

ROMAN SUMMER ASSOCIATES LTD

**TANNERS STREET
RAMSBOTTOM, BURY, BL0 9EP**

PRELIMINARY RISK ASSESSMENT

Contract: 2230098

Date: February 2020

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PRELIMINARY RISK ASSESSMENT

carried out at

TANNERS STREET

**RAMSBOTTOM, BURY,
BL0 9EP**

Prepared for

**ROMAN SUMMER ASSOCIATES LTD,
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EXECUTIVE SUMMARY

On the instructions of Roman Summer Associates Ltd., a Preliminary Desk Study Investigation and site reconnaissance has been carried out in order to assess the potential hazards on and adjacent to the site and prepare a risk assessment for further consideration. It is understood that it is proposed to develop the site for low-rise housing with private gardens.

The site is situated at on the western side of Tanners Street, south of Manor Street in north west of Ramsbottom and may be located by Grid Reference SD 787 170.

The site is approximately rectangular in shape, is 0.14 hectares in area and slopes down to Tanners Street. From the 1:25,000 Ordnance Survey Map the site slopes by approximately 15m east to west and the site is approximately 40m long indicating the site slopes at an angle of approximately 20 degrees to the horizontal.

The site appears to part of an open field in 1850 but was part of the gardens to Prospect House from between 1850 and 1893. The site appears to have remained gardens up to the present.

The 1:50,000 British Geological Map Sheet 76 indicates the site to be underlain by Glaciofluvial Sand and Gravel overlying Rossendale Formation mudstone and sandstone. Coal seams are indicated to sub crop 150m east and 350m west of the site.

The Coal Authority Report is included in Appendix 5. The report indicates that the property is not within a surface area that could be affected by past underground mining. No recorded mine entries are located within or within 20m of the site boundary.

The Glaciofluvial Sand and Gravel is likely to be a competent stratum and low rise structures are likely to be founded of conventional shallow foundations.

The research has not identified any significant hazards associated with the anticipated underlying ground conditions. Intrusive ground investigation would be required to confirm the presence and nature of the strata below the site and design assumptions.

There is the potential for the migration of explosive gases from a nearby landfill and old quarries which may have been partially backfilled. The underlying geology is possibly granular in nature and there is 'likely' to be a valid pathway. However, there is an increase in ground level of at least 40m between the site and the areas of infilled land. In addition, there is minimal hardstanding cover between the site and the areas of infilled land and as such, the risk is considered to be low and no further investigation is considered necessary.

There is the potential for the migration onto site from contamination associated with the former allotment gardens located to the northwest of the site, a former fireplace and mantelpiece suppliers to the southwest of the site, and a former cotton mill located to the east of the site. The risk to end users from the mill is considered to be very low.

The risk posed by the fireplace and mantelpiece suppliers and historical allotments is considered to be low. Further investigation is may be necessary.

The research has identified evidence of potential sources of contamination on or which may impact on the site, with plausible pathways to the likely receptors, and therefore potential pollutant linkages have been suggested.

A limited intrusive investigation may be undertaken to address the issues. The following scope of works is suggested in order to collect the required data:

- Exploratory holes to confirm ground conditions and for the recovery of samples for geotechnical and chemical contamination analysis.

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1.0 INTRODUCTION

1.1 General

- 1.1.1 On the instructions of Roman Summer Associates Ltd., a Preliminary Risk Assessment in the form of desk based study and site reconnaissance has been carried out in order to assess the potential hazards on and adjacent to the site and prepare a risk assessment for further consideration.
- 1.1.2 It is understood that it is proposed to develop the site for low-rise housing with private gardens.
- 1.1.3 This report has been prepared for the sole use of the Client for the purpose described and no extended duty of care to any third party is implied or offered. Third parties using any information contained within this report do so at their own risk.
- 1.1.4 It is recommended that a copy of this report be submitted to the relevant authorities to enable them to carry out their own site assessment and provide any comments.
- 1.1.5 The comments given in this report and the opinions expressed herein are based on the information obtained from the desk study and site reconnaissance. No intrusive investigation has been carried out to confirm the actual ground or environmental conditions.
- 1.1.6 Any risks identified in this report are perceived risks based on information reviewed. Actual risks can only be assessed following a physical investigation of the site.
- 1.1.7 This report has been based, in part, on information supplied by others. The report has been prepared on the basis of that information being accurate.
- 1.1.8 The conclusions presented in this report are based on the guidance available at the time of preparation of the report. No liability can be accepted for the retrospective effects of any changes or amendments to legislation or guidance.
- 1.1.9 This Preliminary Investigation has been conducted in general accordance with CLR 3, ref. 7.1, CLR 11, ref 7.2, BS 10175, ref 7.3, and GPLC 1, ref 7.4.

