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Contaminated Land Phase One Desk Study for Proposed Office Accommodation on Land Opposite Woodfield Garage, Longsight Road, Clayton-le-Dale, Blackburn, BB2 7JA

Prepared for

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Summary

This report consists of a phase one contaminated land desk study produced in support of planning application for Proposed Office Accommodation on Land Opposite Woodfield Garage, Longsight Road, Clayton-le-Dale, Blackburn, BB2 7JA.

It is a revised report following an initial report undertaken in February 2018, ref 1544-1 and has been written following changes to the site layout and boundary.

Following the site walkover and review of the available information it has been concluded that there is potential for contamination to exist on site which has the potential to adversely affect future users of the site.

Therefore, two options are recommended. The first based on the low sensitivity of the proposed development is to include suitable precautions in the design of the development to protect the proposed building and future users. These would include a vapour barrier, and protected water supply. The second that an intrusive investigation is undertaken to assess the presence and extent of potential contamination on site.

Contents

Introduction

Martin Environmental Solutions has been commissioned, to carry out a phase one contaminated land desk study report in relation to a proposed Office accommodation on Land Opposite Woodfield Garage, Longsight Road, Clayton-le-Dale, Blackburn, BB2 7JA.

This report is a revision of a previous report, ref 1544-1, undertaken by Martin Environmental Solutions in February 2018 following changes to the proposed site boundary. As such information purchased for the previous report has been used to produce this report, with adjustments made for the new site boundary.

Aims and Objectives of the report

The aims and objectives of this report are as follows:

- Assess the likelihood of contamination affecting the site,
- Identify any likely receptors to be affected by the potential contamination,
- Identify the pathways by which the receptors will be exposed to any potential contamination,
- Identify any areas where further investigation will be required.

Scope of works

This report has been written in line with the 'BS 10175: 2011 Investigation of potentially contaminated sites – Code of Practice' and 'The Model Procedures for the Management of Land Contamination, CLR11'.

The scope of this report covers the phase one desk study only. It will look at relevant information on: -

- the history of the site and surrounding area,
- the current use of the site and surrounding area,
- the geology and hydrogeology of the area,

A site walk-over survey has been undertaken in addition to consultations with the existing site owner, to identify any potential contamination issues.

Evaluation of the above information will be used to construct an initial conceptual model as appropriate, with the identification of any additional investigations that may be required.

The Site:

Site Address: Land Opposite Woodfield Garage, Longsight Road, Clayton-le-Dale, Blackburn, BB2 7JA.

Grid reference: 365852; 432585

An aerial photograph of the site is included in Figure 1.

Current Site use:

The site is currently in the process of being stripped and is being used for storage of various construction items and is roughly rectangular in shape covering approx. 0.64 ha. Work has begun on the foundations for the proposed building. Agricultural land surrounds the site with the former petrol station and main A59 road running to the northwest.

Research

Details of Research

This report has been based on information gathered from a number of reputable sources, covering details:

- on the historic and current use of the site,
- any known waste disposal activities in the area,
- any regulated industrial activities within the vicinity of the site including recorded industrial accidents,
- on the geology, hydrogeology, hydrology of the area,
- identification of any environmentally sensitive sites,
- any natural hazards.

Principle sources of this information have been:

- environmental data from Groundsure Limited
- the Local Planning Authority,
- historic maps (Groundsure Ltd),
- site walk-over survey and discussion with the current owners.

Site History

Information on the historic uses of the site has been obtained from historic mapping information (Appendix 2), and environmental data from Groundsure Limited.

Mapping Year	Changes on Site	Changes off Site
1847	The site forms part of a larger field with the 'A59' running to the northwest.	The area is predominantly agricultural. A few properties/farms are dotted around the area.
1892	N0 change.	No significant changes. 15 ponds are shown within 250m of the site. A small clay pit is located 520m to the west. The nearest property on the far side of Longsight Road, is Wood Field Farm.
1910-12	No change	No significant changes. A further pond is shown 150m to the south.
1931-32	The pond on site is no longer shown	A number of the ponds in the area have either been removed from the mapping or are shown as marsh suggesting a general silting up of shallow ponds in the area. While not labelled it appears the clay pit to the west has been expanded eastwards towards the site. The garage opposite the site (Woodfield's Garage) is now shown. Some of the farms in the area have expanded slightly.
1938	No Change	No significant changes, some additional properties are located within the area and farms have expanded.
1951	No change	No significant changes
1968-70	No Change	The site to the north is now showed as a filling station. The garage on the opposite side of the road has expanded and the house has been constructed on site. There is additional development to the northeast along Longsight Road. A property has been built on the site of the former clay pit to the west (now the vet's surgery formerly a little chef). Other ponds have dried up

