



Report type	Phase 1 Preliminary Risk Assessment
Date	6 June 2022
Client	AA Architecture
Site address	Land adjacent to 21 Goodman Street, Manchester, M9 4FD
Report prepared by	Mr Louis Turner BSc (Hons)
Supervised by	Mr Joseph Turner

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1. Introduction

The following document is a Phase 1 Preliminary Risk Assessment carried out by Oakshire Environmental, commissioned by AA Architecture, and includes details of the site, environmental setting, contaminant linkages and an evaluation of risk.

1.1 Project Overview

The client's proposed project involves the erection of a semi-detached residential dwelling on land adjacent to 21 Goodman Street, Manchester, M9 4FD. An assessment of contamination risk has been requested by Manchester City Council, to support a planning application for the proposed project. Oakshire Environmental have carried out a Phase 1 Preliminary Risk Assessment, as described below.

1.2 Purpose of Investigation

The objectives of the Phase 1 Preliminary Risk Assessment were to:

- Develop a detailed assessment of the site.
- Identify potential contamination sources, receptors and pathways at the site.
- Assess the level of potential contamination risk.
- Determine the requirement or scope of further investigations.

1.3 Scope of Work

- Brief introductory information have been noted to provide context to the report and include an Introduction, Project Overview, Scope of Work and Limitations.
- To develop a detailed assessment of the site, desk studies have been carried out to collate information obtained from sources including the British Geological Society, Environment Agency and Ordnance Survey on planning and site history, ground conditions and environmental setting.
- This information has been used to identify potential contamination sources, receptors and pathways at the site, as part of an initial Conceptual Site Model.
- To assess the level of potential contamination risk, a Conceptual Site Model has been produced to categorise the potential severity of the impact of the contaminant linkage on the receptor and the probability of the contaminant linkage being present.
- Following the assessment of contaminant linkages, an evaluation of contamination risk has been conducted to determine the requirement and scope of further investigations.
- Supporting appendix include photographs, maps and plans of the site.

1.4 Limitations

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This report excludes consideration of potential hazards arising from any activities at the site other than normal use and occupancy for the intended land uses. Hazards associated with any other activities have not been assessed and must be subject to a specific risk assessment by the parties responsible for those activities. Oakshire Environmental does not warrant or guarantee that the site is free of hazardous or potentially hazardous materials or conditions. It should be noted that this report has been produced for environmental purposes only.

2. Site

The following section provides a description of the site, location and proposed development, in addition to, planning and site history, utilising information obtained from the client and publicly available sources.

2.1 Site Description and Location

The site is located on Goodman Street in Manchester and is approximately 97m². The site is comprised of a patio and outbuilding within the curtilage of an existing dwelling, in addition, there is a small area of exposed soil at the south east along with bushes and shrubs at the east boundary.

The site is bordered by dwellings and gardens to the north, a private footpath and additional dwellings and gardens to the south and west and Goodman Street to the east. The surrounding area is predominantly residential with some commercial premises. There are no ancient monuments or archaeological sites within 500m of the site.

National Grid Reference: SD 86382 02082

2.2 Proposed Development

The proposed development involves the demolition of the existing outbuilding and the erection of an end terrace dwelling, with front and rear gardens.

2.3 Relevant Planning History

A search of Manchester City Council's planning website identified the following relevant applications at and near the site.

Table 1: Planning applications at or near the site

Application No.	Year	Address	Proposal	Decision	Details
020386	1983	Vacant Land adjoining 15, Goodman Street, Moston	Erection of a pair of semi-detached dwellinghouses on vacant plot	Approved	No contamination conditions applied
023122	1984	38 Cobden Street, Moston	1st floor extension rear of dwellinghouse to form a bedroom	Approved	
025050	1985	Garage adjacent to 9 Goodman Street, Moston	Alterations and conversion of former garage into a dwellinghouse	Approved	
033159	1988	5 Goodman Street, Moston	Change of use and conversion (including external alterations) from workshop/office to detached bungalow	Approved	
036385	1990	58 Cobden Street, Moston	First floor extension at rear to form a bedroom	Approved	
068884/FO/2003/N1	2003	Rear Of 19-71 Goodman St/ 36 -92 Cobden St/ 49-135 Cobden St/ 1-31 Nepal Road Blackley	Erection of 2.4m high gates at ends of alleyways	Approved	
083451/FO/2007/N1	2007	Land Adjacent To 2 Dollond Street, Harpurhey	Erection of a two storey dwellinghouse	Approved	

2.4 Site History

A detailed assessment of historical Ordnance Survey maps and associated data has highlighted the below on-site and off-site, current and historical land uses.

Table 2: Description of the site and surrounding area over time, according to historical maps

Year	Site Description	Surrounding Area
1891	No development on the site	Cricket ground 60m west Ponds 80m south and south west Terraced houses 90m south west
1893		Additional ponds 110m east, 140m north, 210m south east and 240m west Footpath 20m east Terraced houses 100m east and extensive residential development to the south Whitehouse Farm 160m east Dry Soap Works 200m south east, Rope Walks 190m east and Timber Yard 250m west
1909		Terraced houses 40m south east and west, residential development to the south has extended further north and west and there are new houses to the north east Whitehouse Farm to the east redeveloped into Brookside Engineering Works Timber Yard to the west no longer shown All ponds within 250m of the site are no longer shown
1922		Terraced houses and a footpath bordering the site to the west New road (Goodman Street) bordering the site to the east with terraced houses 10m east Residential development in the area has extended further north and now covers most of the surrounding area Cricket ground redeveloped into a football ground Rope Walks no longer shown
1932		Semi-detached dwellings 40m north east and allotment gardens 80m north east and 200m east Tin Box Works 150m east and Brookside Works now shown as a Woodworks Dry Soap Works to the south east no longer shown Former Timber Yard now a Soil & Oil Reliance Works
1950 - 1951	Glasshouse at the centre of the site	Terraced houses bordering the site to the south and north and new semi-detached dwellings 80m north east Football ground to the west redeveloped into allotment gardens Brookside Works now shown as an Engineering & Sheet Works Semi-detached dwellings built at former Dry Soap Works
1955		Unchanged
1971		Allotment garden to the west redeveloped into a secondary school
1978 - 1981		Terraced houses 140m south west removed and land redeveloped into primary school with playing fields Terraced houses 90m south west and 130m south removed Unspecified works 200m south east
1982 - 1986		New houses built 130m south

1989 - 1992	Glasshouse removed	Unchanged
2003	No structures on the site	Secondary school to the west no longer shown Semi-detached dwellings 90m south west
2005	Aerial photograph shows outbuilding at the south west and the remainder of the site is covered mostly by hardstanding with vegetation at the east	Residential development under construction on site of former secondary school
2009		New dwellings 60m west at former secondary school Single detached dwelling 60m south west
2013		
2018		

3. Environmental Setting

The following section provides information on the environmental setting of the site, utilising data from the British Geological Survey (BGS), the Department for Environment, Food and Rural Affairs (DEFRA), the Coal Authority and Public Health England (PHE).

