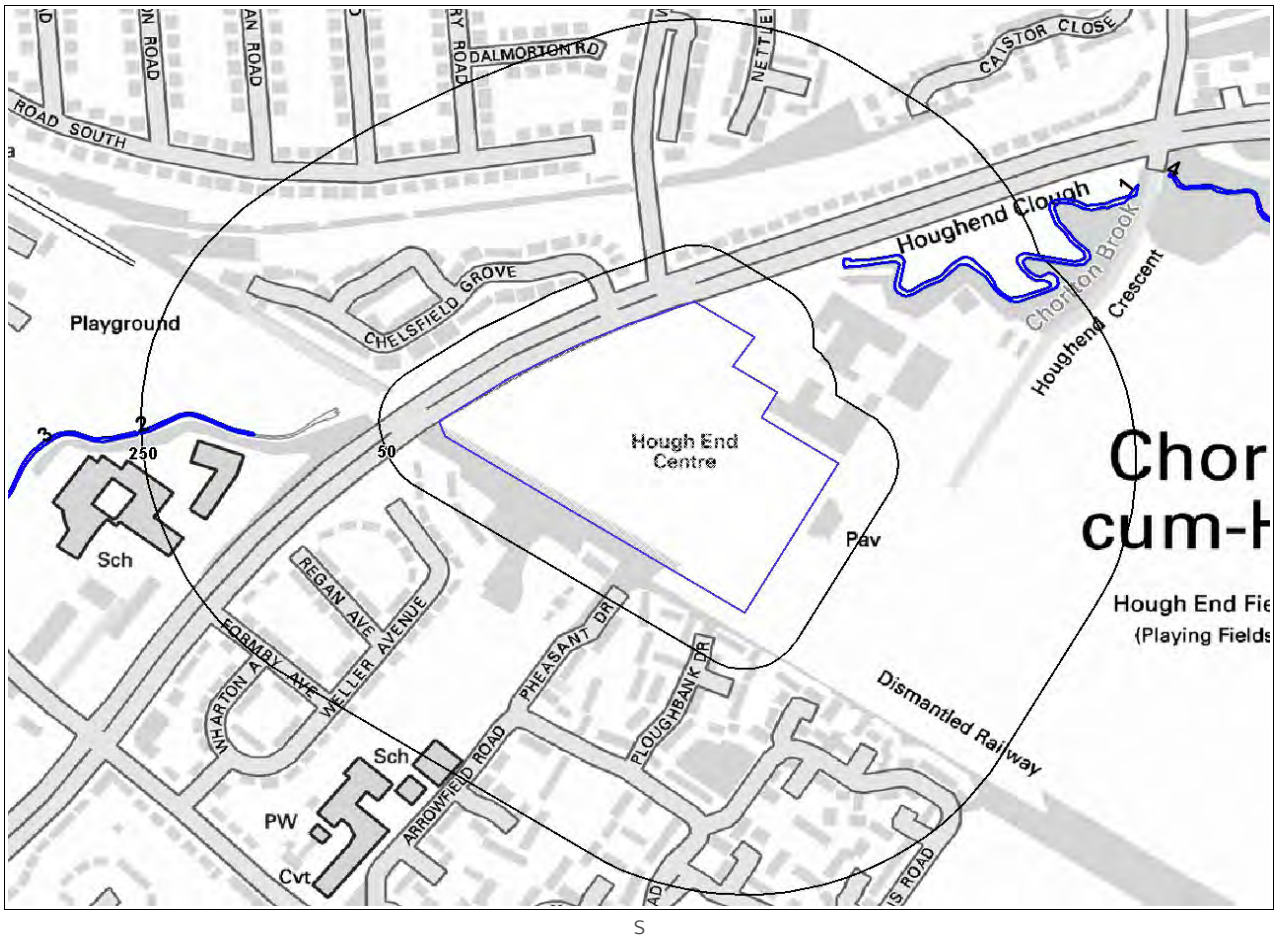
5. Surface Water Features map



Surface Water Features legend

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Site Outline

Surface Water Feature (wider than 5m)

50
250
Search Buffers (m)

Surface Water Feature (narrower than 5m)

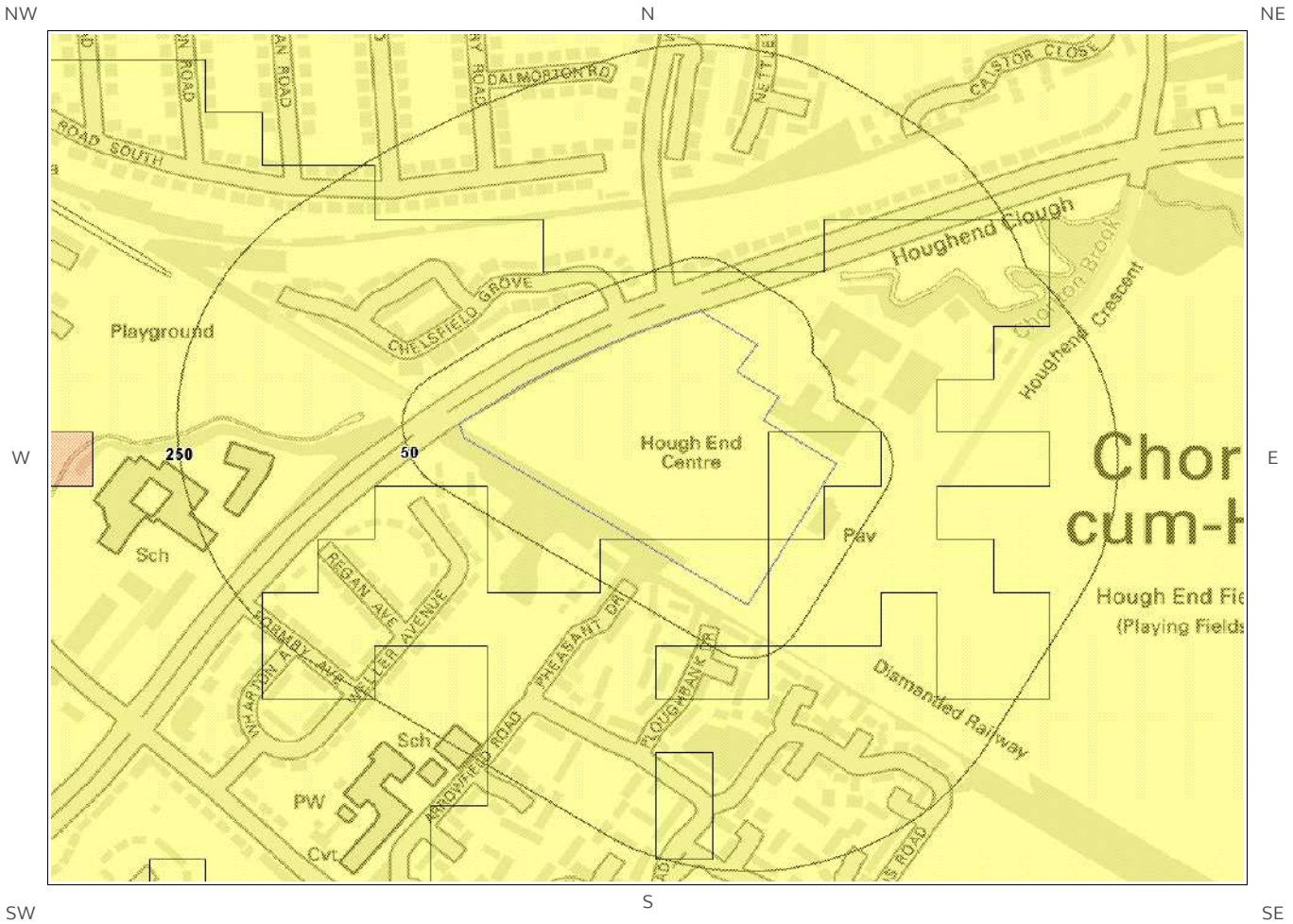
5. Surface Water Features

Are there any surface water features within 250m of the study site? Yes

The following surface water records are represented on mapping:

ID	Distance (m)	Direction
1	97.0	NE
2	155.0	W

6. BGS Groundwater Flooding Map



BGS Groundwater Flooding legend

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Site Outline

50
250
Search Buffers (m)

Limited potential for groundwater flooding to occur

Potential for groundwater flooding of property below ground level

Potential for groundwater flooding to occur at surface

6. Groundwater Flooding

6.1 Groundwater Flooding Susceptibility Areas

Are there any British Geological Survey groundwater flooding susceptibility flood areas within 50m of the boundary of the study site? Yes

What is the highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions? Limited potential for groundwater flooding

Does this relate to Clearwater Flooding or Superficial Deposits Flooding? Clearwater Flooding

Where limited potential for groundwater flooding to occur is indicated, this means that although given the geological conditions there may be a groundwater flooding hazard, unless other relevant information, e.g. records of previous flooding, suggests groundwater flooding has occurred before in this area, you need take no further action in relation to groundwater flooding hazard.

6.2 Groundwater Flooding Confidence Areas

What is the British Geological Survey confidence rating in this result? Low

Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded.

The confidence rating is on a threefold scale - Low, Moderate and High. This provides a relative indication of the BGS confidence in the accuracy of the susceptibility result for groundwater flooding. This is based on the amount and precision of the information used in the assessment. In areas with a relatively lower level of confidence the susceptibility result should be treated with more caution. In other areas with higher levels of confidence the susceptibility result can be used with more confidence.

Notes on Groundwater Flooding data:

The BGS Susceptibility to Groundwater Flooding hazard dataset identifies areas where geological conditions could enable groundwater flooding to occur and where groundwater may come close to the ground surface.

Groundwater flooding may either be associated with shallow unconsolidated sedimentary aquifers which overlie unproductive aquifers (Superficial Deposits Flooding), or with unconfined aquifers (Clearwater Flooding).

The susceptibility data is suitable for use for regional or national planning purposes where the groundwater flooding information will be used along with a range of other relevant information to inform land-use planning decisions. It might also be used in conjunction with a large number of other factors, e.g. records of previous incidence of groundwater flooding, rainfall, property type, and land drainage information, to establish relative, but not absolute, risk of groundwater flooding at a resolution of greater than a few hundred metres. The susceptibility data should not be used on its own to make planning decisions at any scale, and, in particular, should not be used to inform planning decisions at the site scale. The susceptibility data cannot be used on its own to indicate risk of groundwater flooding.

---

7. BGS Geological Indicators of Flooding

Are there any geological indicators of flooding within 250m of the study site? Yes

This dataset identifies the presence of superficial geological deposits which indicate that the site may be, or have been in the past, vulnerable to inland and/or coastal flooding. This assessment does not take account of any man-made factors such as flood protection schemes, and the data behind the report are purely geological.

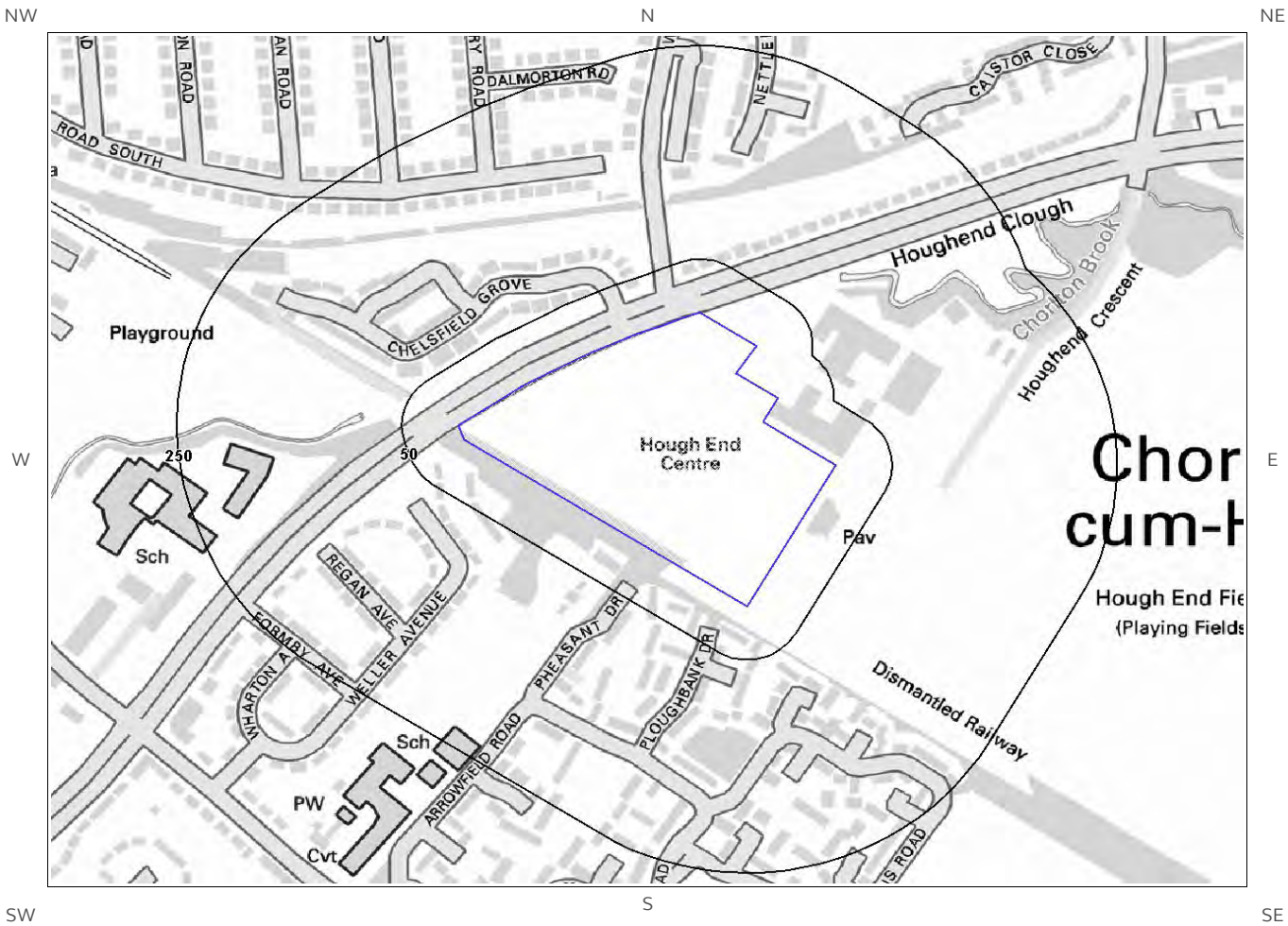
Distance	Direction	Description
52.0	W	Higher flood potential from rivers: the first areas to experience the effects of inland flooding in a river catchment.
63.0	NE	Higher flood potential from rivers: the first areas to experience the effects of inland flooding in a river catchment.

