

Contemporary industrial land uses have been identified within 500m of the site are as described above (fuel filling station to the east).

Contamination Sources - Registered Waste Operations, Infilled Land and Pollution Incidents

No pollution incidents that are likely to affect the development have been identified on the EA database at the site or in the near vicinity (Appendix C).

No currently operational landfill sites are recorded on the EA database within 500m of the site. A closed landfill is recorded ~425m to the north-west of the site but should not affect the development (see Appendix C).

Contaminants & Hazards of Concern

The Phase 1 process has identified the following potential issues that may affect the development:

- The site was first developed sometime prior to 1885 and has been used continuously for housing or as a public house since that time. Although these uses do not represent a significant sources of ground contamination, developed site use has been on-going for a considerable period and some contamination may have resulted.
- The two terraced houses historically located in the east of the site may have included basement structures that are likely to have been infilled. Fill material can sometimes represent a source of contamination depending on their source.
- The site buildings and potentially site soils may include asbestos containing materials (ACMs) owing to alterations at during the period of common asbestos use.
- Domestic scale garages were constructed immediately to the north of the site sometime around the late 1950s and used in this form until they were demolished sometime prior to 2000. Some ground contamination may have occurred as result of garage activities, but this is likely to be limited in extent and significant impacts at the site are currently considered unlikely.
- A laundry was historically (between ~1900 and ~1980s) located ~120m to the north of the site. Dry cleaning, if it was carried out, represents a source of ground contamination in the form of chlorinated solvents which can remain in the ground for long periods. Solvents could migrate onto the site via groundwater movement. Low permeability deposits are present beneath the site and the surrounding area however and significant on-going impacts at the site are considered unlikely.

No other potential contaminants or sources of contamination that may affect the development have been identified during the Phase 1 assessment process.

Some concentrations of the following contaminants in particular may be present as a result of a history of development at the site and local ground conditions:

- Arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, vanadium, zinc.
- Asbestos containing materials (ACMs).
- Banded speciated total petroleum hydrocarbons (TPH) fractions C6-C35.

- Volatile organic compounds including chlorinated solvents.
- Priority 16 polycyclic aromatic hydrocarbons (PAHs): naphthalene, acenaphthene, acenaphthylene, fluorene, phenanthrene, anthracene, fluoranthene, pyrene, benzo-a-anthracene, chrysene, benzo-b-fluoranthene, benzo-k-fluoranthene, benzo-a-pyrene, dibenzo-a,h-anthracene, benzo-g,h,i-perylene, indeno-1,2,3-c,d-pyrene.

Ground gases (methane and carbon dioxide) are currently considered unlikely to affect the site or the development.

Risk Assessment

The qualitative PRA is presented in Table 1 and considers the proposed residential development. The PRA includes an initial conceptual site model to assess the relative significance of risks associated with relevant pollutant linkages identified by a source-pathway-receptor analysis. The relative assessment of risk is based on the following:

- The likelihood (probability) of an event occurring, taking into account the presence of the hazard & receptor, as well the plausibility of the pathway. The likelihood is defined as the chance of a particular event occurring in a given period of time.
- The severity of the potential consequence, taking into account the relative significance the hazard (typically site specific) and the relative sensitivity of the receptor. Severity or consequence can be defined as adverse effect(s) or harm arising from a hazard that impairs receptor function/condition in the short term (acute) or longer term (chronic).
- Risk classification (very low to very high) using a risk matrix that combines 'consequence' and 'likelihood'; the risk matrix is detailed in Appendix E.
- For the purposes of the qualitative assessment, identified very low and low risks will be considered acceptable for the redeveloped use.

The PRA does not specifically consider risks to construction workers during the development who may come into contact with site soils. Protection of workers should be achieved via routine precautions and compliance with relevant construction health and safety statutory/non-statutory guidance and codes of practice.