Table 3: Summary of the site's environmental setting

Environmental Factor		Details	
Hydrogeology	Aquifer Designation	Superficial	Secondary (undifferentiated)
		Bedrock	Secondary A
	Groundwater Vulnerability	Superficial	Low to Medium
		Bedrock	Medium
	Source Protection Zones and Abstractions		Site does not lie within a Source Protection Zone
Hydrology	Water Network		Boggart Hole Brook 380m north
Geology	Artificial Ground		None within 500m of the site
	Superficial Deposits		Till, Devensian - Diamicton
	Bedrock Geology		Manchester Marls Formation - Mudstone
	Superficial Permeability		Low to Medium
	Bedrock Permeability		Medium
	Borehole Records		Borehole completed 185m south of the site in 1972 for the North Manchester Relief Sewer identified tarmacadam above cobblestone to 0.12m, ash and cinder with occasional brick fill to 0.4m, clayey organic loam to 0.7m, sandy clay with occasional small pieces of brick and cinder fill to 2.4m, silty clay to 3.77m, sandy silt to 5.5m, clayey silt to 6.85m, sandy clay to 7.24m, silty sand to 9m and sand to the end of the borehole at 10.2m (standing water level identified at 6.2m). Another borehole completed for the North Manchester Relief Sewer identified tarmacadam underlain by cobblestone and ash and cinder fill to 0.35m, sandy clay fill to 1.25m, silty clay to 3.35m, sand to 4.85m, silty clay to 7.1m, silty sand to 7.8m and sandy silt to the end of the borehole at 10.3m (standing water level identified at 4.4m).
Workings	Mining and Ground Workings		Site is within the Lancashire Coal Mining Reporting Area but there are no mine records of Development High Risk Areas within 500m of the site Cuttings around allotment gardens and former football ground 60m west
Radon	PHE UKradon		1-3% probability of being above action level
Waste and Landfill	Historical Landfill		Land at Bankfield Street landfill of unknown waste type 405m west of the site (unknown completion date) Land at Moston College commercial and household landfill 410m south east (unknown completion date)
	Permitted Waste Sites		None within 500m of the site

4. Initial Conceptual Site Model

The following section outlines potential contamination sources, pathways and receptors, utilising information gathered in the previous sections, to develop an initial conceptual site model.

4.1 Potential Contamination Sources

Information collated through detailed desk studies has identified the following potential sources of contamination.

Historical and Existing Works

Historical maps show multiple works buildings to the east, south east and west of the site that have the potential to release contaminants to surrounding soils which may leach through soil and impact the site. Potential contaminants are likely to include heavy metals and hydrocarbons from the use of machinery, storage of fuels and oils and the storage of waste materials. There are terraced houses between these buildings and the site, which is likely to mitigate the surface runoff and leaching of contaminants to the site, in addition, the distance of these buildings from the site will also further mitigate the risk of contamination at the site. Therefore, it is not considered likely that the historical and existing works buildings in the surrounding area would have a significant impact on the site.

Infilled Ponds

Historical maps show multiple ponds in the vicinity of the site that are no longer shown from 1909, suggesting that these may have been infilled. Where infilling has occurred, it is possible that ground gases may be produced as a result of the degradation of putrescible materials. Given the size of the historical ponds and the time elapsed since these were potentially infilled, ground gas production is likely to be negligible.

Historical Landfill

Records show that there are two historical landfills to the west and south east of the site, including one of unknown waste type and one that accepted commercial and household waste. Records do not show when these were completed, however, aerial photographs suggest that these were both complete by 2000. The distance of these landfills from the site and the relatively impermeable underlying strata is considered to mitigate the risk to the site from potential ground gas production, which is also considered to be minimal due to the time elapsed since the landfills were completed.

4.2 Potential Contamination Receptors

Given the proposed use of the site, the following receptors are considered:

- Residential end users

No on-site contamination sources were identified so off-site receptors (controlled waters) are not considered to be relevant.

4.3 Potential Contamination Pathways

Based on the expected on-site receptors, relevant pathways for the above receptors include:

- Ingestion/inhalation of contaminated soil dust
- Dermal contact with contaminated soil
- Inhalation of soil vapours
- Ingestion of homegrown produce
- Permeation into drinking water pipes
- Ground gas permeation into buildings

Pathways between off-site sources and off-site receptors is beyond the scope of this assessment.

4.4 Risk Assessment Methodology

The potential level of risk posed by a particular source is determined by assessing the potential severity of the impact of the contaminant linkage on the receptor, if it is assumed to be present, and the probability of the contaminant linkage being present.

Severities are categorised from Minor to Severe and probabilities are categorised from Unlikely to High Likelihood to give a potential level of risk output.

Table 4: Risk Matrix

Probability	Severity of Consequence			
	Severe	Medium	Mild	Minor
High Likelihood	Very High Risk	High Risk	Moderate Risk	Low / Moderate Risk
Likely	High Risk	Moderate Risk	Low / Moderate Risk	Low Risk
Low Likelihood	Moderate Risk	Low / Moderate Risk	Low Risk	Very Low Risk
Unlikely	Low / Moderate Risk	Low Risk	Very Low Risk	Very Low Risk

Very High Risk

There is a high probability that severe harm could arise to a designated receptor from an identified source; or there is evidence that severe harm to a designated receptor is currently happening.

High Risk

Harm is likely to arise to a designated receptor from an identified source.

Moderate Risk

It is possible that harm could arise to a designated receptor from an identified source. It is relatively unlikely that any such harm would be severe or if any harm were to occur it is more likely that the harm would be relatively mild.

Low Risk

It is possible that harm could arise to a designated receptor from an identified source, however, it is likely that this harm, if realised, would normally be mild.

Very Low Risk

There is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is not likely to be severe.

4.5 Conceptual Site Model

The information in this section has been compiled to produce an initial conceptual site model outlining the potential sources, pathways and receptors to consider at the site. The level of risk was categorised by considering the severity and probability, as outlined in the previous section.

Table 5: Conceptual site model

Sources	Pathways	Receptors	Severity	Probability	Potential Level of Risk
Historical and Existing Works	Ingestion/inhalation of contaminated soil dust Dermal contact with contaminated soil Inhalation of soil vapours Ingestion of homegrown produce Permeation into drinking water pipes	Residential end users	Mild	Low Likelihood	Low The historical and existing works buildings are not likely to have a significant impact on the site, due to their distance from the site and the terraced housing surrounding the site. The risk to residential end users is, therefore, considered to be low.
Historical Ponds	Ground gas permeation into buildings	Residential end users	Mild	Unlikely	Very Low Given the size of the historical ponds and the time elapsed since these were potentially infilled, ground gas production is likely to be negligible. The risk to residential end users is, therefore, considered to be very low.
Historical Landfill	Ground gas permeation into buildings	Residential end users	Mild	Low Likelihood	Low The distance of the historical landfills from the site and the relatively impermeable underlying strata is considered to mitigate the risk to the site from potential ground gas production, which is also considered to be minimal due to the time elapsed since the landfills were completed. The risk to residential end users is, therefore, considered to be low.

5. Conclusions

5.1 Risk Evaluation

The initial conceptual site model identified the following potential contaminant linkages present at the site and the following conclusions have been drawn:

- There is a **low risk** to residential end users from the ingestion/inhalation of contaminated soil dust, dermal contact with contaminated soil, inhalation of soil vapours, ingestion of homegrown produce and permeation into drinking water pipes from the historical and existing works to the west, east and south east of the site.
- There is a **very low risk** to residential end users from ground gas permeation into buildings from the potentially infilled historical ponds in the vicinity of the site.
- There is a **low risk** to residential end users from ground gas permeation into buildings from the historical landfills to the west and south east of the site.