Notes on BGS Geological Indicators of Flooding data:

The BGS Geological Indicators of Flooding (GIF) data set is a digital map based on the BGS Digital Geological Map of Great Britain at the 1:50,000 scale (DiGMapGB-50). It was produced by characterising Superficial (Drift) Deposits on DiGMapGB-50 in terms of their likely vulnerability to flooding, either from coastal or inland water flow. These Superficial Deposits are considered 'recent' in geological terms, most having been formed in the later parts of the Quaternary geological period (i.e. within the last few tens of thousands of years). Observations made during recent major inland and coastal flooding events have demonstrated that the erosion and deposition of these recent geological sediments have produced subtle topographical variations, resulting in landforms such as fluvial and coastal floodplains. The mapping of these landforms, in conjunction with the fluvial and/or coastal deposits that underlie them, has in turn determined the extent of previous coastal and inland flooding.

On this basis, the floodplains which are at greatest risk from flooding can be both visualised and defined by Superficial Deposits as depicted on geological maps. These include deposits such as river alluvium and lacustrine (lake) alluvium, as well as the First River Terrace or 'Floodplain terrace' (raised flat areas adjacent to or within floodplains, which represent the level of the floodplain prior to the most recent episode of down-cutting). Older and higher river terraces have been excluded as they lie outside the geologically defined floodplain. Areas at risk from coastal inundation are similarly characterised by a range of estuarine or marine deposits that include, for example, tidal flats.

8. JBA Canal Break map



JBA Canal Break legend

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Site Outline

50
250
Search Buffers (m)

Areas at risk from Canal Breach

8. JBA Reservoir and Canal Data

8.1 JBA Reservoir Failure Impact Modelling

Is the property located in an area identified as being at potential risk in the event of a reservoir failure? No

JBA consulting have modelled the flooding impact from 1,700 reservoirs in England and Wales, should there be a catastrophic failure of a reservoir wall or embankment. This data is not displayed on mapping.

Guidance: None required

Notes on Reservoir Failure Impact data:

This dataset identified areas that are most likely to flood following the sudden catastrophic failure of a reservoir and is provided by JBA Consulting. JBA has identified over 1,700 reservoirs that pose a risk to people and property. These maps identify properties that would flood in the unlikely event of the failure of the reservoir's dam or embankment. Empirical methods were used to predict the flow that would result from the failure which was then modelled onto high resolution Digital Terrain Models (DTM) using JBA's advanced 2D hydraulic modelling techniques. The model provides the maximum depth of flooding in each cell of the DTM.

8.2 JBA Canal Break Modelling

Is the property located within 500m of an area identified as being at potential risk in the event of a canal break? No

Database searched and no data found.

Notes on Canal Break modelling data

Canal failure mapping includes two types of failure:

- Breach of raised canal embankments - failure of the embankment due to weaknesses; these are typically caused by erosion or animal burrowing but can also arise from poor maintenance.
- Aqueduct failure - an aqueduct is where the canal passes over infrastructure such as roads, railways and subways, or over other canals and rivers. Failures of these are typically caused by the collapse of the underlying culvert.

A length of over 1,700km of canal covering England, Wales and Scotland was modelled. The canal modelling is restricted to the areas where LIDAR is available as the raised embankments are more defined in the LIDAR than in the Photogrammetry data. Each canal is categorised as part of the Merchant Shipping Notice (MSN 1776 (M)). The majority of the modelled canals are categorised as A, with a few exceptions, which fell under category B.

- Category A: narrow rivers and canals where the depth of water is generally less than 1.5m.
- Category B: wider rivers and canals where the depth of water is generally 1.5m or more and where the significant wave height could not be expected to exceed 0.6m at any time.
- Category C: tidal rivers and estuaries and large, deep lakes and lochs where the significant wave height could not be expected to exceed 1.2m at any time.
- Category D: tidal rivers and estuaries where the significant wave height could not be expected to exceed 2m at any time.

The canal map provides flood extent data only and show flooded areas with a depth greater than 0.1m.

Contact Details

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BGS Geological Hazards Reports and general geological enquiries

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Rotherham, S60 1BY
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Web: www.environment-agency.gov.uk
Email: enquiries@environment-agency.gov.uk

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Tel: 01756 799919

Ordnance Survey

Adanac Drive, Southampton
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https://www.groundsure.com/terms-and-conditions-march-2018/

Groundsure
LOCATION INTELLIGENCE

Dunelm Geotechnical & Environmental Ltd

FOUNDATION HOUSE, ST. JOHNS ROAD, DURHAM/MEADOWFIELD INDUSTRIAL ESTATE, DH7 8TZ

Groundsure Reference:	GS-4798419
Your Reference:	PONW5446-M566-RB
Report Date	12 Mar 2018
Report Delivery Method:	Email - pdf

Geo Insight

Address: HOUGH END CENTRE, MAULDETH ROAD WEST, MANCHESTER, M21 7SX

Dear Sir/ Madam,

Thank you for placing your order with Groundsure. Please find enclosed the **Groundsure Geo Insight** as requested.

If you need any further assistance, please do not hesitate to contact our helpline on 08444 159000 quoting the above Groundsure reference number.

Yours faithfully,



Managing Director
Groundsure Limited

Enc.
Groundsure Geo Insight

Geo Insight

Address:	**HOUGH END CENTRE, MAULDETH ROAD WEST, MANCHESTER, M21 7SX**
Date:	**12 Mar 2018**
Reference:	**GS-4798419**
Client:	**Dunelm Geotechnical & Environmental Ltd**

NW N NE



W E

SW S SE

Aerial Photograph Capture date:	11-Jun-2015
Grid Reference:	382975,393406
Site Size:	4.76ha

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Overview of Findings

The Groundsure Geo Insight provides high quality geo-environmental information that allows geo-environmental professionals and their clients to make informed decisions and be forewarned of potential ground instability problems that may affect the ground investigation, foundation design and possibly remediation options that could lead to possible additional costs.

The report is based on the BGS 1:50,000 and 1:10,000 Digital Geological Map of Great Britain, BGS Geosure data; BRITPITS database; Non-coal mining data and Borehole Records, Coal Authority data including brine extraction areas, PBA non-coal mining and natural cavities database, Johnson Poole and Bloomer mining data and Groundsure's unique database including historical surface ground and underground workings.

For further details on each dataset, please refer to each individual section in the report as listed. Where the database has been searched a numerical result will be recorded. Where the database has not been searched '-' will be recorded.

Section 1: Geology 1:10,000 Scale		
1.1 Artificial Ground	1.1 Is there any Artificial Ground/ Made Ground present beneath the study site at 1:10,000 scale?	No
1.2 Superficial Geology and Landslips	1.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site at 1:10,000 scale?*	Yes
	1.2.2 Are there any records of landslip within 500m of the study site boundary at 1:10,000 scale?	No
1.3 Bedrock, Solid Geology and linear features	1.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
	1.3.2 Are there any records of linear features within 500m of the study site boundary at 1:10,000 scale?	Yes

Section 2: Geology 1:50,000 Scale		
2.1 Artificial Ground	2.1.1 Is there any Artificial Ground/ Made Ground present beneath the study site?	No
	2.1.2 Are there any records relating to permeability of artificial ground within the study site*boundary?	No
2.2 Superficial Geology and Landslips	2.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site?*	Yes
	2.2.2 Are there any records of permeability of superficial ground within 500m of the study site?	Yes
	2.2.3 Are there any records of landslip within 500m of the study site boundary?	No
	2.2.4 Are there any records relating to permeability of landslips within the study site* boundary?	No

Section 2: Geology 1:50,000 Scale

2.3 Bedrock, Solid Geology and linear features	2.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
	2.3.2 Are there any records relating to permeability of bedrock ground within the study site boundary?	Yes
	2.3.3 Are there any records of linear features within 500m of the study site boundary?	Yes

Section 3: Radon

3. Radon	3.1Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.
	3.2Radon Protection	No radon protective measures are necessary.

Section 4: Ground Workings	On-site	0-50m	51-250	251-500	501-1000
4.1 Historical Surface Ground Working Features from Small Scale Mapping	1	1	10	Not Searched	Not Searched
4.2 Historical Underground Workings from Small Scale Mapping	0	0	1	3	0
4.3 Current Ground Workings	0	0	0	0	0

Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.1 Historical Mining	0	0	1	3	0
5.2 Coal Mining	0	0	0	0	0
5.3 Johnson Poole and Bloomer Mining Area	2	0	2	2	5
5.4 Non-Coal Mining*	0	0	0	0	0
5.5 Non–Coal Mining Cavities	0	0	0	0	0
5.5 Natural Cavities	0	0	0	0	0

Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.6 Brine Extraction	0	0	0	0	0
5.7 Gypsum Extraction	0	0	0	0	0
5.8 Tin Mining	0	0	0	0	0
5.9 Clay Mining	0	0	0	0	0

Section 6: Natural Ground Subsidence	On-site
6.1 Shrink-Swell Clay	Negligible
6.2 Landslides	Very Low
6.3 Ground Dissolution of Soluble Rocks	Negligible
6.4 Compressible Deposits	Negligible
6.5 Collapsible Deposits	Very Low
6.5 Running Sand	Very Low

Section 7: Borehole Records	On-site	0-50m	51-250
7 BGS Recorded Boreholes	0	0	14

Section 8: Estimated Background Soil Chemistry	On-site	0-50m	51-250
8 Records of Background Soil Chemistry	4	0	0

Section 9: Railways and Tunnels	On-site	0-50m	51-250	250-500
9.1 Tunnels	0	0	0	Not Searched
9.2 Historical Railway and Tunnel Features	0	1	16	Not Searched
9.3 Historical Railways	0	0	2	Not Searched
9.4 Active Railways	0	6	4	Not Searched
9.5 Railway Projects	0	0	0	0

1:10,000 Scale Availability



1_10,000 Availability Legend

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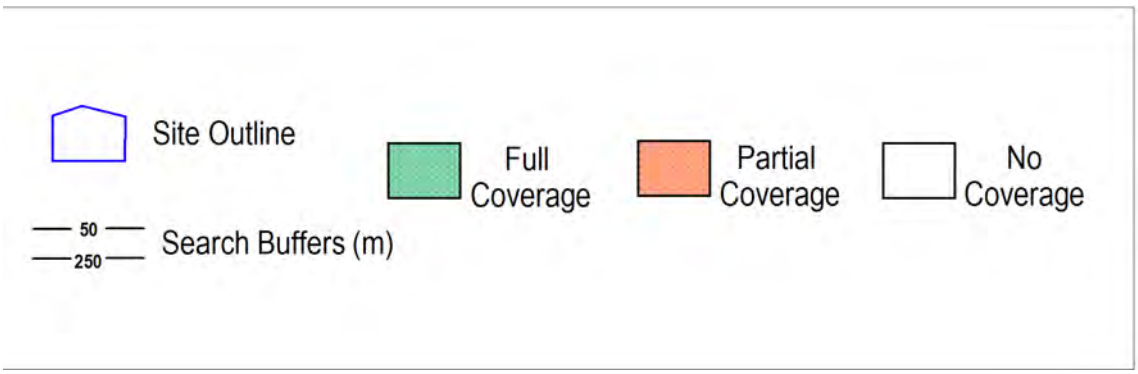


Availability of 1:10,000 Scale Geology Mapping

The following information represents the availability of the key components of the 1:10,000 scale geological data.