		and are shown as marsh. Ribble Valley Farm has expanded to the east with rectangular buildings being built approx. 200m away.
1976	No Change	No significant changes further properties have been built in the wider area.
1993	No Changes	No significant changes, additional ponds are shown as marsh indicating the natural silting up of these shallow areas. The filling station building to the north is still shown on the site but it is not labelled. It can be confirmed from a search of planning applications that the site was not used as a filling station from at least 1995, if not much earlier.
2002	No Changes.	No significant changes Aerial photographs suggest a structure was removed between 2005 – 2009, to the north, which may have been the old petrol pumps. Approximately the same time the rear of the yard started to be used for the storage of plant.
2010-present	No Changes	No significant changes

Regulatory Information

Relevant information obtained from the Groundsure report (Appendix 1) is summarised below.

There are no current permitted activities as defined in the Environmental Permitting (England and Wales) Regulations 2016 or previous legislation identified within 500m of the site. Historically a Part B permit was held at the Royal Oak for petrol vapour recovery 500m to the northeast of the site.

One landfill/waste site record has been identified, ~1200m to the south at Mellor. This site is unlikely to affect the development.

Four discharge consents have been identified, all involving sewage discharges from domestic properties. The nearest is 340m west at Carr House Farm, followed by 410m northeast at Northwood, 455m southwest at Hawkshaw Farm and finally 467m northeast at Rose Cottage. These discharges are unlikely to impact on the site given their locations.

Current activities that have the potential to cause contamination have been identified within 250m of the site. These relate to Woodfield Garage opposite which undertakes vehicle maintenance and repair and The Energy Centre 65m north of the site. This is an office location and as such will not have any adverse impact on the development site.

The data has also identified 3 former petrol sites including the Royal Oak Garage to the north east, Woodfield Garage to the north on the far side of the road and Woodfield's Derv to the east although as this site is the middle of a field it is believed to relate to the site immediately to the north.

A number of historical potentially contaminative land uses have been identified within 500m of the site from the purchased information; most of these have been identified from the historical mapping. Those within 250m of the site include:

Ground workings 129m to the northwest in 1938, these remained on the mapping until the site was redeveloped.

Unspecified pits to the southwest, presumed to be the clay pits previously identified, the second of which is now overgrown but still evident.

The petrol filling station on site and opposite

The ponds identified and mentioned above many of which are still present today.

Given the evidence to hand it is unlikely that any of the above sites, with the exception of the petrol filling station on site, will impact on the development.

Geology and Hydrogeology

Information from the British Geology Survey 1:50,000 mapping identifies the bedrock in the area as Pendle Grit Member, Sandstone overlaid with Till Devensian, Diamicton deposits. It has not been possible to confirm this geology from currently available borehole records.

The information obtained on the hydrogeology of the area identifies the site as having a Secondary A aquifer within the bedrock on-site capable of supporting water supplies at a local rather than strategic scale, with a secondary (undifferentiated) aquifer in the superficial layer.

The site is not located within a Source Protection zone.

The soil leaching potential of the ground on site has been identified as L, soils in which pollutants are unlikely to penetrate the soil layer.

Hydrology

A number of watercourses have been identified surrounding the site. The nearest is 286m to the to the northwest and is a tertiary river flowing west towards the River Ribble. The site is unlikely to impact on any of these watercourses.

The site is not located within an Environment Agency flood zone the risk from flooding is therefore low.

Environmental Sensitivity

The development site is located within 2000m of five ancient woodlands. The nearest of which is located ~360m to the northwest, the rest are over 1.4Km away. The site is also located within 1537m of the Liverpool, Manchester and West Yorks Greenbelt. The site is unlikely to impact on any of these identified environmental sensitive sites.

The site is within an area of negligible/low risk of natural hazards.

A site-specific radon search has been included within the purchased information which confirms that the site is within an area with less than 1%of properties are above the 200 Bq m^3 action level. Radon protection measures are therefore not required.

Site Walkover

A site walkover was undertaken on the 26th November 2018, and confirmed much of what had already been identified from the purchased information. The photographs in Appendix 3 provide some indication of the current layout and condition of the site.

The site is accessed from Longsight Road and lies to the southwest of the road. Behind the former petrol station. The site formed part of a larger field. At the time of the walkover a layer of hardstanding had been placed over it and various inert construction items were being stored on the site.

No evidence of any contamination, dead or distressed vegetation was found during the walkover survey.

Conclusions

Potential Contaminants

Following a review of the information gathered on the history of the site and the surrounding area, and following the site walk-over survey there are no contaminants identified onsite that are likely to present a significant possibility of significant harm to any identified receptors. All ponds in the area are either still present or historical mapping has shown then naturally drying up over time.