Based on the findings of this Phase 1 Preliminary Risk Assessment, the risk to residential end users is considered to be low. The risk to controlled waters has not been considered as no on-site sources of contamination were identified and the impact of off-site sources on off-site receptors is outside the scope of this assessment. It can be assumed that the risk to archaeological sites and ancient monuments is negligible.

5.2 Further Investigation

Based on the above conclusions, further investigation or remediation is not considered necessary. It is important to note that this conclusion is based on the proposed development plan and it is assumed that new material will be imported to form the gardens, if these are to be soft landscaped. Alternatively, these may remain as hardstanding, in which case, no contaminant pathways will be present.

If visible or olfactory evidence of contamination is identified during excavations at the site, work should cease in order to allow further investigation to be carried out. In addition, to ensure regulatory compliance, Waste Classification & Waste Acceptance Criteria (WAC) testing of excavated material from the site is likely to be required prior to off-site disposal.

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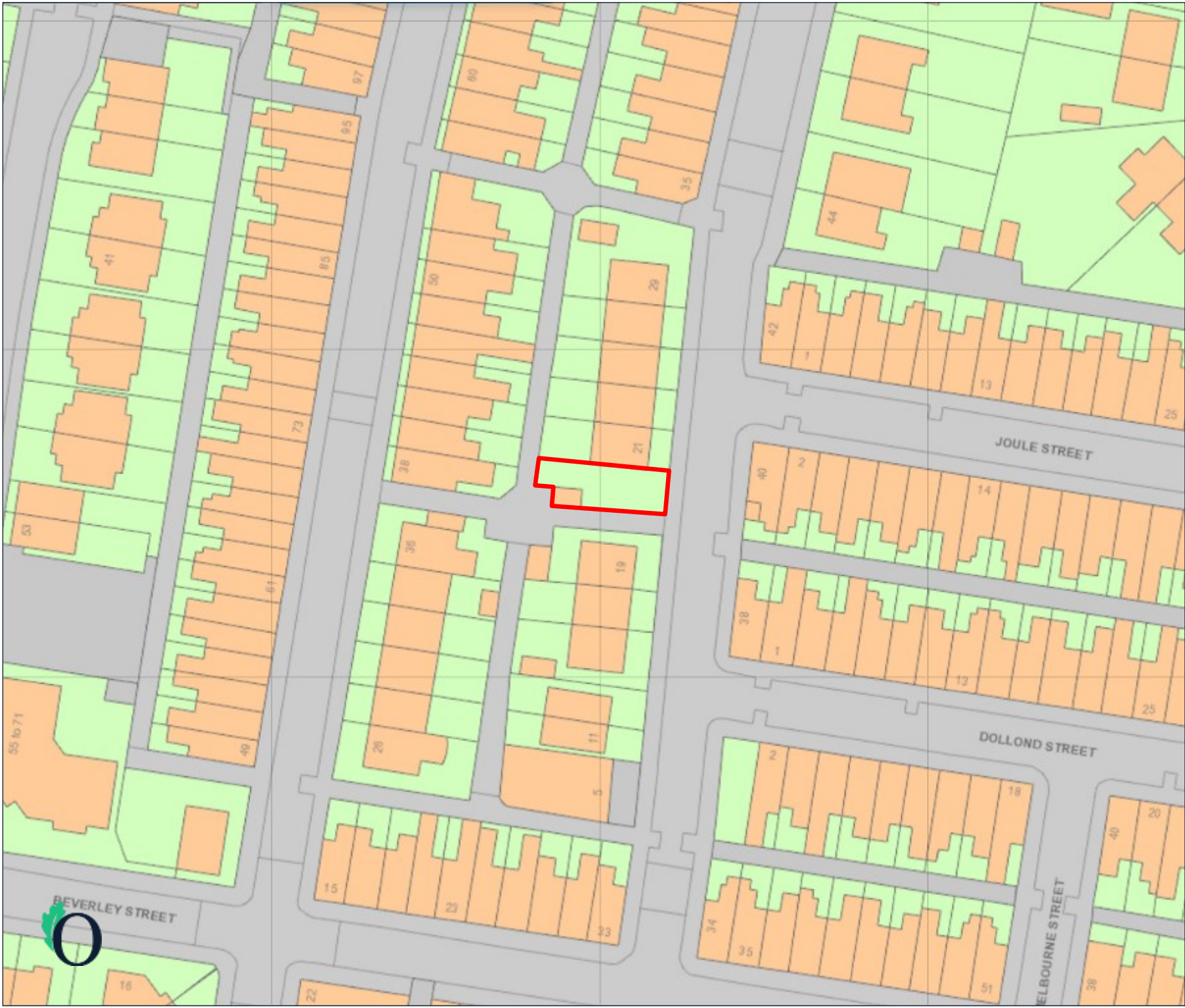
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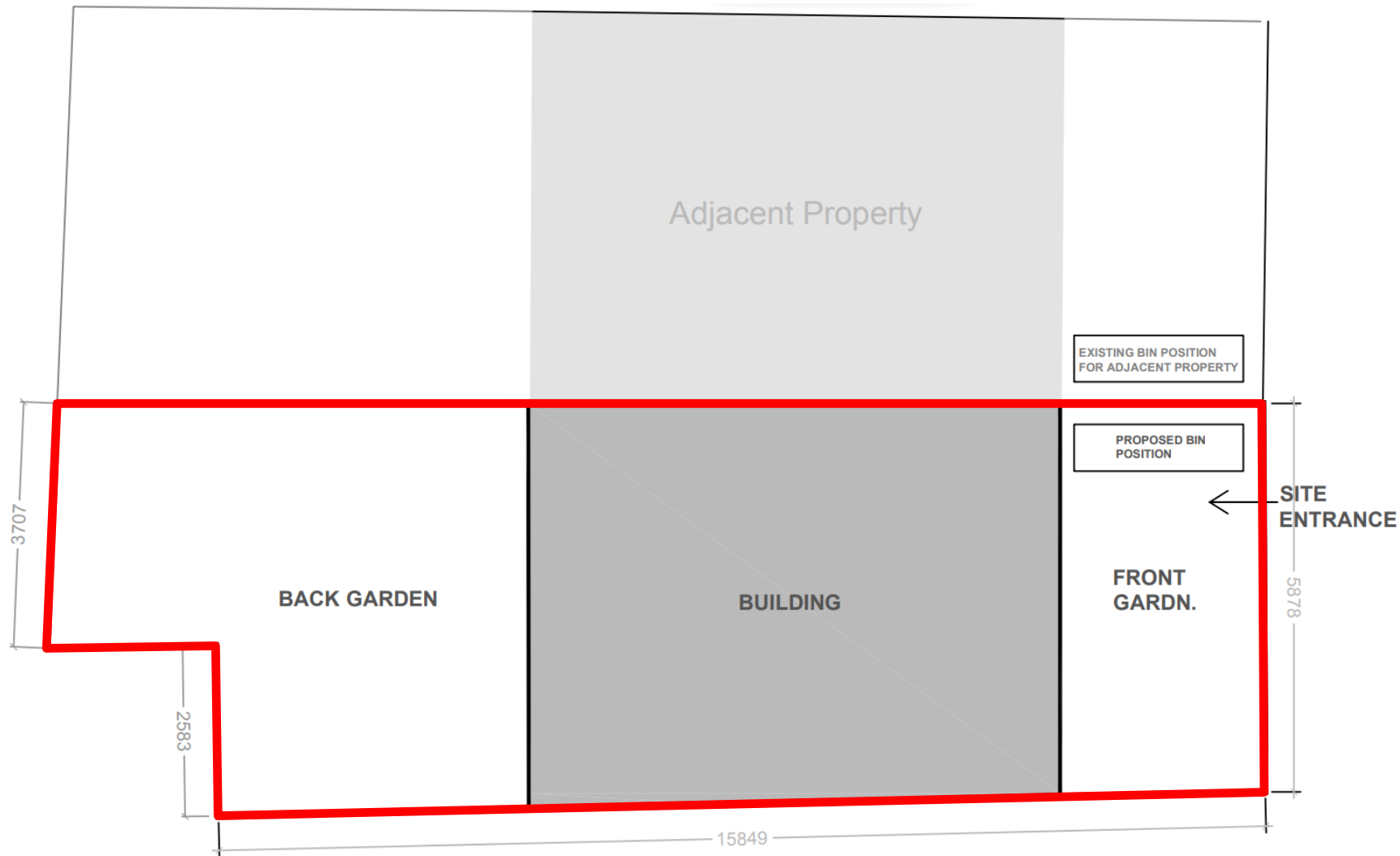
Appendix A - Site Maps & Plans