ID	Distance	Artificial Coverage	Superficial Coverage	Bedrock Coverage	Mass Movement Coverage
1	0.0	Some deposits are mapped	Full	Full	No coverage
N2	1486.0	Some deposits are mapped	Full	Full	No coverage
N3	1889.0	Some deposits are mapped	Full	Full	No coverage

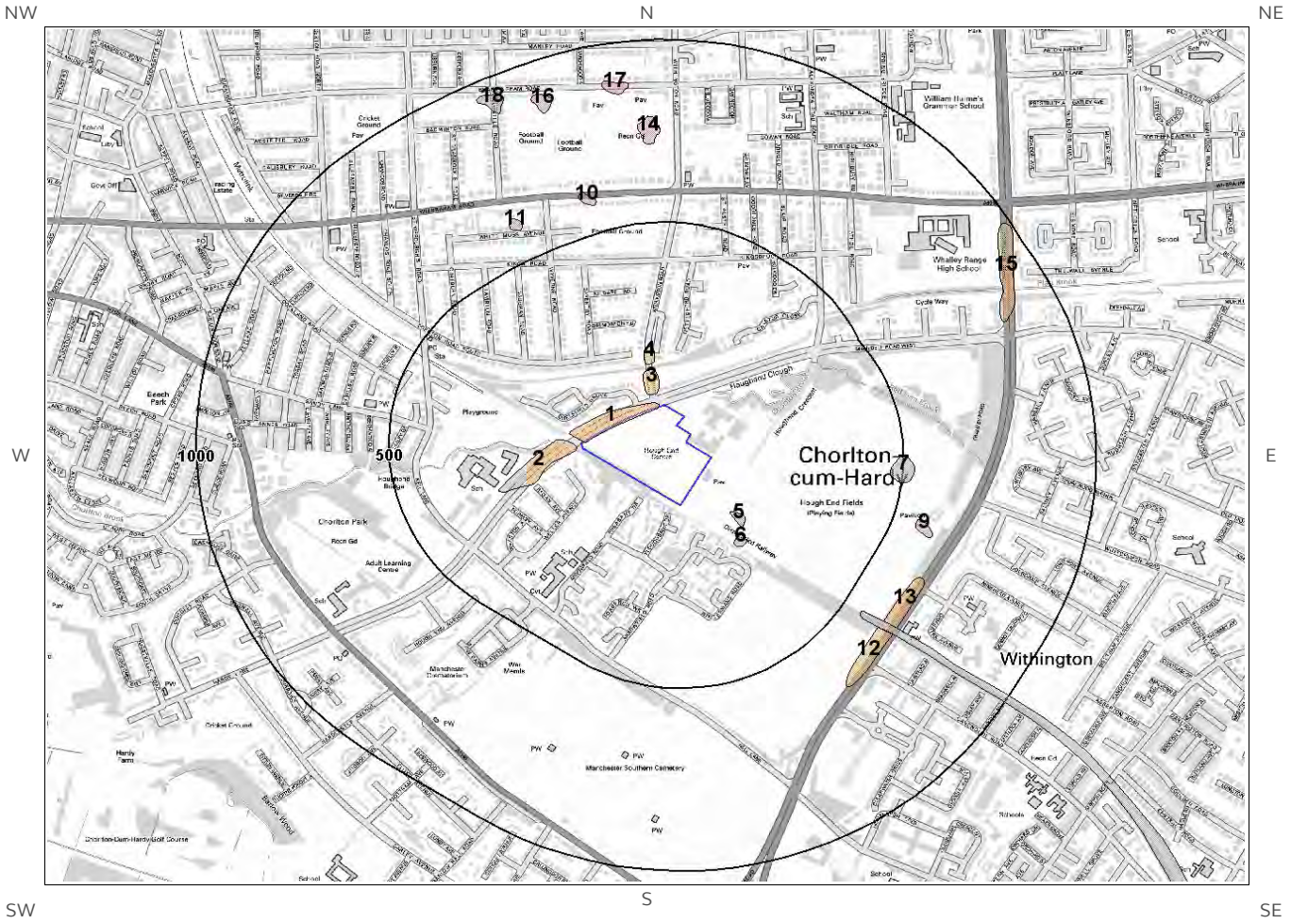
Guidance: The 1:10,000 scale geological interpretation is the most detailed generally available from BGS and is the scale at which most geological surveying is carried out in the field. The database is presented as four types of geology (artificial, mass movement, superficial and bedrock), although not all themes are mapped or available on every map sheet. Therefore a coverage layer showing the availability of the four themes is presented above.

The definitions of coverage are as follows:

Geology	Full Coverage	Partial Coverage	No Coverage
Bedrock	The whole tile has been mapped	Some but not all the tile has been mapped	No coverage
Superficial	The whole tile has been mapped	Some but not all of the tile has been mapped	No coverage
Artificial	Some deposits are mapped on this tile	-	No deposits are mapped
Mass Movement	Some deposits are mapped on this tile	-	No coverage

1 Geology (1:10,000 scale).

1.1 Artificial Ground map (1:10,000 scale)



Artificial Ground Legend

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Site Outline

500
1000
Search Buffers (m)

Made Ground (undivided)

Worked Ground (undivided)

Infilled Ground

Disturbed Ground (undivided)

Landscaped Ground (undivided)

Reclaimed Ground

1. Geology 1:10,000 scale

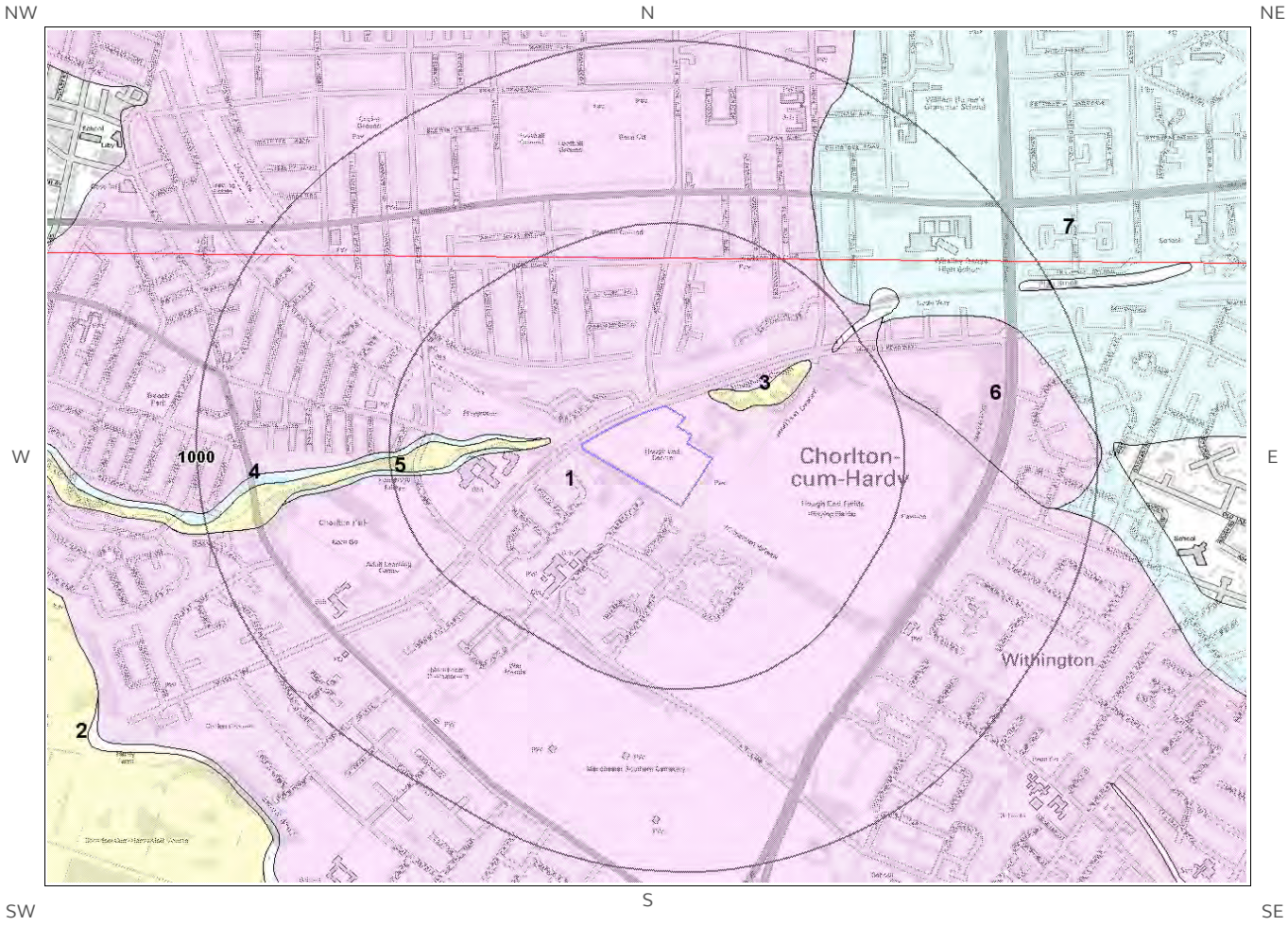
1.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping.

Are there any records of Artificial/ Made Ground within 500m of the study site boundary at 1:10,000 scale? Yes

ID	Distance	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
2	17.0	W	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
3	37.0	N	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
4	118.0	N	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
5	120.0	SE	WMGR-ARTDP	Infilled Ground	Artificial Deposit
6	169.0	SE	WMGR-ARTDP	Infilled Ground	Artificial Deposit
7	466.0	E	WMGR-ARTDP	Infilled Ground	Artificial Deposit

1.2 Superficial Deposits and Landslips map (1:10,000 scale)



Artificial Ground Legend

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Site Outline

500
1000
Search Buffers (m)

1.2 Superficial Deposits and Landslips

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping

1.2.1 Superficial Deposits/ Drift Geology

Are there any records of Superficial Deposits/ Drift Geology within 500m of the study site boundary at 1:10,000 scale? Yes

ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	GFSDD-XSV	Glaciofluvial Sheet Deposits, Devensian - Sand And Gravel	Sand And Gravel
2	84.0	W	ALV-XCZSV	Alluvium - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel
3	86.0	NE	ALV-XCZSV	Alluvium - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel
4	102.0	W	TILLD-DMTN	Till, Devensian - Diamicton	Diamicton
5	153.0	W	TILLD-DMTN	Till, Devensian - Diamicton	Diamicton

1.2.2 Landslip

Are there any records of Landslip within 500m of the study site boundary at 1:10,000 scale?

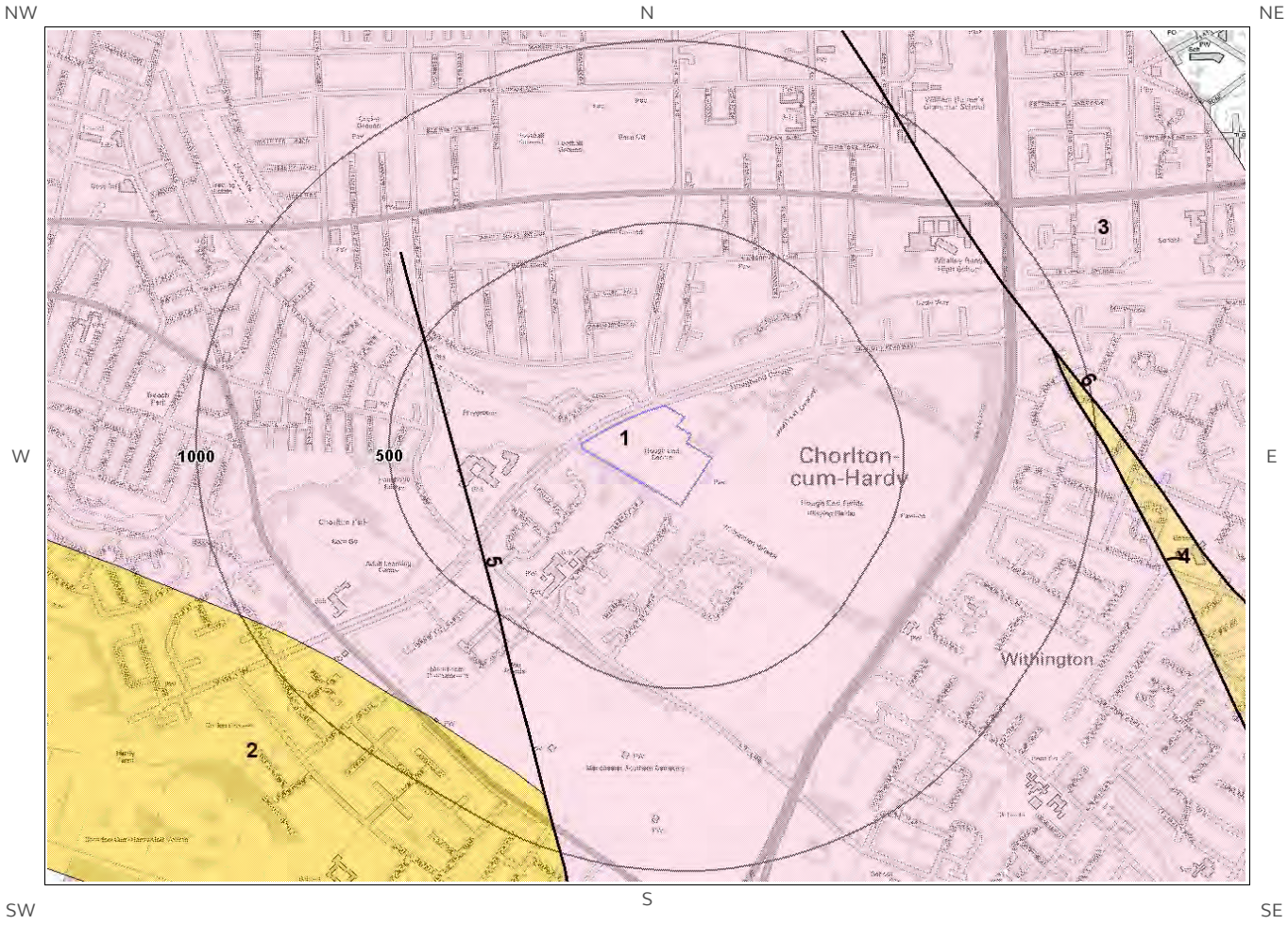
No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:10,000 scale

This Geology shows the main components as discrete layers, these are: Artificial / Made Ground, Superficial / Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

1.3 Bedrock and linear features map (1:10,000 scale)



Bedrock and linear features Legend

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Site Outline

500
1000
Search Buffers (m)

1.3 Bedrock and linear features

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping.