2.0 SITE

2.1 Site Location

- 2.1.1 The site is situated on the western side of Tanners Street, in northwest Ramsbottom and may be located by Grid Reference SD 787 170.
- 2.1.2 A site location plan and an aerial photograph are included in Appendix 1, Figures A1.1 and A1.2.

2.2 Site Walkover and Description

- 2.2.1 A walkover survey of the site was conducted on 6th December 2019. The walkover was carried out in general accordance with CLR 2, ref. 7.5.
- 2.2.2 The site is approximately rectangular in shape, is 0.14 hectares in area and slopes down to Tanners Street. From the 1:25,000 Ordnance Survey Map the site slopes by approximately 15m east to west and the site is approximately 40 m long indicating the site slopes at an overall angle of approximately 20 degrees to the horizontal.
- 2.2.3 At the time of the walkover survey, the site was accessed via stone steps at the south-eastern corner and occupied by mature gardens which consisted mainly of shrubs. Two lines of mature trees were located on the southern perimeter, with several mature trees spread across the northern perimeter of the site.
- 2.2.4 There was no visual evidence of existing services, contamination or watercourses on the site. Several wooden boxes were present within the centre of the site and appeared to be used as storage for compost.
- 2.2.5 The site was surrounded by residential properties, with Ramsbottom beyond to the east and countryside to the west.
- 2.2.6 Photographs from the walkover survey are included within Appendix 2, Figures A2.1 to A2.4.

2.3 Historical Maps

2.3.1 A review of the history of the site has been conducted based on readily available historical maps. Details of the findings are provided in the table below. All maps are provided in Appendix 4.

Map, Date and Scale	Site Description	Regional Setting
Lancashire & Furness 1850 1:10560	The site appeared to be unoccupied.	The area around the site appeared to be open fields although the map resolution is poor.
Lancashire & Furness 1893 1:2500	The site was unoccupied but appeared to be part of the gardens to a large detached house to the west.	Tanners Street was located east of the site and Manor Street was present 20m north of the site. Gardens were located south of the site. Small houses fronting onto Taper Street and Coulthurst Street were located 25m south of the site. Old quarries were located 150m and 250m north west of the site. Reservoirs were present 150m east and 250m north of the site. Spring Wood Cotton Mill and Carr Cotton Mill were located 150m north east and 250m east of the site. A public house was situated 30m north east of the site.
Lancashire & Furness 1895 1:10560	No significant changes	No significant changes
Lancashire & Furness 1910 1:2500	Mature trees were located on the southern boundary of the site	No significant changes
Lancashire & Furness 1912 1:10560	No significant changes	No significant changes
Lancashire & Furness 1929 1:2500	No significant changes	No significant changes
Lancashire & Furness 1930 1:10560	No significant changes	No significant changes

Map, Date and Scale	Site Description	Regional Setting
Lancashire & Furness 1938 1:2500	No significant changes	No significant changes. Carr Mill was disused.
Ordnance Survey Map 1955 1:10000	No significant changes	No significant changes
Ordnance Survey Map 1963 1:2500	No significant changes	The large detached house to the west was designated Prospect House. Springwood Cotton mill no longer designated. Allotment gardens were located to the east of the site.
Ordnance Survey Map 1968 1:10000	No significant changes	No significant changes
Ordnance Survey Map 1978 1:2500	No significant changes	Allotment gardens were located 20m to the northwest
Ordnance Survey Map 1982 1:10000	No significant changes	No significant changes
Ordnance Survey Map 1983 1:2500	No significant changes	No significant changes
Large Scale National Grid Map 1992 1:1250	No significant changes	A new detached house was located 20m northwest on the site of the former allotment gardens.
Large Scale National Grid Map 1996 1:1250	No significant changes	Houses were located east of the site fronting onto Grants Mews.
10k Raster Map 1999 1:10000	No significant changes	No significant changes
Aerial Photograph	No significant changes	No significant changes