Description
OS location plan
Sources
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Key
Site boundary

Name	Figure 1
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SITE PLAN LAYOUT



Appendix A - Site Maps & Plans

Description	
Proposed site plan	
Sources	
AA Architecture	
Key	
	Site boundary
Name	Figure 2



Appendix B - Site Photos

Description

Photo of the site from Goodman Street, facing north west

Sources

Oakshire Environmental

Key

Name

Figure 3



Appendix B - Site Photos

Description

Photo of the site from Goodman Street, facing south west

Sources

Oakshire Environmental

Key

Name

Figure 4



Appendix B - Site Photos

Description

Photo showing patio and small area of soft landscaping at the south east of the site, facing east

Sources

Oakshire Environmental

Key

Name

Figure 5



Appendix B - Site Photos

Item	Description	Unit	Quantity	Unit Price	Total Price
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Photo showing patio and outbuilding at the south west of the site, facing south west

Sources

Oakshire Environmental

Key

[illegible]

Name

Figure 6



Appendix B - Site Photos

Description

Photo showing patio at the west boundary of the site, facing south west

Sources

Oakshire Environmental

Key

Name	Figure 7
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Appendix C - Historical Maps

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Historical map dated 1893

Map scale: 1:2,500

Sources

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100035207

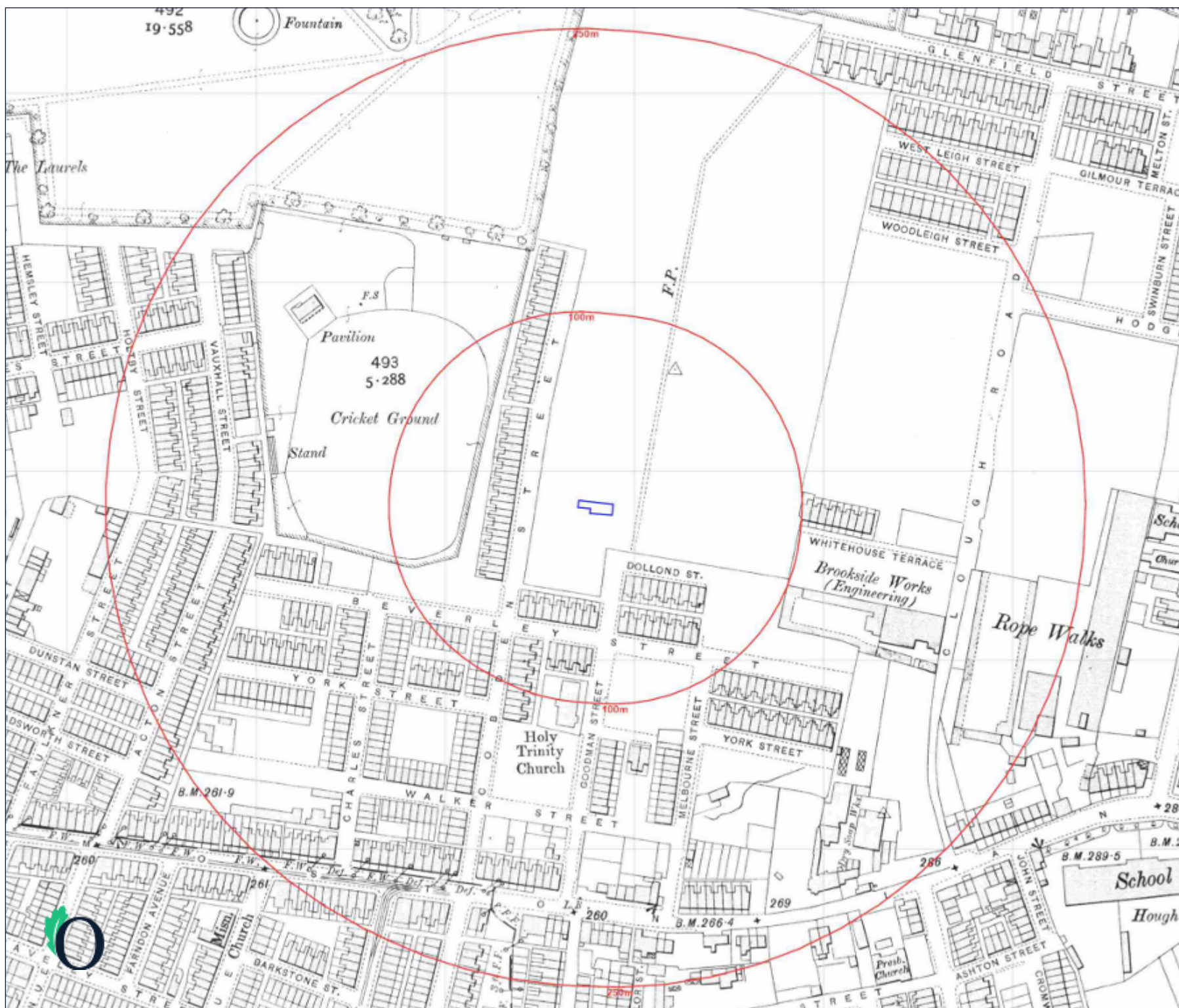
Key

Site boundary

Name

Figure 9





Appendix C - Historical Maps

Description

Historical map dated 1909

Map scale: 1:2,500

Sources

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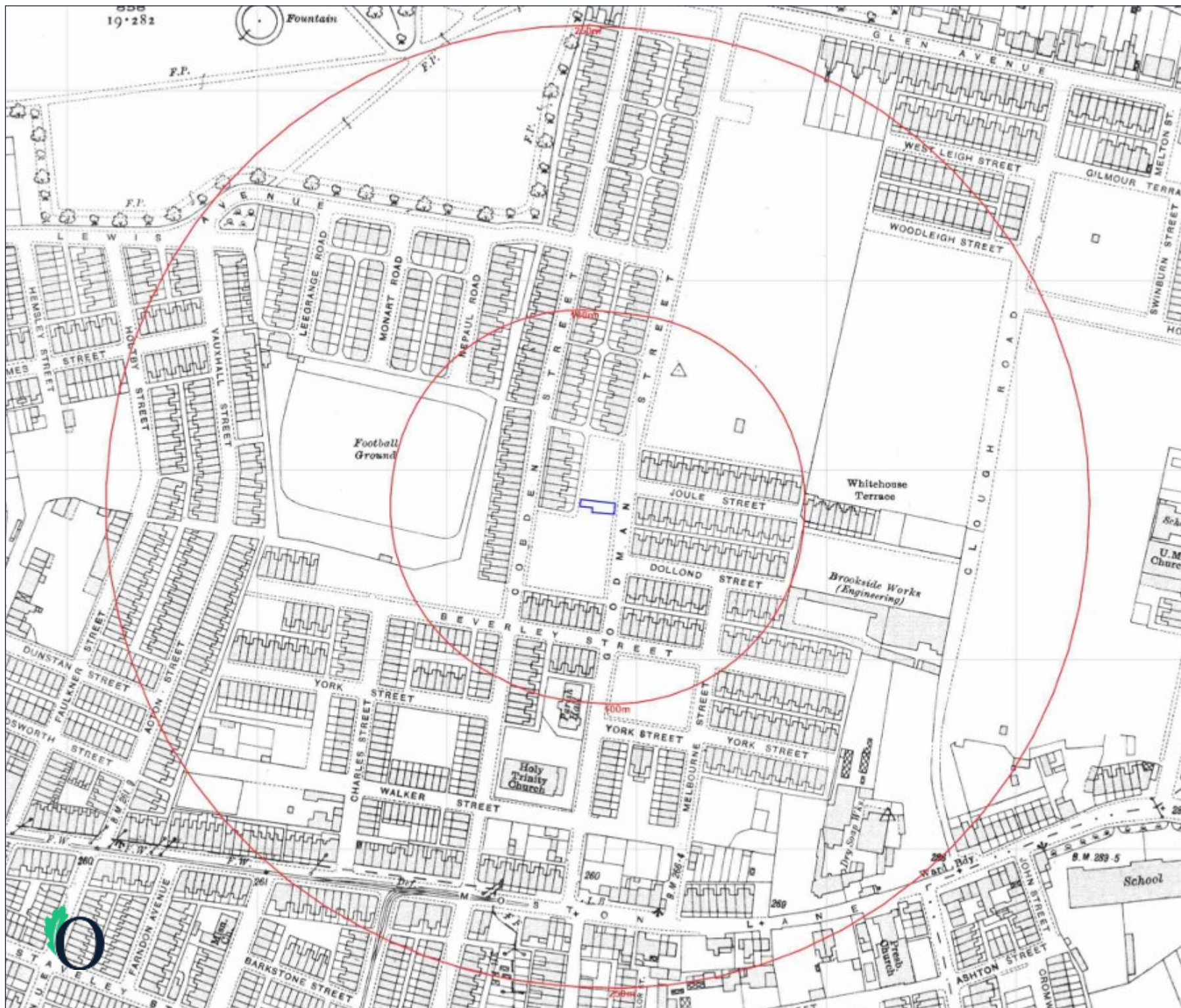
Key

Site boundary

Name

Figure 10





Appendix C - Historical Maps

Description

Historical map dated 1922

Map scale: 1:2,500

Sources

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Key

Site boundary

Name

Figure 11



Appendix C - Historical Maps

Description

Historical map dated 1932

Map scale: 1:2,500

Sources

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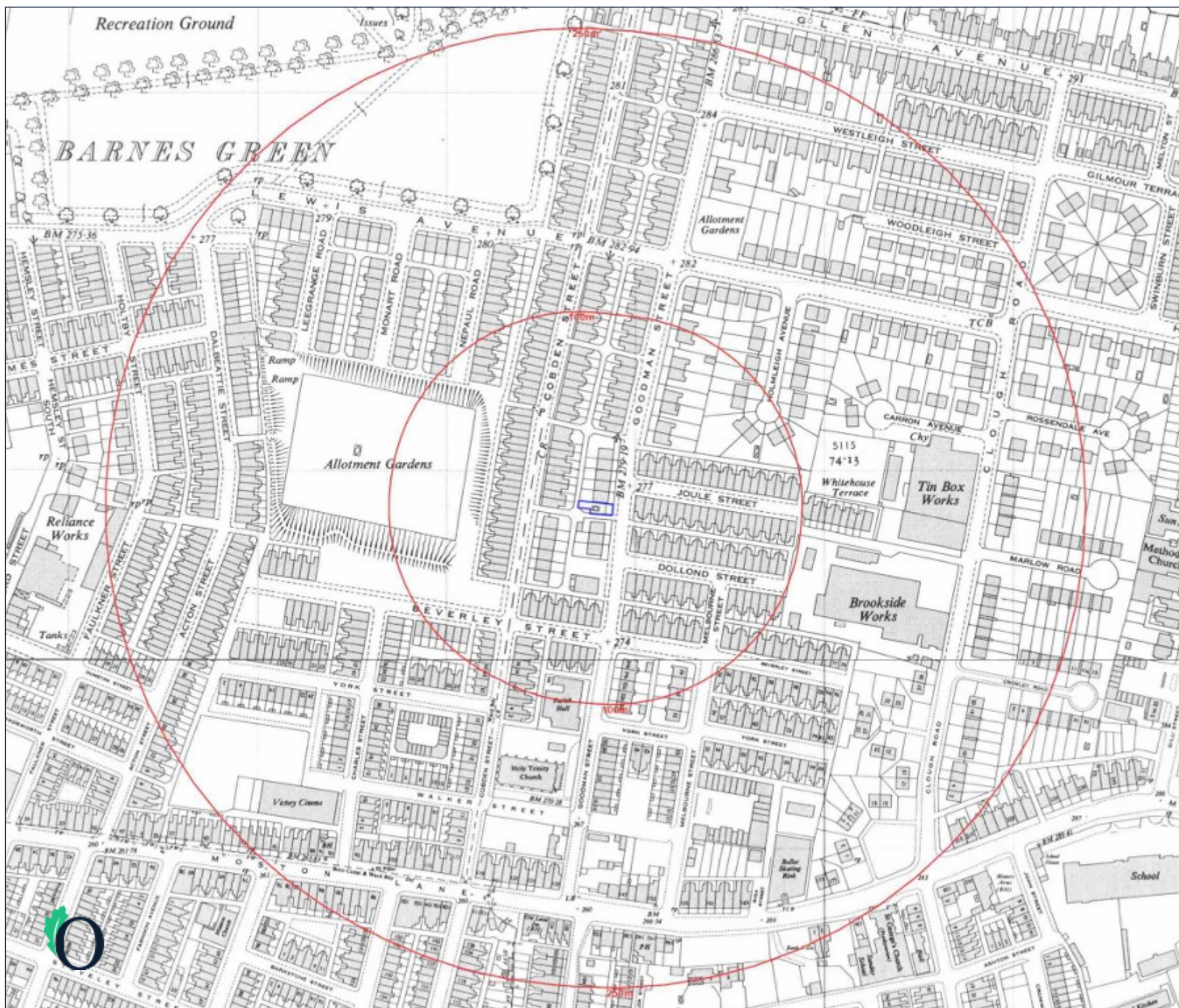
Key

