



# Contaminated Land Phase One Desk Study for proposed residential development at 4 Thirsfield Drive, Manchester, M11 4BF.

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Prepared for

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June 2022



## **Summary**

This report consists of a phase one contaminated land desk study produced in support of a discharge of a planning condition attached to permission 28160/FO/2020 for a residential dwelling at 4 Thirsfield Drive, Manchester, M11 4BF.

Following the site walkover and review of the available information it has been concluded that there is a slim chance of contamination existing on site from presumed made ground which requires either further investigation or mitigation measures to be taken to prevent any significant risk of significant harm to the identified receptors either and to ensure the site is safe and suitable for the intended use.

The report further recommends that a watching brief is maintained throughout the construction of the new dwellings and any signs of potential contamination found are fully investigated, with appropriate remedial action taken as necessary.



## **Contents**

|                                                    |    |
|----------------------------------------------------|----|
| Summary.....                                       | 2  |
| Introduction.....                                  | 4  |
| Aims and Objectives of the report .....            | 4  |
| Scope of works .....                               | 4  |
| The Site: .....                                    | 5  |
| Current Site use: .....                            | 5  |
| Research .....                                     | 5  |
| Details of Research .....                          | 5  |
| Site History .....                                 | 6  |
| Regulatory Information .....                       | 8  |
| Geology and Hydrogeology .....                     | 9  |
| Hydrology .....                                    | 9  |
| Environmental Sensitivity .....                    | 9  |
| Site Walkover.....                                 | 11 |
| Potential Contaminants.....                        | 12 |
| Receptors and Pathways .....                       | 12 |
| Conceptual Model .....                             | 14 |
| Recommendations.....                               | 15 |
| Figure 1 – Aerial Photograph.....                  | 16 |
| Appendix 1 – Groundsure Data .....                 | 17 |
| Appendix 2 – Historical Mapping .....              | 18 |
| Appendix 3 – Site Walkover Photographs .....       | 19 |
| Appendix 4 Report limitations and exclusions ..... | 24 |
| Basis of Risk Assessment .....                     | 24 |
| Limitations and Exceptions of this Report.....     | 24 |



## **Introduction**

Martin Environmental Solutions has been commissioned, to carry out a phase one contaminated land desk study report in relation to a proposed residential development at 4 Thirfield Drive, Manchester, M11 4BF.

## **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+A2: 2017 Investigation of potentially contaminated sites – Code of Practice' and Land Contamination Risk Management (LCRM).

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:** 4 Thirsfield Drive, Manchester, M11 4BF.

Grid reference: 388119; 398902

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

### **Current Site use:**

The site currently consists of an open piece of rectangular land which is overgrown. Residential properties lie to the immediate north, east and south with Thirsfield Drive to the west and more residential properties beyond.

## **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                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1848         | The site forms part of a large field. | The area is largely agricultural. Clayton Hall is located 400m south of the site and Clayton Dingle Wood to the north. Beyond 500m north is the river Medlock flow east-west and beyond that 700m away the railway. To the south approx. 700m the Stockport and Ashton-under-Lyne Canal. A number of print works are identified along the river and to the south a colliery approx. 800m away with further mills, chemical and dye works beyond.                                     |
| 1892-93      | No Change                             | 70m southwest of the site is shown some groundworks forming three-sides of a square. Beyond along North Road residential properties have been built. These extend westward towards Manchester. To the northeast ~200m away an Old Marl Pit is shown. Two ponds are present within 250m of the one to the north ~200m away and the other to the southwest ~200m. The wider area has seen significant development to the southeast towards Manchester centre.                          |
| 1906-08      | No Change                             | A brickworks is shown to the west of the site ~100m away with a pit/quarry to the immediate south of the site. Additional housing has been built to the south both east and west along with a cricket and football ground to the southeast, and golf course to the northeast. A further brickworks' is shown to the east of Clayton Hall ~400m away. Clayton Dingle wood is shown as ground workings with a stream running along the centre and to the northwest 500m away a mineral |