Map, Date and Scale	Site Description	Regional Setting
2001		
10k Raster Map 2006 1:10000	No significant changes	No significant changes
Vector Map Local 2019 1:10000	No significant changes	No significant changes

2.4 Summary

- 2.4.1 The site appears to part of an open field in 1850 but was part of the gardens to Prospect House from between 1850 and 1893. The site appears to have remained as gardens up to the present.

3.0 SITE SETTING

3.1 Geological Setting

- 3.1.1 The 1:50,000 British Geological Map Sheet 76 'Rochdale', indicates the site to be underlain by Glaciofluvial Sand and Gravel overlying Rossendale Formation mudstone and sandstone. Coal seams are indicated to sub crop 150m east and 350m west of the site.
- 3.1.2 The Coal Authority Report is included in Appendix 5. The report indicates that the property is not within a surface area that could be affected by past underground mining. No recorded mine entries are located within or within 20m of the site boundary.

3.2 Hydrogeological Setting

- 3.2.1 The hydrogeological records, provided by the Environment Agency, indicate that the site is situated on Secondary A Aquifers relating to the bedrock and the Glaciofluvial Sand and Gravel.
- 3.2.2 The Environment Agency defines Secondary A aquifers as 'permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers'.
- 3.2.3 The Envirocheck vulnerability map indicates the soil to be of low vulnerability.
- 3.2.4 Soils of low vulnerability are soils in which pollutants are unlikely to penetrate the soil layer because water movement is largely horizontal, or they have large ability to attenuate diffuse pollutants. Lateral flow from these soils contributes to groundwater recharge elsewhere in the catchment.
- 3.2.5 The site is not located within a groundwater source protection zone.
- 3.2.6 There are no groundwater abstraction wells within 600m of the site. The nearest is 643m south east of the site which is process water for paper and printing.

3.3 Hydrological Setting

- 3.3.1 The nearest surface watercourse is a small stream, located approximately 106m to the north of the site at its closest point.
- 3.3.2 Reservoirs were present 150m east and 250m north of the site.
- 3.3.3 The site is not situated within an area defined by the Environment Agency as being at risk of flooding from rivers.
- 3.3.4 There is no available river quality classification data for the nearest watercourse.

- 3.3.5 There are no surface water abstractions within 600m of the site. The nearest is 602m east of the site which is also process water for paper and printing.

3.4 Radon

- 3.4.1 The British Geological Survey, in conjunction with the Radiation Protection Division of the Health Protection Agency, ref. 7.6, indicates the site to lie within an area where there is a probability of <1% of present or future homes being above the action level of 200Bq/m³. As such, the site is not classified as a Radon Affected Area.
- 3.4.2 As such, no radon protective measures are deemed necessary for the proposed development. This is confirmed by the Building Research Establishment, Report BR211, ref 7.7.

ASSESSMENT OF GEOTECHNICAL RISK

3.5 Geological Constraints

3.5.1 The following are brief findings relating to factors identified during the research from the Envirocheck data that may have a potential impact upon the engineering of the proposed development.

Potential Hazard	Assessed Risk	Comment
BGS Recorded Mineral Sites	Low	Sandstone Quarries 158m and 206m west and north west of the site
Coal Mining / Mining Instability	Low	Coal Authority Report is included in Appendix 5.
Other shallow mine workings	Low	
Man-Made or Natural Cavities	Low	
Collapsible Ground	Very low	
Compressible Ground	Very low	
Ground Dissolution	Very low	
Landslide	Very low	Moderate risk 33m east and 77m north of the site.
Running Sand	Very low	
Shrinking or Swelling Clay	Very Low	

3.6 Geotechnical Risk Assessment

3.6.1 An assessment of the main hazards associated with the site is detailed below. Unless stated otherwise, the presence of such hazards are based on information from the research or reconnaissance and have not been confirmed by an intrusive investigation.