Table 1: Post-Development Conceptual Site Model & Preliminary Risk Assessment

Relevant Pollutant Linkages			Risk Assessment			
Source/Hazard	Pathway	Sensitive Receptor	Consequence	Likelihood	Preliminary Risk Classification	Comments
Inorganic/organic substances in soils & groundwater	Direct contact (Ingestion & Dermal)	Human Health Future site users	Medium	Low likelihood	Moderate to Low risk	Some ground contamination may be present as a result of historic site use or surrounding land use. Sensitive residential receptors will be introduced.
	Inhalation of soil dust					
	Internal and external inhalation of organic vapour	Controlled Waters Groundwater	Medium	Unlikely	Low risk	The site is located in an important groundwater resource area, but a significant thickness of low permeability superficial deposits are present.
	Migration of organic contaminants into plastic water supply pipes					
Asbestos fibres/fragments in shallow soils	Ingestion of site grown vegetables	Controlled Waters Surface water	Medium	Unlikely	Low risk	Surface waters are not located in close proximity and are less likely to be affected by contaminants from the site.
	Soils leaching to groundwater					
	Perched water discharge to groundwater	Human Health Future site users	Medium	Likely	Moderate risk	-
	Lateral groundwater flow					
Aggressive ground conditions	Groundwater discharge to surface waters	BBM&S Buildings, building materials and services	Medium	Unlikely	Low risk	-
	Direct surface run-off					

Note: Identified Very Low and Low risks are considered acceptable for the redeveloped use
BBM&S: Buildings, building materials and services.

Conclusions and Recommendations

A Phase 1 environmental assessment has been undertaken for the site to support the proposed redevelopment. The purpose of the assessment was to:

1. Determine the potential for land contamination issues arising from the current or historical uses of the site and surrounding area; and
2. Provide an assessment of potential risks that identified land contamination issues may pose to sensitive receptors on the developed site (including future site users, controlled waters and infrastructure).

The PRA has identified moderate to low risks to the identified receptors associated with potential land contamination and other related sources/hazards at the site. The following actions should be incorporated into the development scheme to ensure potential risks are effectively managed:

- The current buildings should be assessed for potential ACMs via an appropriate HSG264 compliant asbestos demolition survey. The recommendations of the survey should be implemented in line with CAR-2012, with all ACMs handled appropriately and removed for appropriate off-site disposal.
- The majority of the site is currently covered by buildings rendering pre-demolition Phase 2 ground investigation unlikely to be successful in characterising potential risks to the future site occupiers and other receptors. Demolition works will include ground works to remove in-ground structures. A discovery strategy should be developed for use during the site clearance and groundworks should visibly contamination impacted made ground deposits and/or natural soils and waste deposits be encountered. The strategy should include a protocol for characterising and dealing with any encountered contamination, including liaison with Manchester City Council (MCC).
- Surface cover materials will need to be imported for use in future soft landscaped/garden areas (none are currently present). The verification approach for the imported materials and the cover system design should be agreed with MCC before materials are imported to site. The approach should ensure that substances in imported shallow soils in exposed areas will not pose an unacceptable risk to human health or other receptors. The requirement for laboratory testing and number of samples will be dependant on the material supplier(s) and volumes to be imported. (Guidance in *MCC Planning and Contaminated Land Technical Guidance, February 2021* should be followed).
- New site services should be laid in clean service corridors.
- Below ground water supply services should comply with industry best practice for site development and the requirements of the water utility company.

We trust that the above meets your requirements. If you have queries, please do not hesitate to contact us.

Yours sincerely,

For and on behalf of Peak Environmental Solutions Limited



Clare Dainton

Director

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- Figures:

Figure 1: Site Location Plan

Figure 2: Site Layout Plan

Figure 3: 2020 Aerial Photograph

- Appendix A: Limitations & Exceptions
- Appendix B: Site Walkover Photographs
- Appendix C: Environmental Information Search
- Appendix D: Historical Map Pack
- Appendix E: Risk Matrix