|               |                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------|------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|               |                                                                        | railway side branch from the main line.                                                                                                                                                                                                                                                                                                                                                                               |
| 1922-23       | The site lies over a new clay pit for the brickworks.                  | More housing has been built to the south and west of the site. An electricity generating site is shown 700m to the west.                                                                                                                                                                                                                                                                                              |
| 1932-38       | The site is shown again as open land                                   | The brickworks has been demolished and the pit now covers the area to the east of the site towards the brickworks building (the chimney is still present). Housing has been built to the north of the cricket/football ground. The second 1938 map shows the full area as being marked out for future housing, including the brickworks and clay pit land, the cricket and football ground and the land to the north. |
| 1950-58       | A detached property is shown on the site, labelled 4 Thirsfield Drive. | The full area has been developed into a housing estate. A substation is shown to the north of the site access from Bury Place.                                                                                                                                                                                                                                                                                        |
| 1961-68       | No change                                                              | No significant changes                                                                                                                                                                                                                                                                                                                                                                                                |
| 1970-78       | No change                                                              | No significant changes                                                                                                                                                                                                                                                                                                                                                                                                |
| 1981-86       | No change                                                              | No significant changes. The mineral railway is now dismantled.                                                                                                                                                                                                                                                                                                                                                        |
| 1991-92       | No change                                                              | No significant changes                                                                                                                                                                                                                                                                                                                                                                                                |
| 2001-03       | No change                                                              | No significant changes                                                                                                                                                                                                                                                                                                                                                                                                |
| 2010-22       | The property is demolished between 2010 and 2022                       | No significant changes                                                                                                                                                                                                                                                                                                                                                                                                |
| Aerial photos | Identifies the property having been demolished between 2001-2003       | No significant changes                                                                                                                                                                                                                                                                                                                                                                                                |



## **Regulatory Information**

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

There are no permitted activities has been identified within 500m of the site as defined in the Environmental Permitting (England and Wales) Regulations 2016 or previous legislation.

One pollution incident has been identified in the surrounding area located 427m south in July 2001 involving organic chemicals and have a minor impact on the air.

No discharge consents are reported.

The above identified site is unlikely to impact on the development site.

No active landfill site records have been found in the area, a historic landfill has been identified 339m northeast as a refuse tip on the 1965 mapping, this covers the river and the wood and, with another 246m north at Clayton Vale Power Station between dec 1965 and dec 1968 accepting inert, household and commercial/industrial waste.

No further waste sites or waste exemptions have been identified.

Given the distances and nature and age of the sites it is unlikely that the above sites will pose any risk to the development.

The only current potentially contaminative site identified is the electrical sub-station located 38m north of the site, this is unlikely to impact on the site.

Historical potentially contaminative land uses have been identified within 250m of the site from the purchased information; most of these have been identified from the historical mapping and include:

On site the pit and brickworks

The Marl pit 185m northeast

The substation to the north



## **Geology and Hydrogeology**

Information from the British Geology Survey 1:50,000 mapping identifies the bedrock in the area as Collyhurst Sandstone Formation overlaid with Till, Devensian and Diamicton deposits. The presence of made ground is also recorded on site.

The information obtained on the hydrogeology of the area identifies the site as having a Principal aquifer in the bedrock capable of providing a high level of water storage and may support water supply/river base flow on a strategic scale, with a Secondary undifferentiated aquifer in the superficial layer.

A total of 24 groundwater abstraction licenses have been identified, of those that are still active the nearest is 573m southwest at Evonik Chemicals Ltd for cooling, 963m southwest at Manchester City Football Ground for irrigation, and 1795m northwest at Hanson Quarry Products site.

Six surface water abstraction licenses are identified. The only active site is located 583m southwest at Ashton Canal as process water for the Canal and Rover Trust.

The site is not located within a Source Protection Zone.

The Groundwater vulnerability is described as low within all geological layers.