- Soil Conditions

The geological map indicates that the site is underlain by Glaciofluvial Sand and Gravel overlying mudstone or sandstone. The sand and gravel is likely to be a competent stratum and low rise structures are likely to be founded of conventional shallow foundations.

- Topography

The Envirocheck data provided indicates only a very low risk of landslip subsidence. The site slopes steeply to the east therefore, depending on final layout, retaining walls may be required.

- Previous Use

The previous use appears to be a garden indicating that subterranean structures are not likely to be present on the site.

3.7 Conclusions of Geotechnical Risk Assessment

- 3.7.1 The research has not identified any significant hazards associated with the anticipated underlying ground conditions.
- 3.7.2 Intrusive ground investigation would be required to confirm the presence and nature of the strata below the site and design assumptions.

4.0 ENVIRONMENTAL SEARCHES

4.1 Potential Sources of Contamination

4.1.1 A search was made of records held by the various regulatory authorities and other statutory bodies to determine the presence or otherwise of past and current activities on or within 500m of the site which have the potential to give rise to the presence on site of contaminants. The findings are given in the table below:

Activity	On Site	Off Site (distance / direction)	Detail
Contaminated Land Register Entries	None	None within 500m	
Discharge Consents	None	Two within 250m, one at 250-500m	Closest at 131m east of the site which is a Storm Sewage Outflow of fresh water into the River Irwell
Integrated and Local Authority Pollution Prevention and Controls	None	None within 500m	
Pollution Incidents to Controlled Waters	None	None within 250m, two at 250m to 500m	Nearest was crude sewage in River Irwell 470m east of the site in July 1999. Minor incident due to flooding.
Prosecutions Relating to Authorised Processes or Controlled Waters	None	None within 500m	
Registered Radioactive Substances	None	None within 500m	
Substantiated Pollution Incident Register	None	None within 500m	
BGS Recorded Landfill Sites	None	None within 500m	
Historical Landfill Sites	None	One at 366m west	At Higher Barn Farm, first input 1983, last input and waste type not supplied.
Licenced Waste Management Facilities	None	None within 500m	
Local Authority Recorded Landfill Sites	None	None within 500m	
Registered Landfill Sites	None	None within 500m	
Registered Waste Transfer Sites	None	One at 493m east	Greater Manchester Waste Ltd have a civic amenity site at Stubbins Lane. Licenced to take Asbestos, organic waste, some chemical and toxic waste.
Registered Waste Treatment or Disposal Sites	None	None within 500m	

Activity	On Site	Off Site (distance / direction)	Detail
Hazardous Substances	None	None within 500m	
Explosive Sites	None	None within 500m	
Contemporary Trade Entries	None	Five within 250m, twenty-eight at 250-500m.	Closest at 22m, 56m and 87m which were ironing services, fireplace and mantelpiece suppliers and commercial cleaners respectively, but are all inactive. Closest active blinds suppliers 240m east of the site.
Fuel Station Entries	None	None within 500m	

4.2 Green Belt Areas

- 4.2.1 There is a designated area of Adopted Green Belt land approximately 38m to the west of the site.
- 4.2.2 Green Belt Areas are generally areas that are designated as being under special consideration for development. Local Authorities may restrict the type of development, place particular planning constraints on proposed developments, or potentially restrict any development within a designated Green Belt area.

4.3 Designated Sites

- 4.3.1 The enquiries indicated there are no National Nature Reserves (NNR) or Local Nature Reserves (LNR) SSSIs, NNRs or LNRs within 500m of the site. A Site of Special Scientific Interest (SSSI) is located 439m, west of the site, which is the West Pennine Moors.

4.4 Nitrate Vulnerable Zone

- 4.4.1 The site is not located within an area designated as a nitrate vulnerable zone.

5.0 ASSESSMENT OF GEOENVIRONMENTAL RISK

5.1 General

- 5.1.1 The definition of 'contaminated land', along with the relevant details on legislation and guidance is set out in Appendix 3.
- 5.1.2 The assessment of potential risk has been based on the guidelines given in CIRIA report C552, ref 7.8. These guidelines are summarised in Appendix 3.
- 5.1.3 The assessment of environmental risk is aimed at identifying the possible risk, if any, arising from substances used or deposited on the site, or from any other sources of land contamination, based on the principles of the pollutant linkage.
- 5.1.4 The assessment is based on the proposed development end use, taking account of present and previous use. It is based only on a review of historical maps, desk based data and site reconnaissance; therefore, it contains some elements of conjecture based on professional judgement. A comprehensive risk assessment can only be made following an intrusive investigation and testing regime.
- 5.1.5 The proposed development comprises low rise housing with private gardens.