	Site boundary

Name

Figure 12





Appendix C - Historical Maps

Description

Historical map dated 1950 - 1955

Map scale: 1:2,500

Sources

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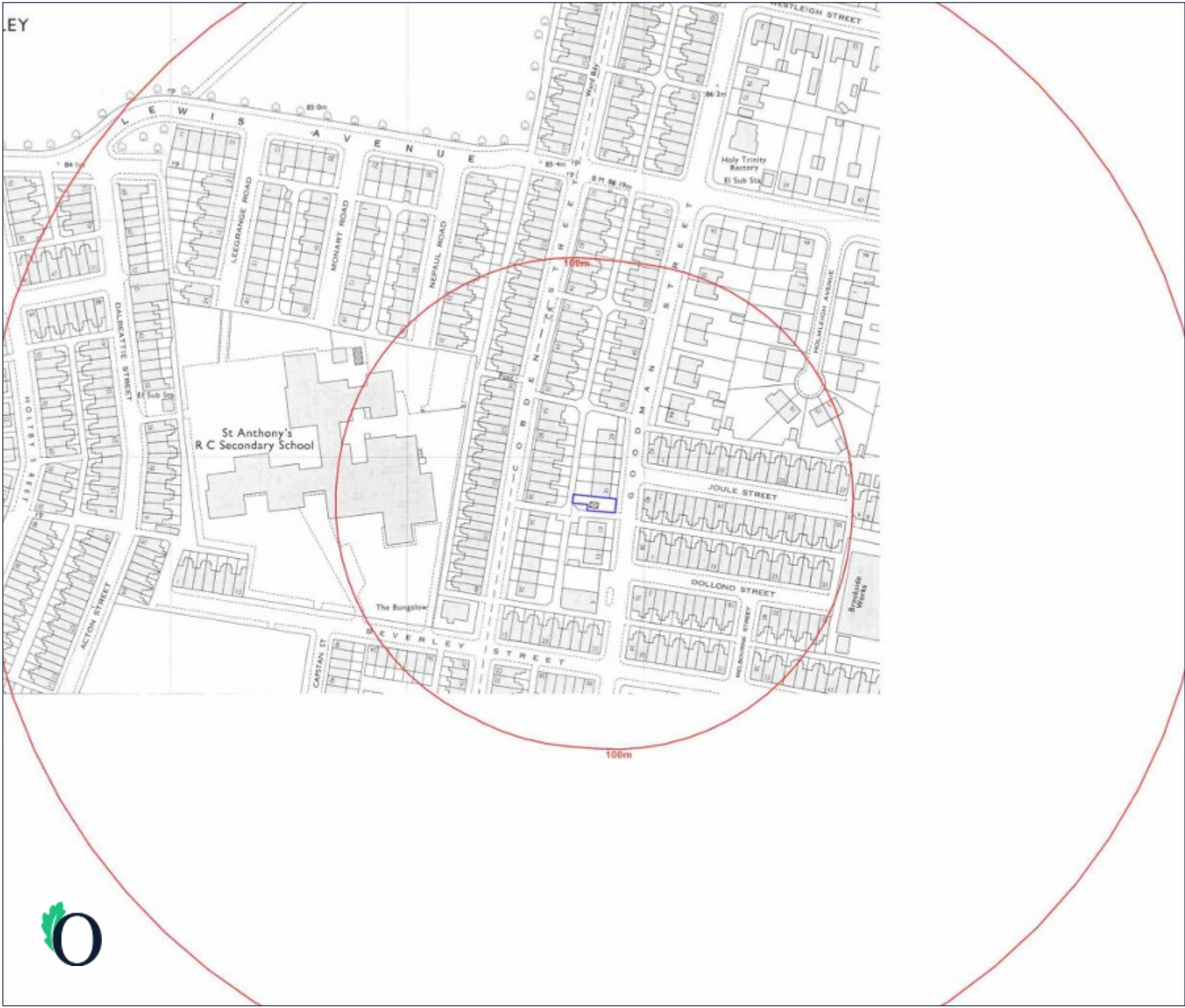
Key

Site boundary

Name

Figure 14





Appendix C - Historical Maps

Description

Historical map dated 1971

Map scale: 1:1,250

Sources

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Key

	Site boundary

Name

Figure 15





Appendix C - Historical Maps

Description

Historical map dated 1978 - 1981

Map scale: 1:1,250

Sources

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Key

Site boundary

Name

Figure 16



[illegible]