1.3.1 Bedrock/ Solid Geology

Records of Bedrock/Solid Geology within 500m of the study site boundary at 1:10,000 scale.

ID	Distance (m)	Direction	LEX Code	Description	Rock Age
1	0.0	On Site	WLSF-SDST	Wilmslow Sandstone Formation - Sandstone	Early Triassic Epoch

1.3.2 Linear features

Are there any records of linear features within 500m of the study site boundary at 1:10,000 scale? Yes

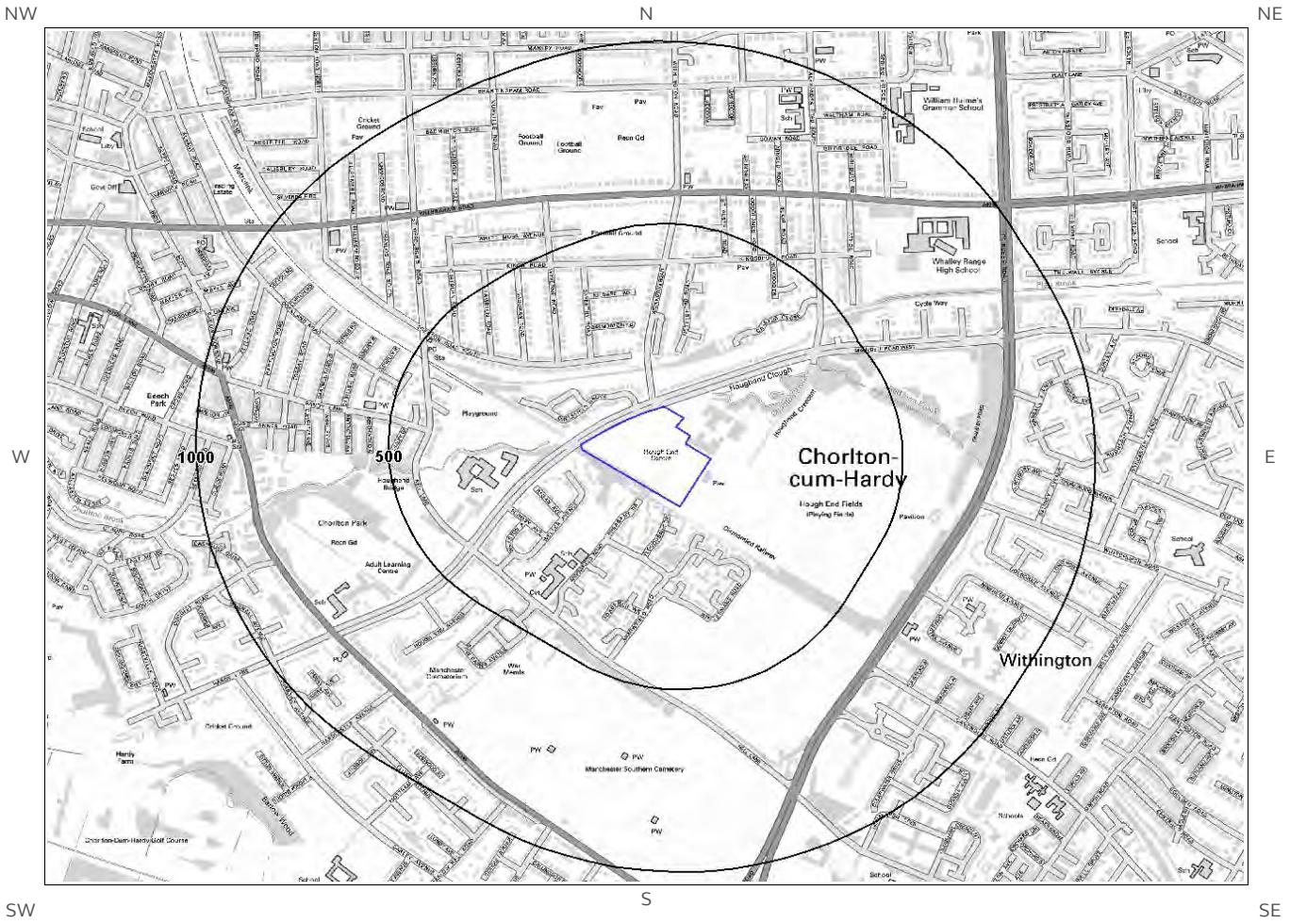
ID	Distance (m)	Direction	Category Description	Feature Description
5	324.0	W	FAULT	Normal fault, inferred; crossmarks on downthrow side

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of great Britain at 1:10,000 scale.

This Geology shows the main components as discrete layers, these are: Bedrock/ Solid Geology and linear features such as faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

2 Geology 1:50,000 Scale

2.1 Artificial Ground map



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2. Geology 1:50,000 scale

2.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 098

2.1.1 Artificial/ Made Ground

Are there any records of Artificial/ Made Ground within 500m of the study site boundary? No

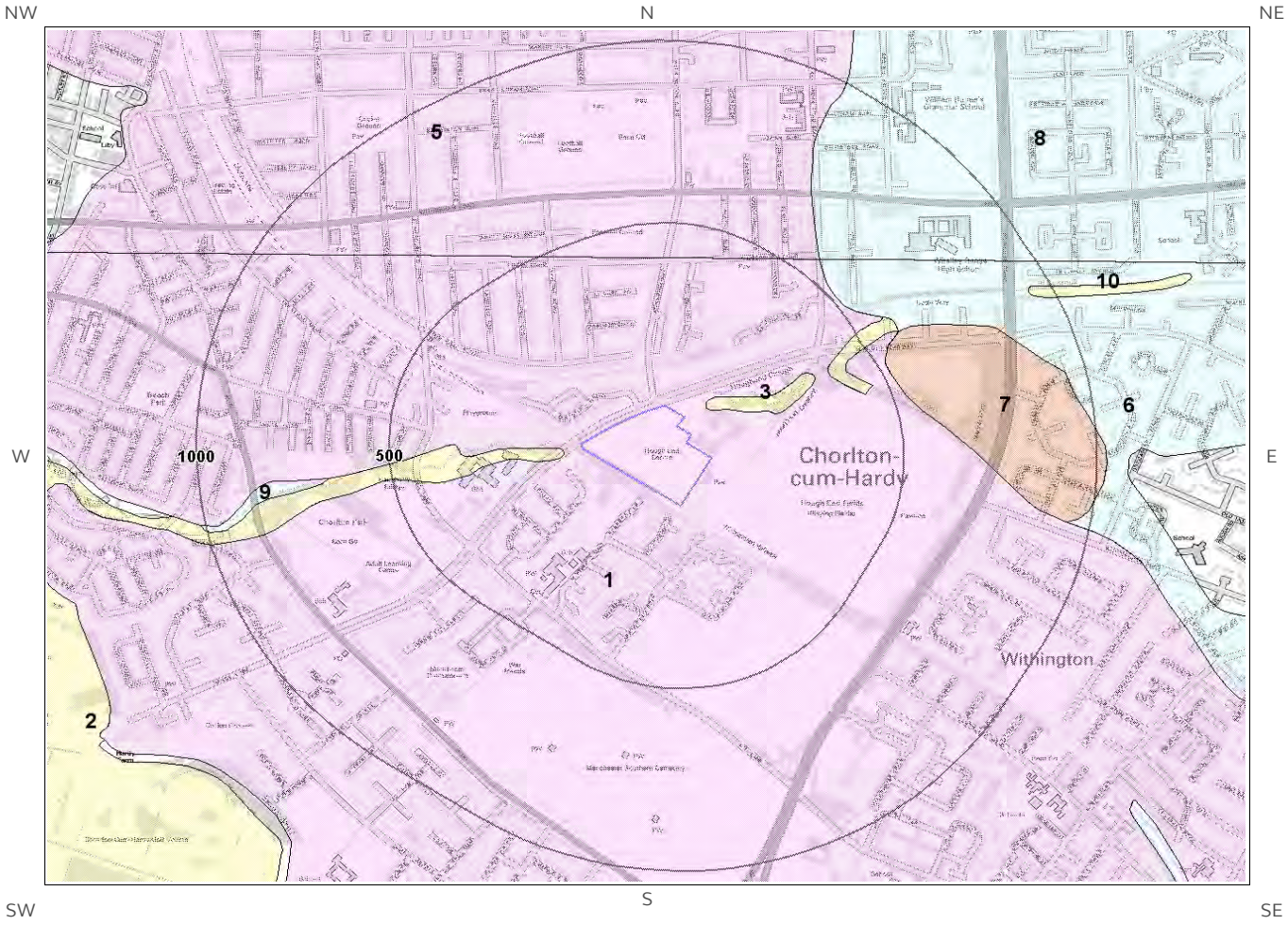
Database searched and no data found.

2.1.2 Permeability of Artificial Ground

Are there any records relating to permeability of artificial ground within the study site boundary? No

Database searched and no data found.

2.2 Superficial Deposits and Landslips map (1:50,000 scale)



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Site Outline

500
1000
Search Buffers (m)

2.2 Superficial Deposits and Landslips

2.2.1 Superficial Deposits/ Drift Geology

Are there any records of Superficial Deposits/ Drift Geology within 500m of the study site boundary? Yes

ID	Distance	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	GFSDD-XSV	GLACIOFLUVIAL SHEET DEPOSITS, DEVENSIAN	SAND AND GRAVEL
2	52.0	W	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
3	63.0	NE	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
4	383.0	NE	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
5	405.0	N	GFSDD-XSV	GLACIOFLUVIAL SHEET DEPOSITS, DEVENSIAN	SAND AND GRAVEL

2.2.2 Permeability of Superficial Ground

Are there any records relating to permeability of superficial ground within the study site boundary? Yes

Distance (m)	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Intergranular	Very High	High

2.2.3 Landslip

Are there any records of Landslip within 500m of the study site boundary? No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:50,000 scale.

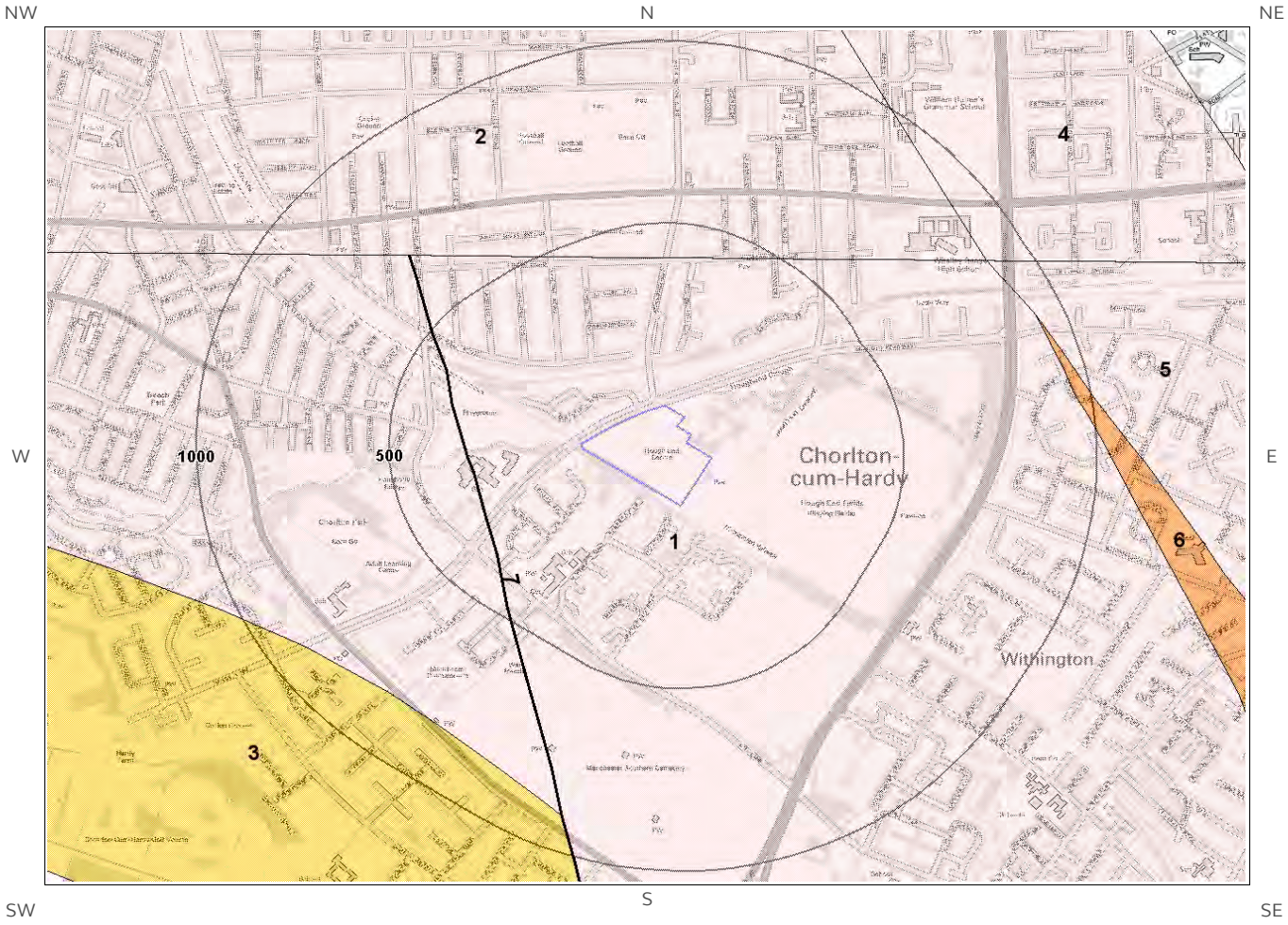
This Geology shows the main components as discrete layers, there are: Artificial/ Made Ground, Superficial/ Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

2.2.4 Landslip Permeability

Are there any records relating to permeability of landslips within the study site boundary? No

Database searched and no data found.

