegrown produce land use and for Public Open Space (Park) for 2.5% SOM.

Elevated concentrations of heavy metals were noted in the cohesive made ground in DS01 at 0.5m:

- Arsenic (130mg/kg) based on C4SL of 40mg/kg residential.

Elevated concentrations of PAHs were found in the granular made ground sample from DS05 at 0.5m:

- Naphthalene (21mg/kg) based on S4UL of 5.6 mg/kg residential and 1900mg/kg POS (park).
- Benzo(a)anthracene (23mg/kg) based on S4UL of 14mg/kg residential and 56mg/kg POS (park).
- Benzo(b)fluoranthene (23mg/kg) based on S4UL of 4mg/kg residential and 14mg/kg POS (park).
- Benzo(a)pyrene (19mg/kg) based on S4UL of 3.2mg/kg residential and 12mg/kg POS (park).
- Dibenzo(ah)anthracene (2.1mg/kg) based on S4UL of 0.32mg/kg residential and 1.3mg/kg POS (park).

No asbestos was encountered. Based on the findings of the preliminary site investigation the overall risk to future site users is considered low as long as mitigation measures are put in place.

Site Water Conditions and Controlled Waters Risk Assessment: Groundwater strikes were encountered in the granular made ground and within sand and gravel deposits at between 1.5 and



3.0m bgl. Deeper groundwater was encountered within the underlying glacial till (14.4m bgl) and mudstone (14.2m bgl).

Within the monitoring wells groundwater levels were generally shallow (0.88 to 2.32m bgl). A significant fall in groundwater was noted in BH02 where levels dropped from 1.75 to 8.50m bgl, which coincided with dry, hot weather.

The groundwater / soil leachate analysis results have been compared to the UK Drinking Water Standards and Environmental Quality Standards.

The following elevated concentrations of contaminants were identified in the groundwater:

- Copper - BH01 (2.0µg/l), BH02 Deep (1.6µg/l), BH04 (1.5µg/l) compared to EQS of 1µg/l and DWS of 2000µg/l.
- Manganese - BH01 (1,500µg/l), BH02 Shallow (300µg/l), BH04 (360µg/l), BH02 (Deep) (58µg/l) compared to EQS of 123µg/l and DWS of 50µg/l.
- Selenium - CP01 (29µg/l), CP03 (37µg/l) compared to DWS of 10µg/l.
- Zinc - BH01 (37µg/l), BH02 Shallow (15µg/l), BH02 Deep (32µg/l), BH04 (59µg/l) compared to EQS of 10.9µg/l and DWS of 3000µg/l.
- Aliphatic TPH >C5-C6 - BH02 Shallow (14µg/l) compared to EQS of 10µg/l and DWS of 10µg/l.
- Fluoranthene - BH01 (0.01µg/l), BH02 Shallow (0.01µg/l), BH02 Deep (0.04µg/l), BH04 (0.02µg/l) compared to EQS of 0.0063µg/l.
- Benzo(a)pyrene - BH02 Deep (0.02µg/l) compared to EQS of 0.00017µg/l and DWS of 0.01µg/l.
- Benzo(b)fluoranthene - BH02 Deep (0.03µg/l) compared to EQS of 0.00017µg/l and DWS of 0.01µg/l (BaP values).
- Benzo(ghi)perylene - BH02 Deep (0.03µg/l), BH04 (0.01µg/l) compared to EQS of 0.00017µg/l and DWS of 0.01µg/l (BaP values).

The following elevated concentrations of contaminants were identified in the soil leachability samples:

- Chromium (VI) – Sample HD03 (7.4µg/l) compared to EQS of 3.4µg/l and DWS of 50 µg/l.
- Copper - DCP05 (2.5µg/l), BH03 (3.7µg/l), HD01 (1.7µg/l), HD03 (2.3µg/l), WS02 (1.4µg/l) compared to EQS of 1µg/l and DWS of 2000µg/l.
- Iron - BH03 2,300µg/l, HD03 (1,400µg/l), BH03 (2,300µg/l), HD03 (1,400µg/l) compared to EQS of 1000µg/l and DWS of 200µg/l.
- Lead - BH03 (3.0µg/l) compared to EQS of 1.2µg/l and DWS of 10µg/l.

Based on the findings of the preliminary site investigation the overall risk to controlled waters is considered medium to low, as no significant sources of contamination have been identified at the site.

Site Ground Gas Conditions and Risk Assessment: A total of six visits were carried out over a period of five weeks between 16 June and 20 July 2022 with atmospheric pressure less than



1000mb on one occasion. The response zones were installed within both made ground and natural strata (BH01, BH02 shallow, BH02 deep, BH03A, BH04).

No methane was recorded. The maximum carbon dioxide concentration was 2.7%v/v. Flow rates were typically <0.1 l/h with a maximum flow rate of 0.7 l/h. Based on the findings of the preliminary site investigation the overall risks to future site users from ground gas ingress are considered low to medium.

It is understood that the works carried out were part of a preliminary site investigation. Further investigation of the site is recommended following the demolition of the current buildings.

3. The acceptability of the proposed remediation strategy

Potentially elevated concentrations of soil contaminants were identified in the preliminary site investigation and risk assessment, but no remediation proposals have been provided.

Following the completion of the further investigation and risk assessment, a remediation strategy and verification plan will be required.

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.

4. 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) Japanese Knotweed and invasive species survey and eradication plan.
- (ii) Following demolition of the existing buildings further intrusive investigation and risk assessment should be completed.
- (iii) A remediation strategy and verification plan.
- (iv) A materials management plan, if the CL:AIRE Definition of Waste Code of Practice is to be used.
- (v) 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 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



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.

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.