Map scale: 1:1,250

Sources

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100035207

Key

Site boundary

Name

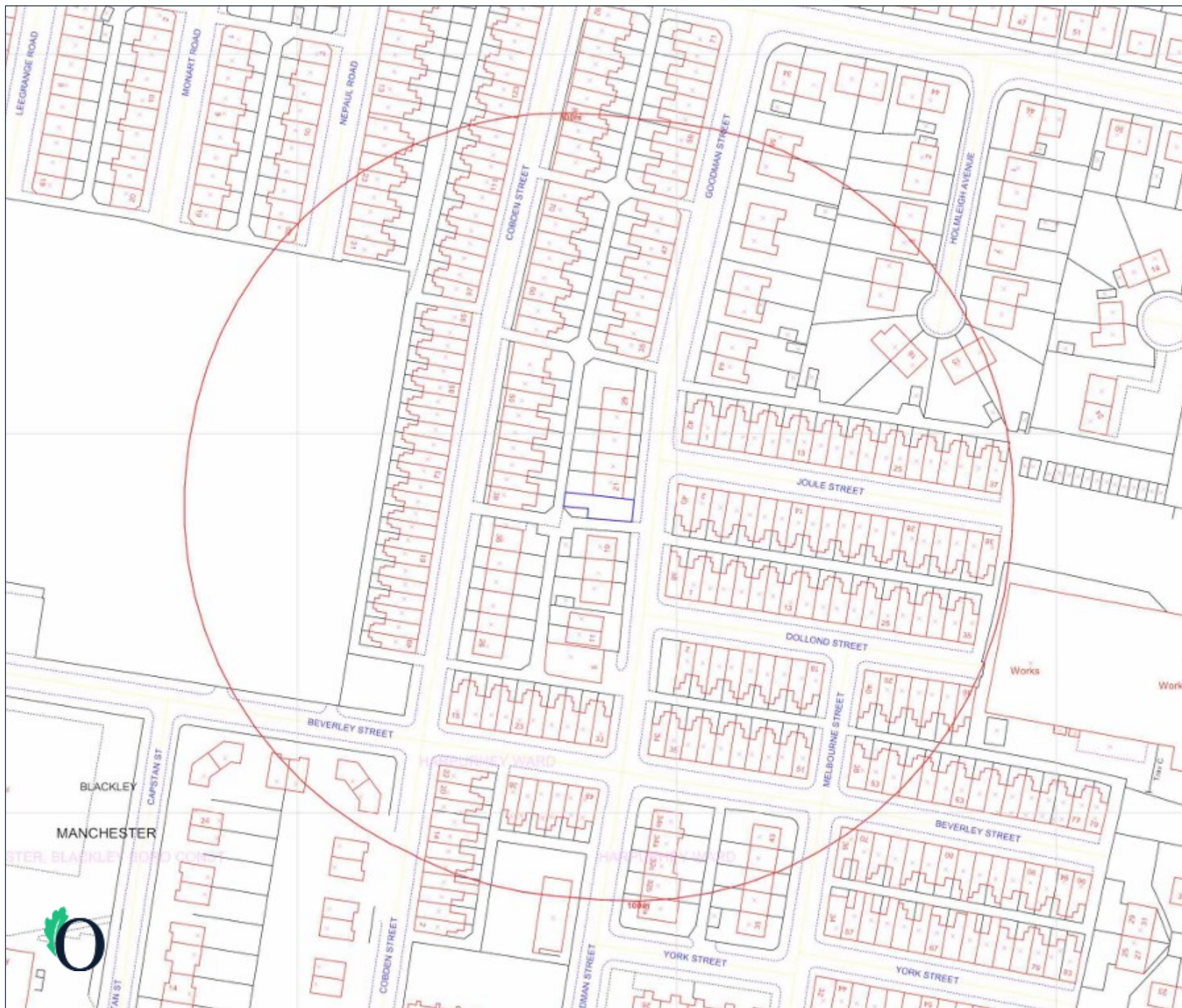
Figure 17





Appendix C - Historical Maps	
Description	
Historical map dated 1989 - 1992	
Map scale: 1:1,250	
Sources	
© Crown copyright and database rights 2018 Ordnance Survey 100035207	
Key	
	Site boundary
Name	Figure 18







Appendix C - Historical Maps

Description

Aerial photograph dated 2005

Sources

© 2022 Infoterra Ltd & Bluesky

Key

Site boundary

Name

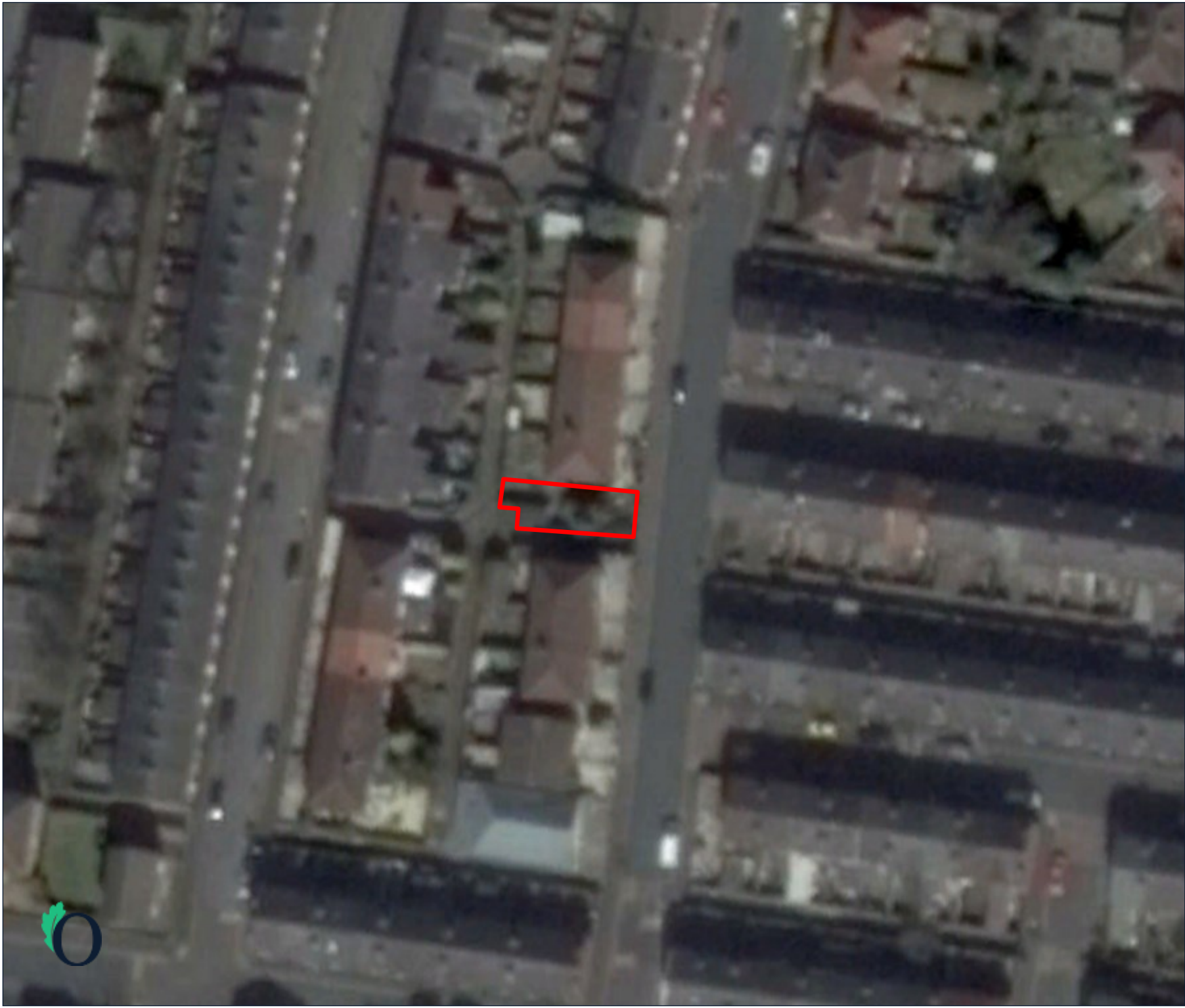
Figure 20





Appendix C - Historical Maps	
Description	
Aerial photograph dated 2009	
Sources	
© 2022 Infoterra Ltd & Bluesky	
Key	
	Site boundary
Name	Figure 21