2.3 Bedrock and linear features map (1:50,000 scale)



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Site Outline

500
1000
Search Buffers (m)

2.3 Bedrock, Solid Geology & linear features

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 098

2.3.1 Bedrock/Solid Geology

Records of Bedrock/Solid Geology within 500m of the study site boundary:

ID	Distance	Direction	LEX Code	Rock Description	Rock Age
1	0.0	On Site	WLSF-SDST	WILMSLOW SANDSTONE FORMATION - SANDSTONE	-
2	405.0	N	WLSF-SDST	WILMSLOW SANDSTONE FORMATION - SANDSTONE	-

2.3.2 Permeability of Bedrock Ground

Are there any records relating to permeability of bedrock ground within the study site boundary? Yes

Distance	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Intergranular	High	High

2.3.3 Linear features

Are there any records of linear features within 500m of the study site boundary? Yes

ID	Distance	Direction	Category Description	Feature Description
7	291.0	W	FAULT	Fault, inferred

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:50,000 scale.

This Geology shows the main components as discrete layers, these are: Bedrock/Solid Geology and linear features such as faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nation wide coverage.

3 Radon Data

3.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

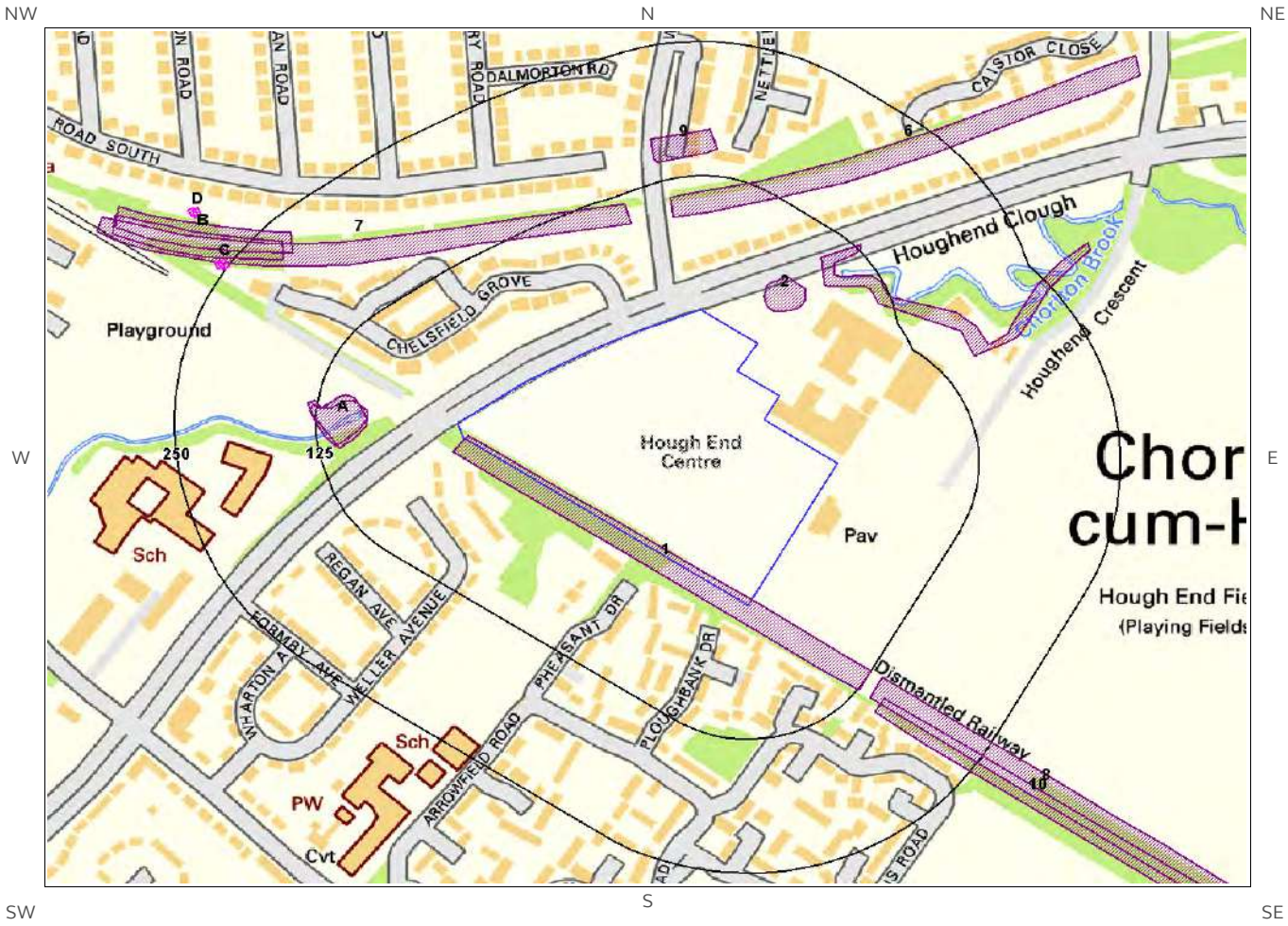
The radon data in this report is supplied by the BGS/Public Health England and is the definitive map of Radon Affected Areas in Great Britain and Northern Ireland. The dataset was created using long-term radon measurements in over 479,000 homes across Great Britain and 23,000 homes across Northern Ireland, combined with geological data. The dataset is considered accurate to 50m to allow for the margin of error in geological lines, and the findings of this report supercede any answer given in the less accurate Indicative Atlas of Radon in Great Britain, which simplifies the data to give the highest risk within any given 1km grid square. As such, the radon atlas is considered indicative, whereas the data given in this report is considered definitive.

3.2 Radon Protection

Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary.

---

4 Ground Workings map



Ground Workings Legend

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Site Outline

125
250
Search Buffers (m)

Historic Surface Ground Workings

Historic Underground Workings

Current Ground Workings

4 Ground Workings

4.1 Historical Surface Ground Working Features derived from Historical Mapping

This dataset is based on Groundsure's unique Historical Land Use Database derived from 1:10,560 and 1:10,000 scale historical mapping

Are there any Historical Surface Ground Working Features within 250m of the study site boundary? Yes

ID	Distance (m)	Direction	NGR	Use	Date
1	0.0	On Site	382956 393278	Cuttings	1966
2	33.0	NE	383064 393528	Unspecified Pit	1934
3A	80.0	W	382670 393407	Unspecified Pit	1938
4A	80.0	W	382689 393410	Unspecified Pit	1950
5	81.0	NE	383156 393523	Unspecified Ground Workings	1950
6	89.0	N	383207 393675	Cuttings	1892
7	97.0	N	382497 393583	Cuttings	1892
8	136.0	SE	383353 393030	Cuttings	1966
9	142.0	N	382975 393666	Unspecified Heap	1934
10	148.0	SE	383358 393013	Cuttings	1892
11B	215.0	NW	382551 393588	Cuttings	1950
12B	216.0	NW	382546 393581	Cuttings	1934

4.2 Historical Underground Working Features derived from Historical Mapping

This data is derived from the Groundsure unique Historical Land Use Database. It contains data derived from 1:10,000 and 1:10,560 historical Ordnance Survey Mapping and includes some natural topographical features (Shake Holes for example) as well as manmade features that may have implications for ground stability. Underground and mining features have been identified from surface features such as shafts. The distance that these extend underground is not shown.

Are there any Historical Underground Working Features within 1000m of the study site boundary? Yes

The following Historical Underground Working Features are provided by Groundsure:

ID	Distance (m)	Direction	NGR	Use	Date
13C	249.0	NW	382569 393556	Unspecified Shafts	1923
14C	253.0	NW	382565 393556	Unspecified Shafts	1916
15D	297.0	NW	382545 393604	Unspecified Shafts	1923
16D	301.0	NW	382541 393605	Unspecified Shafts	1916

4.3 Current Ground Workings

This dataset is derived from the BGS BRITPITS database covering active; inactive mines; quarries; oil wells; gas wells and mineral wharves; and rail deposits throughout the British Isles.

Are there any BGS Current Ground Workings within 1000m of the study site boundary? No

Database searched and no data found.

5 Mining, Extraction & Natural Cavities map

NW N NE

W E

SW S SE



Mining, Extraction and Natural Cavities Legend

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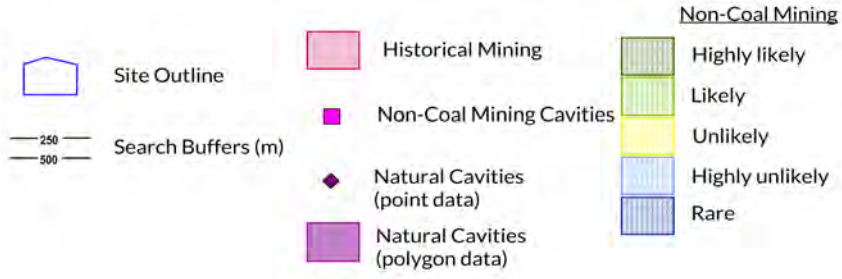

5 Mining, Extraction & Natural Cavities

5.1 Historical Mining

This dataset is derived from Groundsure unique Historical Land-use Database that are indicative of mining or extraction activities.

Are there any Historical Mining areas within 1000m of the study site boundary? Yes

The following Historical Mining information is provided by Groundsure:

ID	Distance (m)	Direction	NGR	Details	Date
1A	249.0	NW	382569 393556	Unspecified Shafts	1923
2A	253.0	NW	382565 393556	Unspecified Shafts	1916
3B	297.0	NW	382545 393604	Unspecified Shafts	1923
4B	301.0	NW	382541 393605	Unspecified Shafts	1916

5.2 Coal Mining

This dataset provides information as to whether the study site lies within a known coal mining affected area as defined by the coal authority.

Are there any Coal Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.3 Johnson Poole and Bloomer

This dataset provides information as to whether the study site lies within an area where JPB hold information relating to mining.

Are there any JPB Mining areas within 1000m of the study site boundary? Yes

The following information provided by JPB is not represented on mapping: Whilst outside of an area where The Coal Authority have information on coal mining activities, Johnson Poole & Bloomer (JPB) have information such as mining plans and maps held within their archive of mining activities that have occurred within 1km of this property. Further details and a quote for services can be obtained by emailing this report to enquiries.gs@jpb.co.uk.

5.4 Non-Coal Mining

This dataset provides information as to whether the study site lies within an area which may have been subject to non-coal historic mining.

Are there any Non-Coal Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.5 Non-Coal Mining Cavities

This dataset provides information from the Peter Brett Associates (PBA) mining cavities database (compiled for the national study entitled "Review of mining instability in Great Britain, 1990" PBA has also continued adding to this database) on mineral extraction by mining.

Are there any Non-Coal Mining cavities within 1000m of the study site boundary? No

Database searched and no data found.

5.6 Natural Cavities

This dataset provides information based on the Peter Brett Associates natural cavities database. The dataset is made up of points and polygons. Where polygons are used these represent an area in which it is expected the cavities could be found. It does not indicate that cavities are present everywhere within the polygon, and caution should be used in the interpretation of this data.

Are there any Natural Cavities within 1000m of the study site boundary? No

Database searched and no data found.

5.7 Brine Extraction

This data provides information from the Coal Authority issued on behalf of the Cheshire Brine Subsidence Compensation Board.

Are there any Brine Extraction areas within 1000m of the study site boundary? No

Database searched and no data found.

5.8 Gypsum Extraction

This dataset provides information on Gypsum extraction from British Gypsum records.

Are there any Gypsum Extraction areas within 1000m of the study site boundary? No

Database searched and no data found.

5.9 Tin Mining

This dataset provides information on tin mining areas and is derived from tin mining records. This search is based upon postcode information to a sector level..

Are there any Tin Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.10 Clay Mining

This dataset provides information on Kaolin and Ball Clay mining from relevant mining records.