Historically however the site to the north was a petrol filling station and it is unclear as to what remediation if any may have been undertaken. Given the age of the site is its entirely foreseeable that contamination of the site may have occurred from storage tanks and fuel lines. This will include Petroleum Hydrocarbons, MTBE, Lead. In addition, recent usage as a storage yard has resulted in a number of vehicles being left on site which have started to disintegrate, potentially leading to the release of TPH's, PAH's. However no signs of contamination on the development site were identified, and the end of given appropriate precautions is low risk (no landscaping, hardcore base and office use).

Receptors and Pathways

Potential receptors which may be affected by any unknown contamination on site will include:

- Construction workers who are likely to be affected by any potential contamination as they will initially be working in the ground and are likely to be the ones who unearth any potential contaminants.
- Future users of the site, including residents, staff and visitors to the site. For the purpose of evaluating any effects from any contamination found during any intrusive investigation future users/visitors to the site can be regarded as adults, as opposed to the usual 0-6-year-old female child as the likely receptors will be adults given the nature of the development.
- Any building on site e.g. foundations which may be attacked by any contaminants in the ground or services.
- The underlying groundwater which may be contaminated by migrating pollutants present on the site. There is also the potential for further pollution of the groundwater or the watercourse from disturbing any potential contaminants on site.

The pathways by which these receptors may be exposed to any unforeseen potential contamination will include:

Construction workers

- Inhalation, of gases or vapours released during ground work or fine particles.
- Ingestion of the contaminants, principally from cross contamination with contaminated soil and inadequate hand washing before smoking and eating.
- Absorption through the skin following contact with contaminated soil.

Future users and visitors

- Inhalations of gas/vapours or fibres, particularly if these are allowed to enter the new structures through the ground, and build up in an enclosed area.
- Absorption of contaminants from dermal contact with contaminated soil, unlikely as there will be no direct contact.

Buildings

Contaminants on site have the potential to affect the foundations to the new building or the services supplying it.

Watercourses

As discussed above, if they exist on site, there is a potential for any contaminants to migrate through the ground into the groundwater and aquifer or via run-off into the watercourse.

Conceptual Model

The table represents a basic conceptual model. It highlights the potential sources of pollutants identified from the gathered information, and potential pathways in which any contaminants could reach the identified receptors.

Pathway	Description	Identified sources	Receptor at risk	Likelihood
1	Run off and seepage into groundwater from any spillages	Slight surface hydrocarbon sheen	Watercourse/ Environment	Low
2	Migration of gases into the building.	Hydrocarbon from only storage tanks & fuel lines	Future users	Medium
3	Inhalation of gases/ vapours outside	Hydrocarbon from only storage tanks	Construction workers/future users	Medium
4	Inhalation of fine particles	Hydrocarbon from only storage tanks & fuel lines, PAH's from vehicles on site	Construction workers	Medium
5	Direct ingestion of contaminated soil	Hydrocarbon from only storage tanks & fuel lines, PAH's from vehicles on site	Construction workers	Low

6	Absorption via direct dermal contact with contaminated soil	Hydrocarbon from only storage tanks & fuel lines, PAH's from vehicles on site	Construction workers	Low

Recommendations

As a result of the investigation into the historical use of the site and surrounding area no sources of contamination have been identified on or off site with the exception of the potential from the adjacent former petrol station site.

Given the low sensitivity of the proposed end use providing no landscaping areas are to be incorporated into the design it is possible to taken suitable precautions during the construction phase to protect future occupants. Assuming contamination is present on site, migrating from the former petrol station suitable precautions can be taken to protect foundations. Gas membranes can be installed to prevent vapours entering the building and enhanced piping for mains water supply can be used to protect water from potential contamination (e.g. aluminium barrier layer) laid in clean trenches.

Alternatively an intrusive investigations can be undertaken to ascertain the exact nature and extent of any contamination present. A series of soil samples should be taken across the site at various depths across the site through the made ground / location of storage tanks. These should be tested for the presence of heavy metals in particular lead, total petroleum hydrocarbons (TPH's) including MTBE and Polycyclic Aromatic Hydrocarbons (PAHs).

Figure 1 – Aerial Photograph

Appendix 1 – Groundsure Data

Appendix 2 – Historical Mapping

Appendix 3 - Site Walkover photographs

A view of the front of the site from Longsight Road
Looking along the northern boundary eastwards

Looking from north to south along the western boundary of the site

Southern boundary

Looking back along the western boundary south to north.

Southernern boundary

Looking east

The southeast corner of the site looking north along the eastern boundary

Looking across the site

North east corner of the site

Hardcore based in preparation for the building