5.2 Potential Sources of Contamination Identified

- 5.2.1 The research has identified the following potential sources of contamination which may form part of a pollutant linkage:
 - Potential Gas associated with old quarries located 150m and 250m north west of the site
 - Potential gas associated with historical landfill at Higher Barn Farm 366m west of the site.
 - Contamination associated with Spring Wood Cotton Mill located 150m north east of the site
 - Contamination associated with historical contemporary trade entries within 250m of the site.
 - Contamination associated with the former allotments located 20m to the northwest of the site.

5.3 Potential Pathways Identified

- 5.3.1 The research has identified a number of potential pathways which are relevant to the potential sources of contamination identified above and may form part of a pollutant linkage.
- 5.3.2 Those identified are detailed within the Conceptual Site Model, along with the receptors relevant to the development on a site specific basis.

5.4 Hazard Identification

- 5.4.1 The research has identified a number of potential sources and pathways which are considered 'likely' to be present which, taking into account the potential receptors identified, form potential pollutant linkages and have been used in the formulation of the Conceptual Site Model.

5.5 Hazard Assessment

- 5.5.1 An assessment of the main sources of contamination and the potential for unacceptable risk to receptors is detailed below. Unless stated otherwise, it is considered 'likely' that a potential source is present at this stage, in order to provide a preliminary estimation of the risk and therefore determine the need for further work.

- Human Health

There is the potential for the migration of explosive gases from a nearby landfill and old quarries which may have been partially backfilled. The underlying superficial geology is likely granular in nature and there is 'likely' to be a valid pathway. However, there is an increase in elevation of at least 40m between the site and the areas of infilled land. In addition, there is minimal hardstanding cover between the site and the areas of infilled land and as such, the risk is considered to be low and no further investigation is considered necessary.

There is the potential for the migration onto site from contamination associated with the former allotment gardens located to the northwest of the site, a former fireplace and mantelpiece suppliers to the southwest of the site, and a former cotton mill located to the east of the site. The risk to end users from the mill is considered to be very low due to the distance from the site; in addition, the mill appeared to cease operating in the 1960's.

As discussed above, the likely granular strata underlying the site means that it is 'likely' that a valid pathway is present. However, the consequence of any contamination is considered to be minor due to the fireplace and mantelpiece suppliers being inactive. The allotment gardens were last identified on the historical maps in 1983. A residential property was first identified within the boundaries of the former allotment gardens on the 1992 map. Given the length of time since the allotments were last identified on the historical maps, the consequence of any contamination is considered to be minor. As such, the risk posed by both is considered to be low. However, further investigation may be necessary to confirm the presence, nature and extent of any contamination which may potentially impact on the site.

It should be noted that the four remaining contemporary trade entries within 250m of the site are considered to pose a very low risk because, due to the surrounding topography, they are located down slope of the site.

- Construction Material

There is considered to be a low risk due to chemical attack on construction materials placed on the site.

- Controlled Waters

The site is located on Secondary A Aquifers but no significant sources of contamination were indicated on the site and as such and therefore a very low risk level has been assigned.

5.1 Conceptual Site Model

5.1.1 The research has therefore identified the following pollutant linkages that require further consideration and have been used to formulate the Conceptual Site Model.

Potential Contamination Sources	Potential Contaminants of Concern	Potential Pathways	Receptor Group
Possible contamination associated with former fireplace and mantelpiece suppliers to the southwest and former allotments to the northwest.	Inorganic Compounds - Metals - Cyanide Organic Compounds - TPH - PAH	- Soil ingestion - Vegetable uptake - Dermal contact - Inhalation of contaminated dust - Vapour inhalation	Human Health - Site occupants - Site users - Construction workers - Maintenance workers
		Plant uptake and accumulation of contaminants	Ecology - Landscaped areas - Sensitive or protected habitats
		Direct contact of contaminants with building materials	Building Materials or Services - Concrete - Plastic pipes and services - Structural iron & steel work

5.2 Conclusions of Geoenvironmental Risk Assessment

5.2.1 The research has identified evidence of potential sources of contamination on or which may impact on the site, with plausible pathways to the likely receptors, and therefore potential pollutant linkages have been suggested.