Are there any Clay Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

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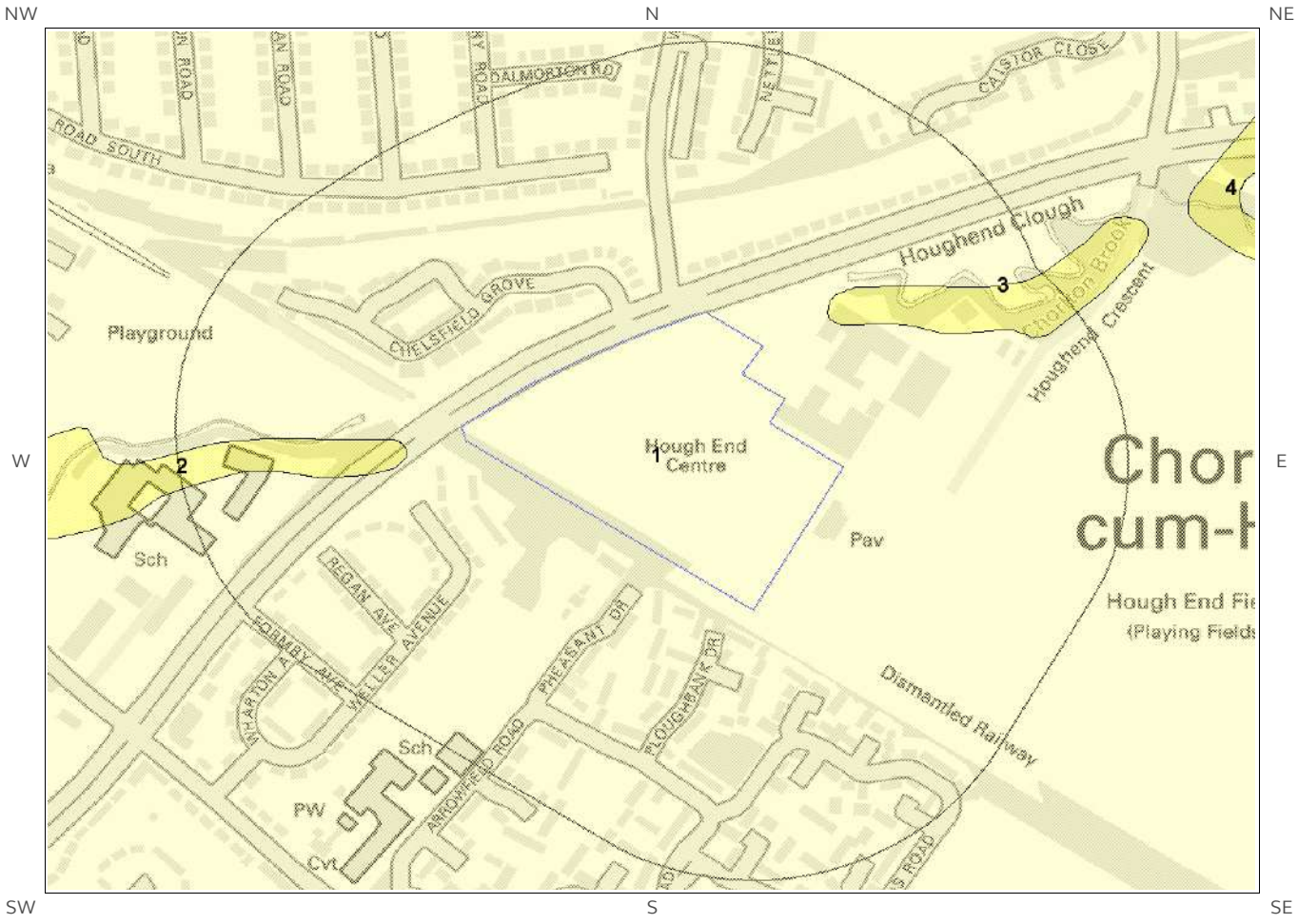
6 Natural Ground Subsidence

6.1 Shrink-Swell Clay map



Shrink Swell Clay Legend

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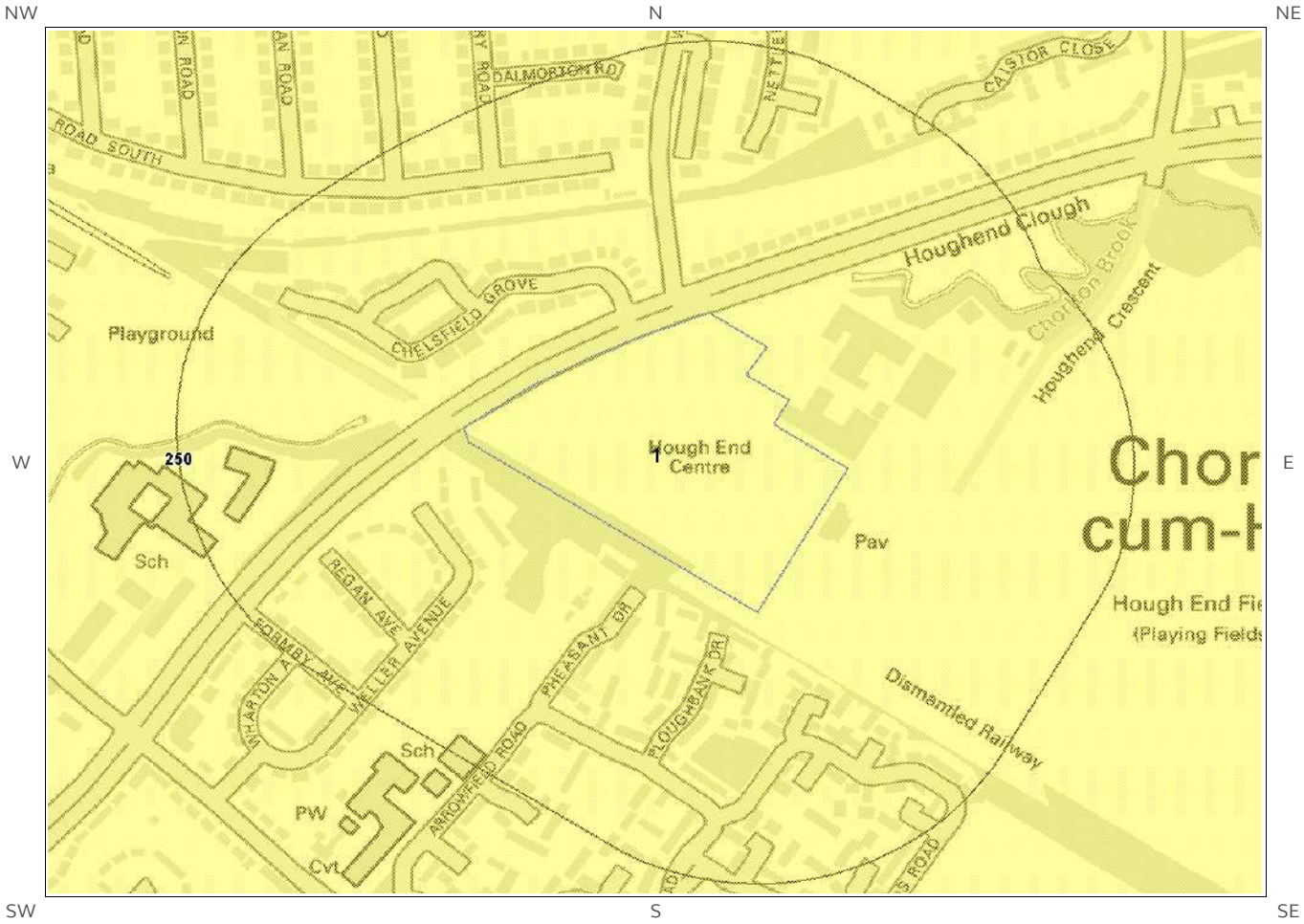
6.2 Landslides map



Landslides Legend

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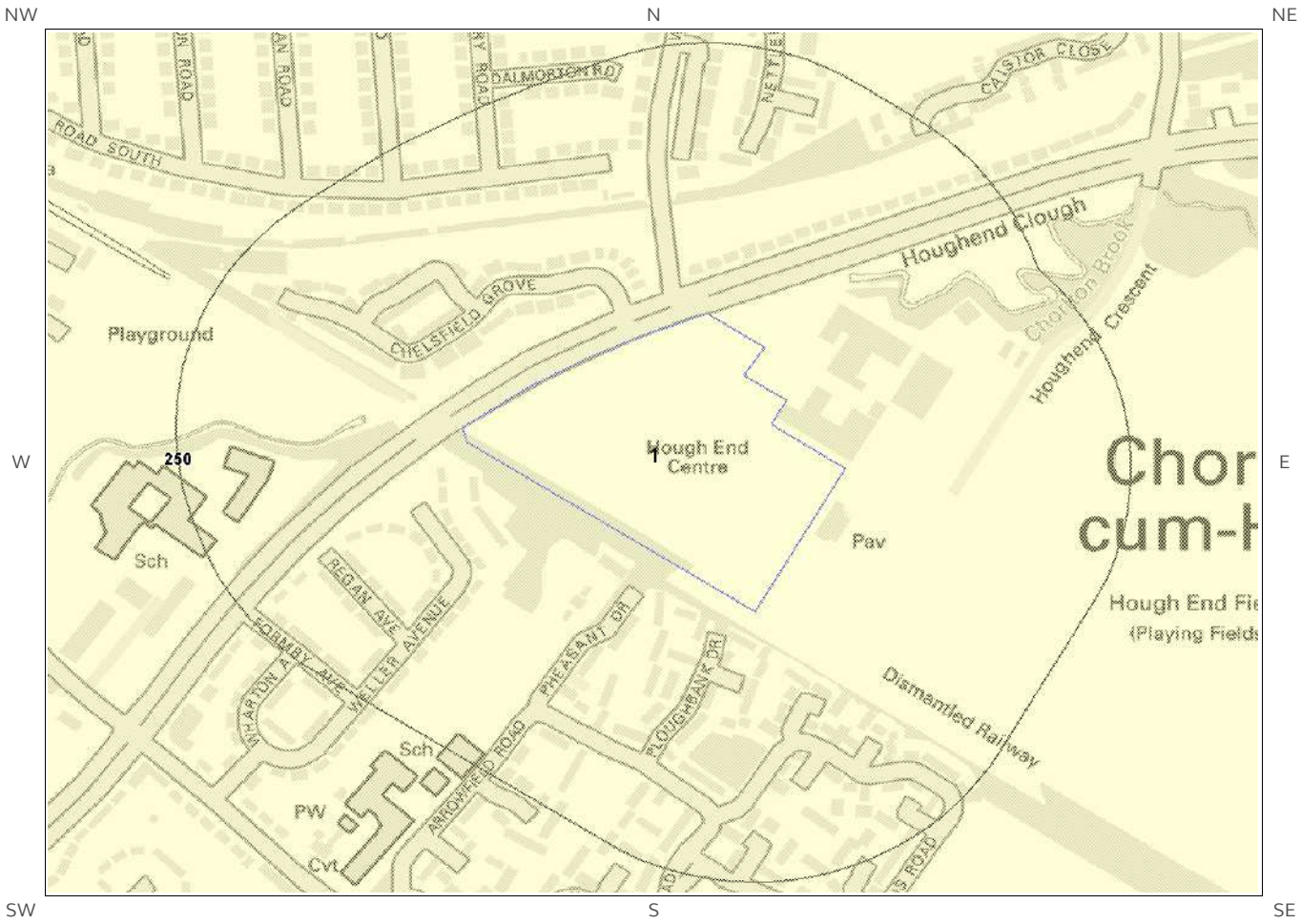
6.3 Ground Dissolution of Soluble Rocks map



Ground Dissolution Soluble Rocks Legend

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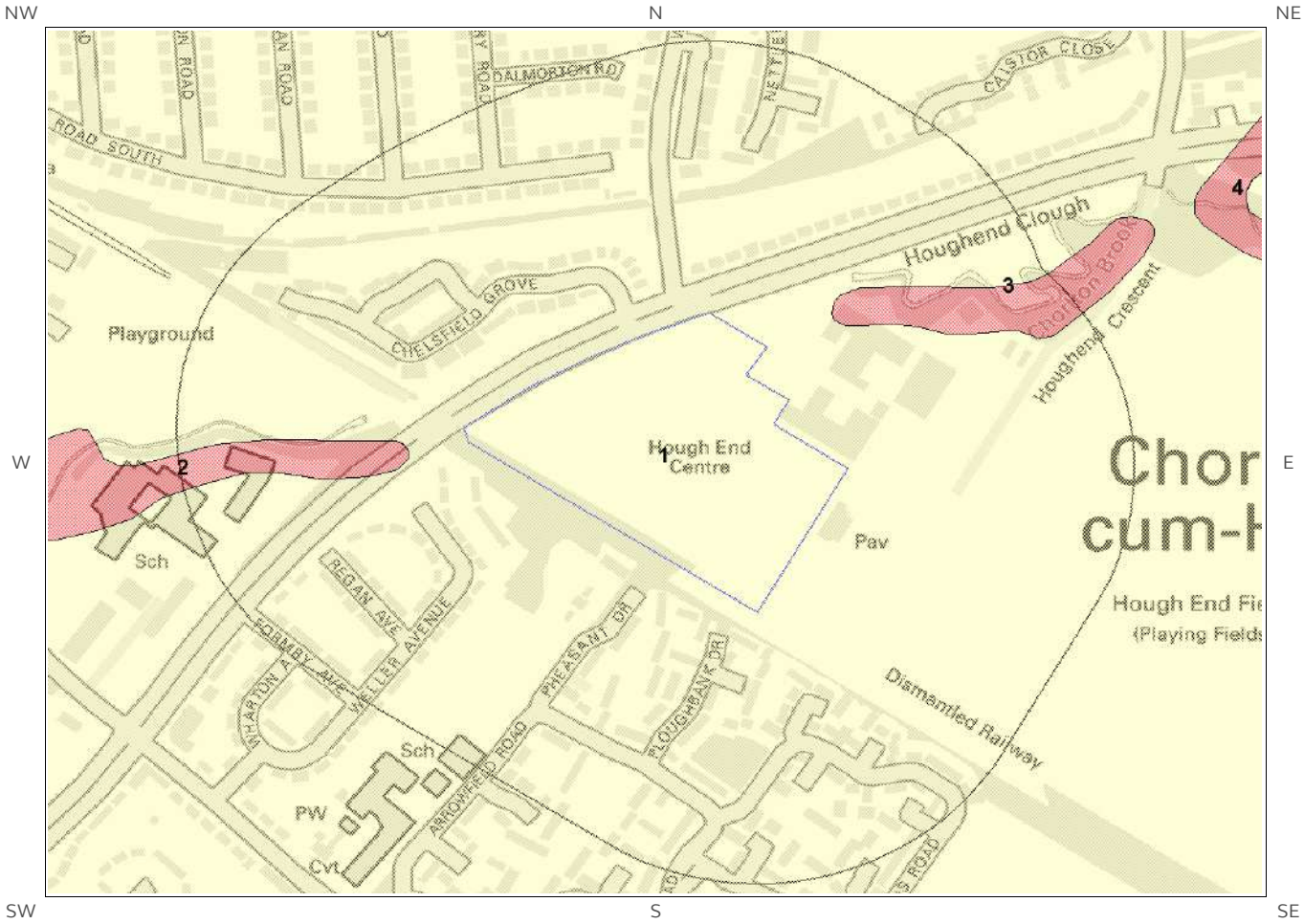
6.4 Compressible Deposits map