## **Hydrology**

The only watercourses identified are the river Medlock to the 464m north and the canal to the south.

The site is not within a floodplain, and the risk of flooding is classified as low.

## **Environmental Sensitivity**

The only Environmental Sensitivity site identified is the Clayton Vale Local Nature Reserve located 231m north of the site along the river. The Merseyside and Greater Manchester Greenbelt is also identified as being 244m north at the same site.

The property is in an area identified as having between 1% -3% of properties above the action level of 200 Becquerel's per cubic metre, based on specific property search. Radon protection measures are not required in line with BR211.

No additional natural hazards have been identified & the site has very low/negligible risk of shrink swell, running sand, and compressible ground.



There are no mining activities identified in the immediate area although the site is located within a coal mining area as identified by the Coal Authority.



## **Site Walkover**

A site walkover was undertaken on the 6<sup>th</sup> June 2022 and confirmed much of what had already been identified from the information obtained on the site. The photographs in Appendix 3 provide some indication of the current layout and condition of the site.

The site is accessed from Thirsfield Drive to the west of the site. Existing housing lie to either side, behind and opposite.

The site is overgrown across its entirety. There is some evidence of the former building still on site with some rubble in places. In addition, some rubbish/litter and waste wood were seen across the site.

No signs of contamination, discoloration or olfactory evidence, dead or dying vegetation were seen during the walkover.

The current owners are unaware of any issues on site which could have led to contamination and the site has been used as a garden since the property was purchased.



## 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 on or off site that are likely to present a significant possibility of significant harm to any identified receptor.

The exception to this is the former pit associated with the Brickworks and therefore potential for made ground to exist on site. This would not be uncommon for the surrounding properties and no records have been identified to suggest any contaminated issues arising at nearby properties.

### 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 should be regarded as the 0-6-year-old female child.
- 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.
- Ingestion of contaminants, through the ingestion of contaminated soil from the garden area via direct contact, e.g., playing in the garden.
- Absorption of contaminants from dermal contact with contaminated soil.

#### 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.

#### Neighbouring sites

If present on site contaminants have the potential to migrate to neighbouring sites through ground water or air blown transfer.



### 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     | Infilled / made ground | Watercourse/ Environment          | Low        |
| 2       | Migration of gases into the building.                       | Infilled / made ground | Future users                      | Low,       |
| 3       | Inhalation of gases/ vapours outside                        | Infilled / made ground | Construction workers/future users | Low        |
| 4       | Inhalation of fine particles                                | Infilled / made ground | Construction workers/future users | Low        |
| 5       | Direct ingestion of contaminated soil                       | Infilled / made ground | Construction workers              | Low        |
| 6       | In-direct ingestion of contaminated soil                    | Infilled / made ground | Future users                      | Low        |
| 7       | Absorption via direct dermal contact with contaminated soil | Infilled / made ground | Construction workers/future users | Low        |



## **Recommendations**

As a result of the investigation into the historical use of the site and surrounding area the site has been identified as being located on a former extraction pit/quarry associated with a former brickworks. No records of any landfill operations have been identified and no records of any issues with surrounding properties have been identified and no sites have been designated as contaminated land. However, due to the potential presence of made ground and slim possibility of pollutants within the site and/or ground gas mitigation measures are recommended as part of the construction of the property.

No other sources of contamination have been identified on or off site which present a significant possibility of significant harm to the any of the identified receptors.

Mitigation measures to be included are as follows:

- Either undertaken soil analysis of the site to establish whether the soil (particularly in the proposed garden area) contains any contaminants likely to result in significant possibility of significant harm to the future residents or
- Provide gas protection measures to the building on the form of a gas membrane
- Provide 600mm of clean cover within all amenity garden areas.
- Install barrier pipework for all mains water connections.

It is further recommended that a watching brief is maintained throughout the construction of the new building and any signs of potential contamination found are fully investigated, with appropriate remedial action taken as necessary and the local planning authority informed of the findings.