Appendix C - Historical Maps

Description

Aerial photograph dated 2013

Sources

© 2022 Maxar Technologies

Key

 Site boundary

Name

Figure 22





Appendix C - Historical Maps

Description

Aerial photograph dated 2018

Sources

© 2022 Google Earth

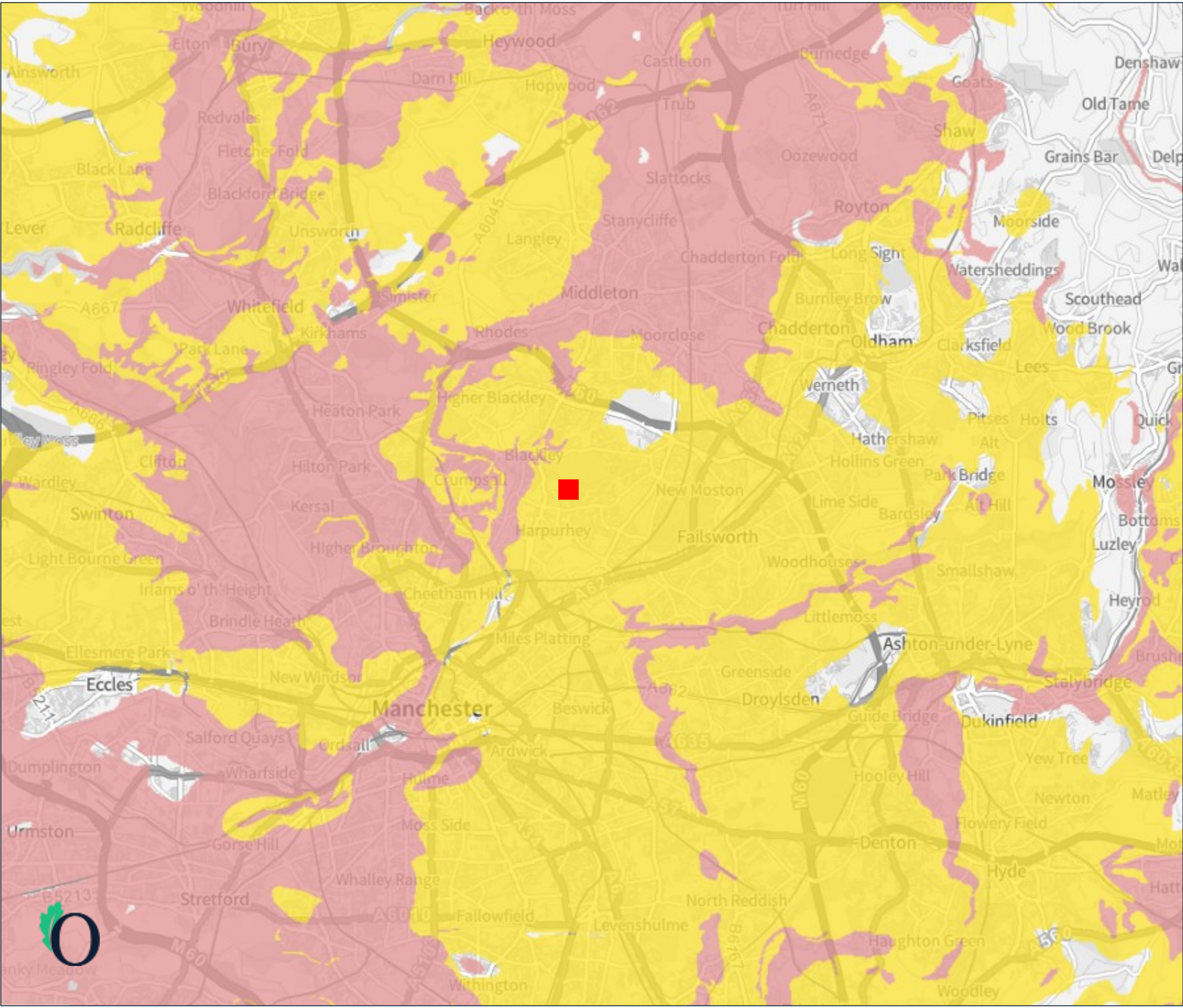
Key

Site boundary

Name

Figure 23





Appendix D - Geological Maps	
Description	
BGS map showing superficial hydrogeology on site	
Sources	
DEFRA Magic Map	
British Geological Society (2022)	
Key	
	Site location
	Principal
	Secondary A
	Secondary B
	Secondary Undifferentiated
	Unproductive
	
	
	
Name	Figure 24





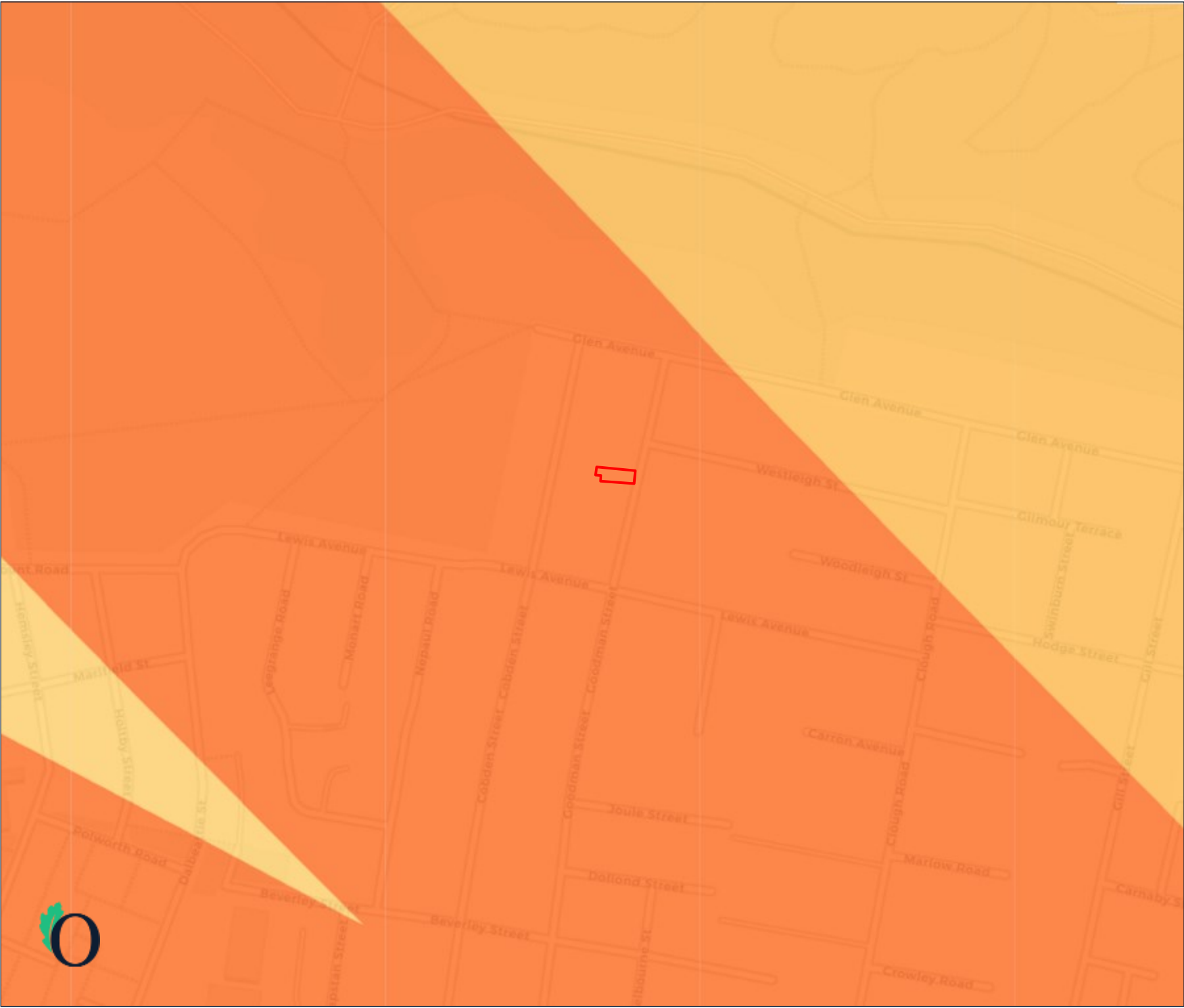
Appendix D - Geological Maps	
Description	
BGS map showing bedrock hydrogeology on site	
Sources	
DEFRA Magic Map	
British Geological Society (2022)	
Key	
	Site location
	Principal
	Secondary A
	Secondary B
	Secondary Undifferentiated
	Unproductive
Name	Figure 25





Appendix D - Geological Maps	
Description	
BGS map showing superficial deposits on site	
Sources	
British Geological Society (2022)	
Key	
	Site boundary
	Till - Diamicton
	Glaciofluvial Sheet Deposits - Sand and Gravel
	
	
	
	
	
	
Name	Figure 26





Appendix D - Geological Maps

Description

BGS map showing bedrock geology on site

Sources

British Geological Society (2022)

Key

	Site boundary
	Manchester Marls Formation - Mudstone
	Collyhurst Sandstone

Name Figure 27