Compressible Deposits Legend

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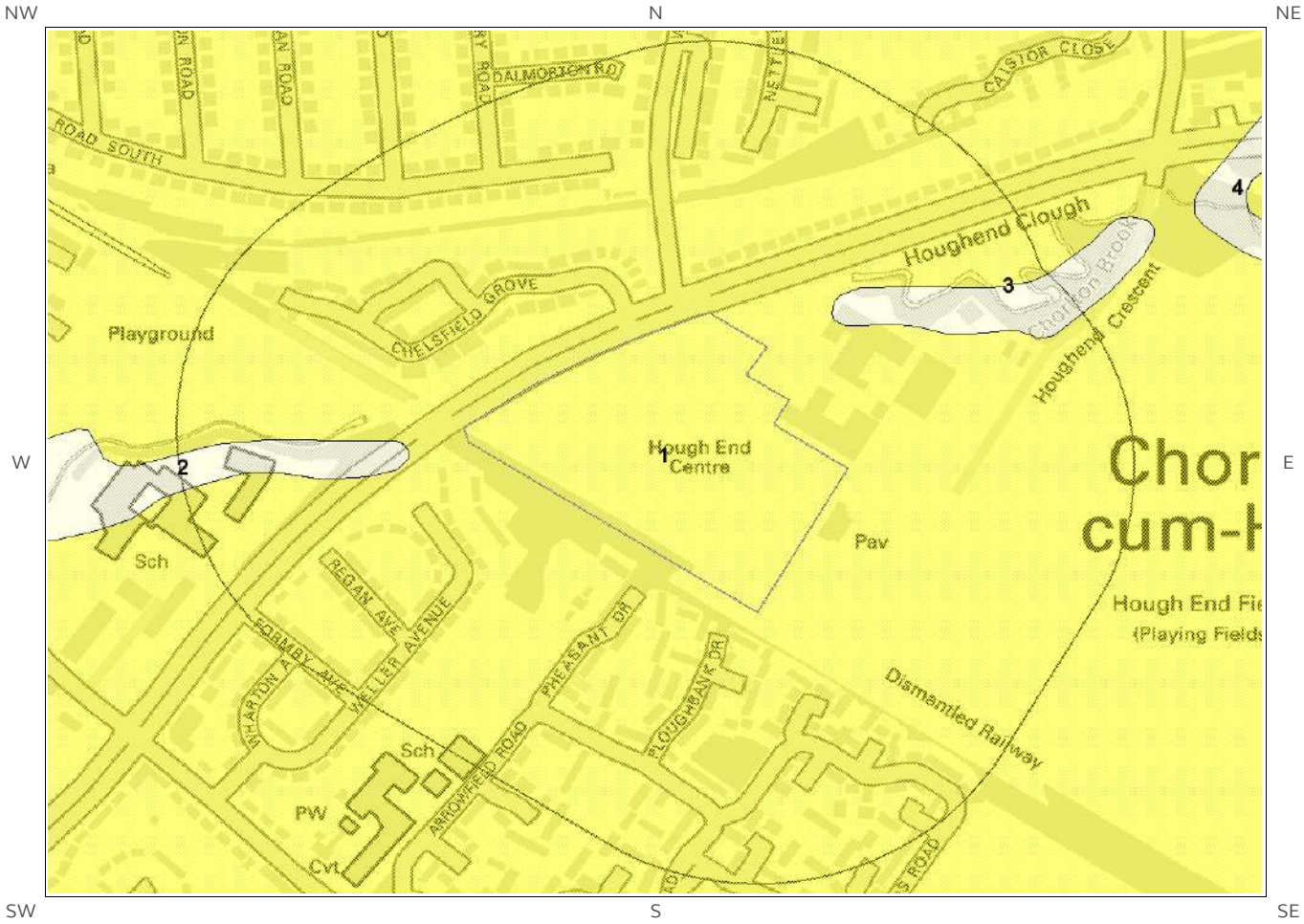
6.5 Collapsible Deposits map



Collapsible Deposits Legend

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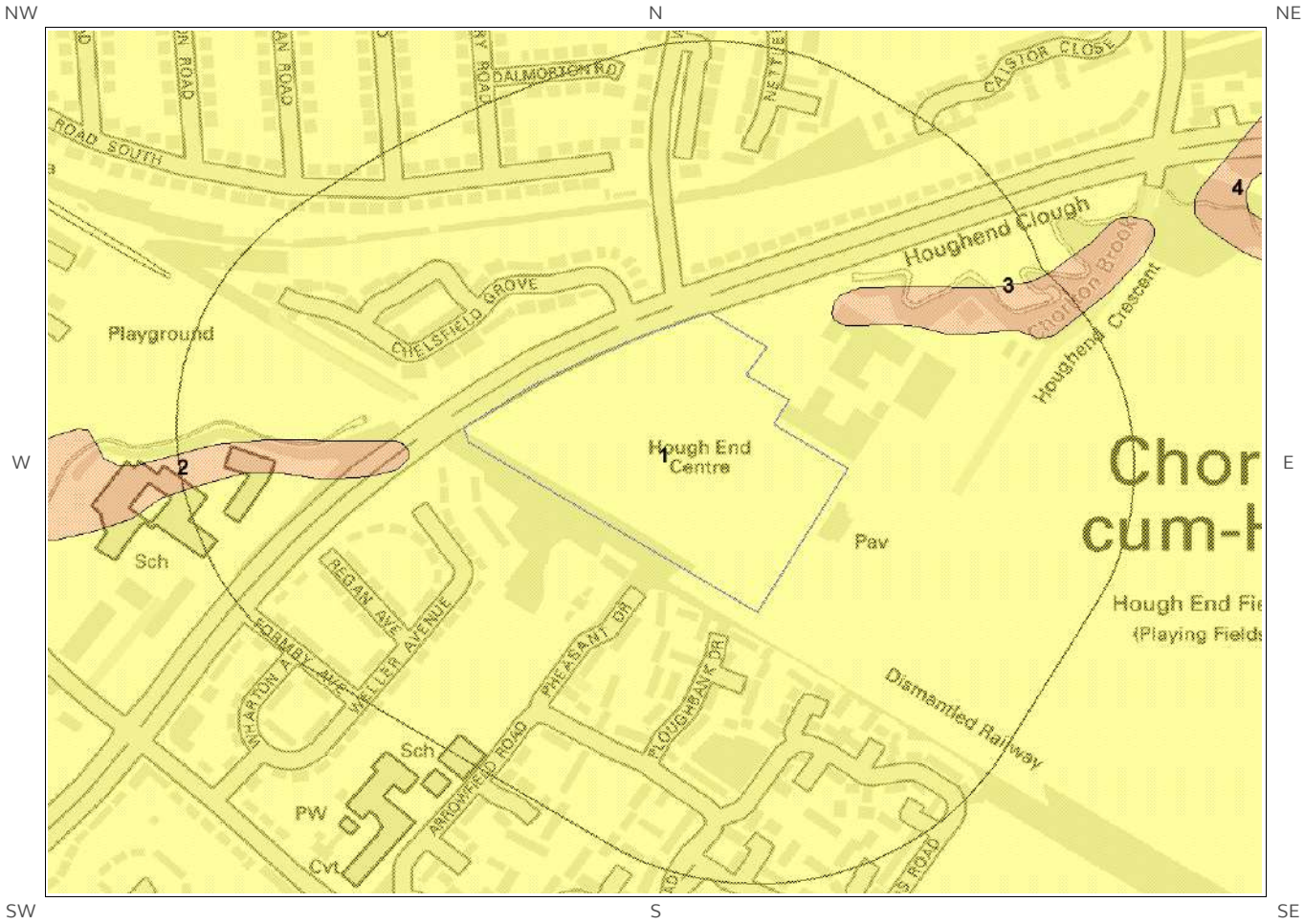
6.6 Running Sand map



Running Sand Legend

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6 Natural Ground Subsidence

The National Ground Subsidence rating is obtained through the 6 natural ground stability hazard datasets, which are supplied by the British Geological Survey (BGS).

The following GeoSure data represented on the mapping is derived from the BGS Digital Geological map of Great Britain at 1:50,000 scale.

What is the maximum hazard rating of natural subsidence within the study site*[*] boundary? Very Low

6.1 Shrink-Swell Clays

The following Shrink Swell information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	Ground conditions predominantly non-plastic. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely likely due to potential problems with shrink-swell clays.

6.2 Landslides

The following Landslides information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.

6.3 Ground Dissolution of Soluble Rocks

The following Ground Dissolution information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.

* This includes an automatically generated 50m buffer zone around the site

6.4 Compressible Deposits

The following Compressible Deposits information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.

6.5 Collapsible Deposits

The following Collapsible Rocks information provided by the British Geological Survey:

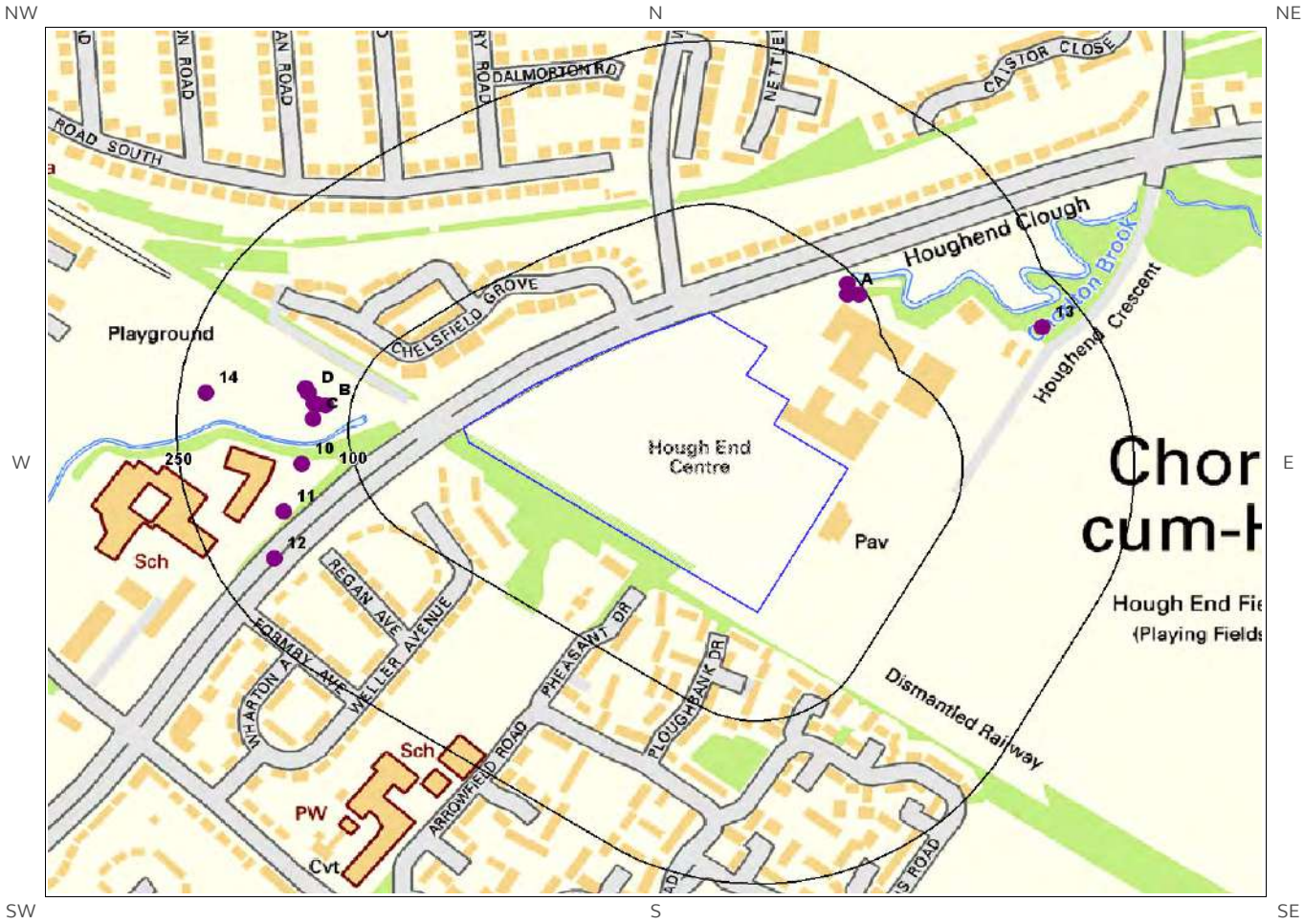
ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

6.6 Running Sands

The following Running Sands information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

7 Borehole Records map



Borehole Records Legend

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Site Outline

Borehole Locations

125
250
Search Buffers (m)

7 Borehole Records

The systematic analysis of data extracted from the BGS Borehole Records database provides the following information.