**Figure 1 – Aerial Photograph**





## **Appendix 1 – Groundsure Data**



## **Appendix 2 – Historical Mapping**

## Appendix 3 – Site Walkover Photographs

The view from the road along the eastern boundary looking north then south



The northern boundary



Looking back east across the site



The western and southern boundaries







## **Appendix 4 Report limitations and exclusions**

### **Basis of Risk Assessment**

The methods used follow a risk-based approach with the potential risk assessed using the 'Source – pathway – receptor pollution linkage concept.

### **Limitations and Exceptions of this Report**

This report was undertaken for at the request of Building Design Services and as such should not be entrusted to any third party without written permission of **Martin Environmental Solutions**. No other third parties may rely upon or reproduce the contents of this report without the written permission of **Martin Environmental Solutions**. If any unauthorised third party comes into possession of this report, they rely on it at their own risk and the authors do not owe them any duty of care or skill.

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The findings and opinions provided in this document are made in good faith and are based on data provided by third parties (Groundsure, Environment Agency, The Coal Authority, and Regulatory Bodies) and the report should be read in conjunction with the limitations on the document control form. The accuracy of map extracts cannot be guaranteed and it should be recognised that different conditions on /adjacent to the site may have existed between and subsequent to the various map surveys.

This report is prepared and written in the context of the purposes stated above and should not be used in a different context. Furthermore, new information, improved practices and legislation may necessitate an alteration to this report in whole or in part after its submission.

The conclusions and recommendations of this report are based on the development described, for any other development the report may require revision.

All of the comments and opinions contained in this report, including any conclusions, are based on the information obtained by **Martin Environmental Solutions**. The conclusions



drawn by **Martin Environmental Solutions** could therefore differ if the information obtained is found to be misrepresentative, inaccurate, or misleading. **Martin Environmental Solutions** reserves the right to amend their conclusions and recommendations in the light of further information that may become available.

The report should be read in its entirety, including all associated drawings and appendices.

**Martin Environmental Solutions** cannot be held responsible for any misinterpretations arising from the use of extracts that are taken out of context.

This report does not comprise a geotechnical assessment of the strata underlying the site.

Any borehole data from the British Geological Survey sources is included on the following basis: 'The British Geological Survey accept no responsibility for omissions or misinterpretations of the data from their Data Bank as this may be old or obtained from non-BGS sources and may not represent current interpretation'.

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Any risks identified in a Phase I Desk Study Report are perceived risks. Actual risks can only be assessed following a physical investigation of the site.

The findings of this report are based on finite information obtained from research and consultations. Martin Environmental Solutions cannot guarantee the reliability of all such information and the searches should not be considered exhaustive. The findings of the report may need to be reviewed as any future exploratory investigations progress and in the event that additional archive information becomes available.

Notwithstanding the findings of this study (and any subsequent investigations), if any indication of contaminated soil (visual or olfactory) is encountered at any stage of the development further investigation may be required.



Arboricultural Survey and advice on arboricultural issues are considered to be outside the scope of this report except for their effect on the foundations to the proposed buildings.

Where identification of any species is made, especially invasive plants such as Japanese Knotweed, Himalayan Balsam or Giant Hogweed, this should only be considered as a preliminary assessment and subject to confirmation by a professional Arboriculturist. Martin Environmental Solutions takes no responsibility for failing to identify, or the incorrect identification of, any tree or plant species on site.

Our investigations exclude surveys to identify the presence or indeed absence of asbestos in buildings/infrastructure on site. If asbestos is suspected to be present, we recommend specialists in the identification and control / disposal of asbestos are appointed prior to commencement of any works on site or, if appropriate, purchase of the site. The presence of asbestos on site may have considerable effects on the cost / timescale in developing the site. There is good guidance in relation to Asbestos available on the Health and Safety Executive (HSE) web site.

Whilst a site walkover has been undertaken as part of this report, the survey does not constitute either an asbestos or structural survey and all areas of the site may not have been visited / inspected.