5.2.2 The risks associated with these potential sources are considered to be low.

5.2.3 Intrusive investigation would confirm the presence, nature or extent of any contamination which may potentially impact on the site.

5.3 Consultation

5.3.1 During development, consultation may be required for a number of reasons with a number of regulatory Authorities. The following provides an indication as to the most likely Authorities with which consultation may be required:

- Local Authority.** There may be a planning condition regarding contamination and consultation will be required with a designated Contaminated Land Officer within the Environmental Health Department. The Local Authority is generally concerned with human health risks.

- **Environment Agency.** Where a site is within a groundwater protection zone or has been designated as a special site, the Environment Agency is likely to be involved to ensure that controlled waters are protected.
- **National House Building Council, NHBC.** Section 4.1 of the NHBC Standards, ref 7.9, requires land management to be addressed. For a new housing development to be approved by the NHBC, any contamination will require remediation accompanied by a validation report.

5.3.2 Based on the results of any consultation, there may be specific investigation and/or remediation requirements imposed by one or more of the Authorities.

6.0 RECOMMENDATIONS

6.1 Further Work

6.1.1 A limited intrusive investigation may be undertaken to address the issues raised in Chapter 4.0 and Chapter 5.0.

6.1.2 The following scope of works is suggested in order to collect the required data:

- Exploratory holes to confirm ground conditions and for the recovery of samples for geotechnical and chemical contamination analysis.

6.2 Other Considerations

6.2.1 There are several other areas of research which are beyond the scope of this report. All or none of the following may be applicable to the site, either on the outcome of consultation with a regulatory body or as a result of the research for this Preliminary Investigation. They include:

- **Archaeology.** Should the site be situated on or within an area of archaeological sensitivity, the advisor to the relevant local authority should be consulted. The requirement for an archaeological report may be identified within a planning condition, if appropriate, for the site.
- **Ecology.** There may be a requirement for a detailed ecological report, dependant on the type or size of the development, or due to evidence identified during the site reconnaissance or desk study. This requirement may be identified within a planning condition, or recommended within Section 6.0.

7.0 REFERENCES

- 7.1 CLR 3, '*Documentary research on industrial sites*', Report by RPS Consultants Ltd, DoE, 1994
- 7.2 CLR 11, '*Model Procedures for the Management of Land Contamination*' Report by Defra and the Environment Agency, 2004
- 7.3 BS 10175: 2011 '*Investigation of potentially contaminated sites. Code of practice*', British Standards Institute, 2011
- 7.4 GPLC1, '*Guiding principles for land contamination*', Environment Agency, 2010
- 7.5 CLR 2, '*Guidance on preliminary site inspection of contaminated land*', Report by Applied Environmental, DoE, 1994
- 7.6 HPA-RPD-033, '*Indicative Atlas of Radon in England and Wales*', Health Protection Agency, 2007
- 7.7 BR211, '*Radon: Protective measures for new dwellings*'. BRE, 2007
- 7.8 C552, '*Contaminated Land Risk Assessment, A Guide to Good Practice*', CIRIA, 2001
- 7.9 Standards, '*Land Quality – Managing Ground Conditions*', Chapter 4, NHBC, 2010
- 7.10 The Environmental Protection Act, Part IIA, Section 78, 1990
- 7.11 Environment Act 1995, Section 57, DoE, 1995
- 7.12 Water Environment and Water Services (Scotland) Act, 2003
- 7.13 Planning Policy Statement 23: Planning and Pollution Control, ODPM, 2004
- 7.14 Science Report SC050021/SR2, '*Human health toxicological assessment of contaminants in soil*'. Environment Agency, 2009
- 7.15 Science Report SC050021/SR3, '*Updated technical background to the CLEA model*'. Environment Agency, 2009