Records of boreholes within 250m of the study site boundary: 14

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
1A	85.0	NE	383110 393530	SJ89SW385	2.8	CHORLTON BROOK 4
2A	91.0	NE	383110 393540	SJ89SW386	7.0	CHORLTON BROOK 5
3A	93.0	NE	383120 393530	SJ89SW394	7.0	CHORLTON BROOK 32
4B	122.0	W	382655 393428	SJ89SW967	3.5	MANCHESTER METROLINK PHASE 3B - AIRPORT EXTENSION TP02_AIR
5B	129.0	W	382648 393429	SJ89SW922	6.45	MANCHESTER METROLINK PHASE 3B - AIRPORT EXTENSION WS01_AIR
6C	131.0	W	382644 393416	SJ89SW968	2.9	MANCHESTER METROLINK PHASE 3B - AIRPORT EXTENSION TP03_AIR
7C	132.0	W	382645 393430	SJ89SW875	25.6	MANCHESTER METROLINK PHASE 3B - AIRPORT EXTENSION 1_AIR
8D	139.0	W	382640 393440	SJ89SW568	-1.0	ST WERBURGH'S ROAD CHORLTON 4
9D	143.0	W	382637 393444	SJ89SW966	3.2	MANCHESTER METROLINK PHASE 3B - AIRPORT EXTENSION TP01_AIR
10	145.0	W	382634 393374	SJ89SW1013	25.0	MANCHESTER METROLINK PHASE 3B - AIRPORT EXTENSION 2_AIR
11	174.0	W	382618 393330	SJ89SW876	18.31	MANCHESTER METROLINK PHASE 3B - AIRPORT EXTENSION 2A_AIR
12	201.0	SW	382610 393287	SJ89SW956	6.2	MANCHESTER METROLINK PHASE 3B - AIRPORT EXTENSION WSTP05_AIR
13	213.0	NE	383280 393500	SJ89SW44	200.0	HOUGHEND CLOUGH
14	227.0	W	382550 393440	SJ89SW567	-1.0	ST WERBURGH'S ROAD CHORLTON 3

The borehole records are available using the hyperlinks below: Please note that if the donor of the borehole record has requested the information be held as commercial-in-confidence, the additional data will be held separately by the BGS and a formal request must be made for its release.

#1A: scans.bgs.ac.uk/sobi_scans/boreholes/865268
#2A: scans.bgs.ac.uk/sobi_scans/boreholes/865269
#3A: scans.bgs.ac.uk/sobi_scans/boreholes/865277
#4B: scans.bgs.ac.uk/sobi_scans/boreholes/19335058
#5B: scans.bgs.ac.uk/sobi_scans/boreholes/19329443
#6C: scans.bgs.ac.uk/sobi_scans/boreholes/19335059
#7C: scans.bgs.ac.uk/sobi_scans/boreholes/19329394
#9D: scans.bgs.ac.uk/sobi_scans/boreholes/19335057
#10: scans.bgs.ac.uk/sobi_scans/boreholes/19413390
#11: scans.bgs.ac.uk/sobi_scans/boreholes/19329395
#12: scans.bgs.ac.uk/sobi_scans/boreholes/19335047
#13: scans.bgs.ac.uk/sobi_scans/boreholes/864927

8 Estimated Background Soil Chemistry

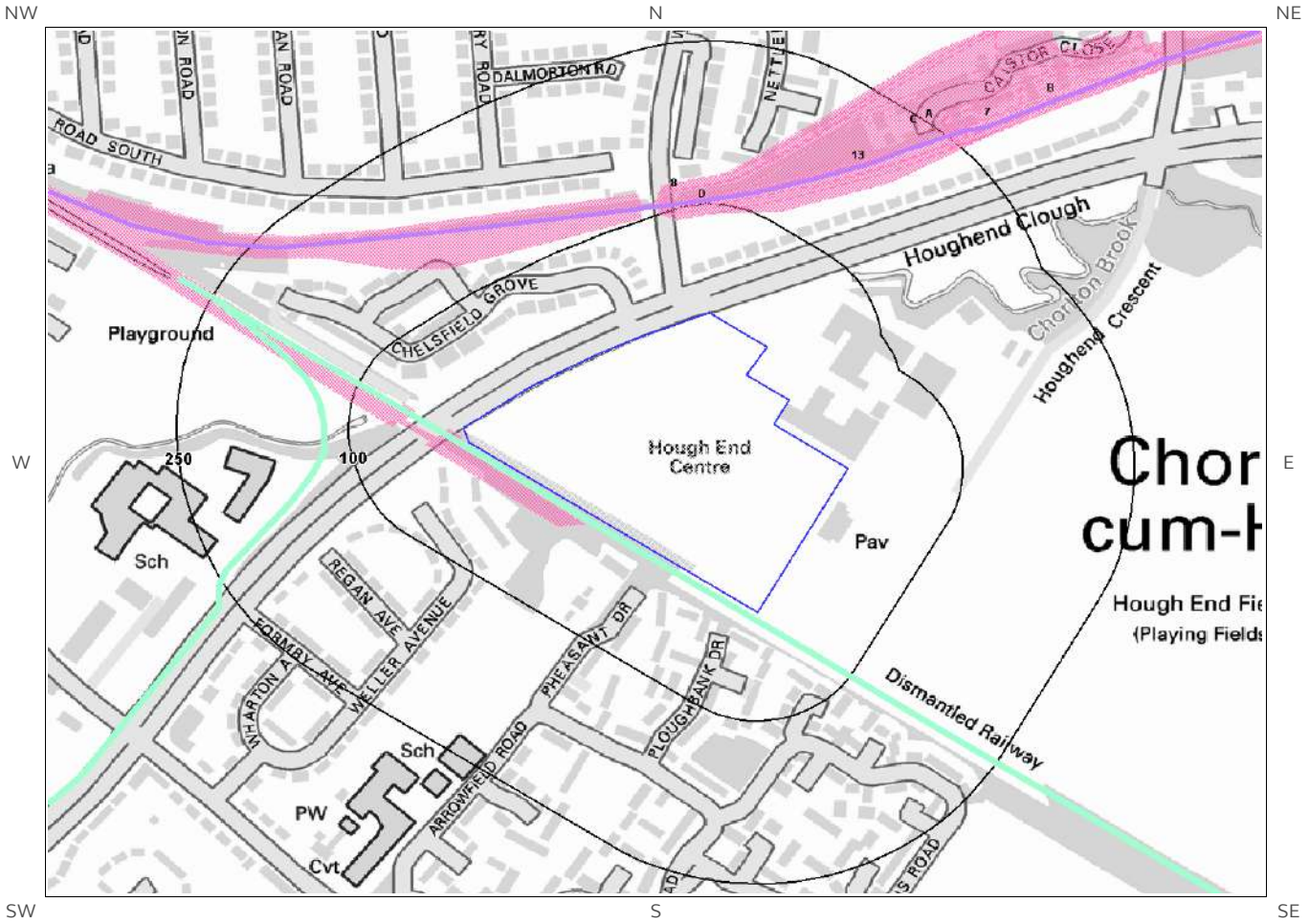
Records of background estimated soil chemistry within 250m of the study site boundary: 4

For further information on how this data is calculated and limitations upon its use, please see the Groundsure Geo Insight User Guide, available on request.

Distance (m)	Direction	Sample Type	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Nickel (Ni)	Lead (Pb)
0.0	On Site	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg	100 - 200 mg/kg
0.0	On Site	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg	100 - 200 mg/kg
0.0	On Site	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg	100 - 200 mg/kg
0.0	On Site	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg	100 - 200 mg/kg

*As this data is based upon underlying 1:50,000 scale geological information, a 50m buffer has been added to the search radius.

9 Railways and Tunnels map



Railways and Tunnels Legend

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9 Railways and Tunnels

9.1 Tunnels

This data is derived from OpenStreetMap and provides information on the possible locations of underground railway systems in the UK - the London Underground, the Tyne & Wear Metro and the Glasgow Subway.

Have any underground railway lines been identified within the study site boundary? No

Have any underground railway lines been identified within 250m of the study site boundary? No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels map.

This data is derived from Ordnance Survey mapping and provides information on the possible locations of railway tunnels forming part of the UK overground railway network.

Have any other railway tunnels been identified within the site boundary? No

Have any other railway tunnels been identified within 250m of the site boundary? No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels map.

9.2 Historical Railway and Tunnel Features

This data is derived from Groundsure's unique Historical Land-use Database and contains features relating to tunnels, railway tracks or associated works that have been identified from historical Ordnance Survey mapping.

Have any historical railway or tunnel features been identified within the study site boundary? No

Have any historical railway or tunnel features been identified within 250m of the study site boundary? Yes

ID	Distance (m)	Direction	NGR	Details	Date
8	4	W	n/a	Railway	1933
1A	90	N	383195 393702	Railway Sidings	1934
9C	95	N	383167 393677	Mineral Railway Sidings	1933
2A	99	N	383194 393696	Railway Sidings	1955
3C	104	N	383153 393679	Railway Sidings	1938
10D	104	N	382983 393621	Railway Sidings	1954

ID	Distance (m)	Direction	NGR	Details	Date
11D	104	N	382983 393620	Railway Sidings	1954
12D	104	N	382985 393621	Railway Sidings	1971
13	108	N	383128 393657	Railway Sidings	1961
14A	113	N	383195 393686	Railway Sidings	1950
15	208	NE	383200 393717	Railway Sidings	1950
4B	244	NE	383288 393719	Railway Sidings	1916
5B	249	NE	383288 393716	Railway Sidings	1923
6B	249	NE	383288 393716	Railway Sidings	1905
7	250	NE	383229 393696	Railway Sidings	1911
16E	250	NE	383270 393707	Railway Sidings	1907
17E	250	NE	383270 393707	Railway Sidings	1922

Any records that have been identified are represented on the Railways and Tunnels map.

9.3 Historical Railways

This data is derived from OpenStreetMap and provides information on the possible alignments of abandoned or dismantled railway lines in proximity to the study site.

Have any historical railway lines been identified within the study site boundary? No

Have any historical railway lines been identified within 250m of the study site boundary? Yes

Distance (m)	Direction	Status
103	N	Abandoned
164	NW	Abandoned

Multiple sections of the same track may be listed in the detail above
Any records that have been identified are represented on the Railways and Tunnels map.

9.4 Active Railways

These datasets are derived from Ordnance Survey mapping and OpenStreetMap and provide information on the possible locations of active railway lines in proximity to the study site.

Have any active railway lines been identified within the study site boundary? No

Have any active railway lines been identified within 250m of the study site boundary? Yes

Distance (m)	Direction	Name	Type
4	SW	Not given	Tram
4	SW	Not given	Tram

Distance (m)	Direction	Name	Type
12	W	Not given	Tram
12	W	Not given	Tram
42	W	Not given	Tram
42	W	Not given	Tram
121	W	Not given	Tram
121	W	Not given	Tram
246	NW	Not given	Tram
246	NW	Not given	Tram

Multiple sections of the same track may be listed in the detail above
Any records that have been identified are represented on the Railways and Tunnels map.

9.5 Railway Projects

These datasets provide information on the location of large scale railway projects High Speed 2 and Crossrail 1 .

Is the study site within 5km of the route of the High Speed 2 rail project? Yes

Is the study site within 500m of the route of the Crossrail 1 rail project? No

Further information on proximity to these routes, the project construction status and associated works can be obtained through the purchase of a Groundsure HS2 and Crossrail 1 Report.

The route data has been digitised from publicly available maps by Groundsure. The route as provided relates to the Crossrail 1 project only, and does not include any details of the Crossrail 2 project, as final details of the route for Crossrail 2 are still under consultation.

Please note that this assessment takes account of both the original Phase 2b proposed route and the amended route proposed in 2016. As the Phase 2b route is still under consultation, Groundsure are providing information on both options until the final route is formally confirmed. Practitioners should take account of this uncertainty when advising clients.

Contact Details

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info@groundsure.com

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Fax: 0115 936 3276.
Email:**enquiries@bgs.ac.uk**
Web:**www.bgs.ac.uk**
BGS Geological Hazards Reports and general geological enquiries

British Gypsum

British Gypsum Ltd
East Leake
Loughborough
Leicestershire
LE12 6HX

The Coal Authority

200 Lichfield Lane
Mansfield
Notts NG18 4RG
Tel: 0345 7626 848
DX 716176 Mansfield 5
www.coal.gov.uk

Public Health England

Public information access office
Public Health England, Wellington House
133-155 Waterloo Road, London, SE1 8UG
https://www.gov.uk/government/organisations/public-health-england
Email: **enquiries@phe.gov.uk**
Main switchboard: 020 7654 8000

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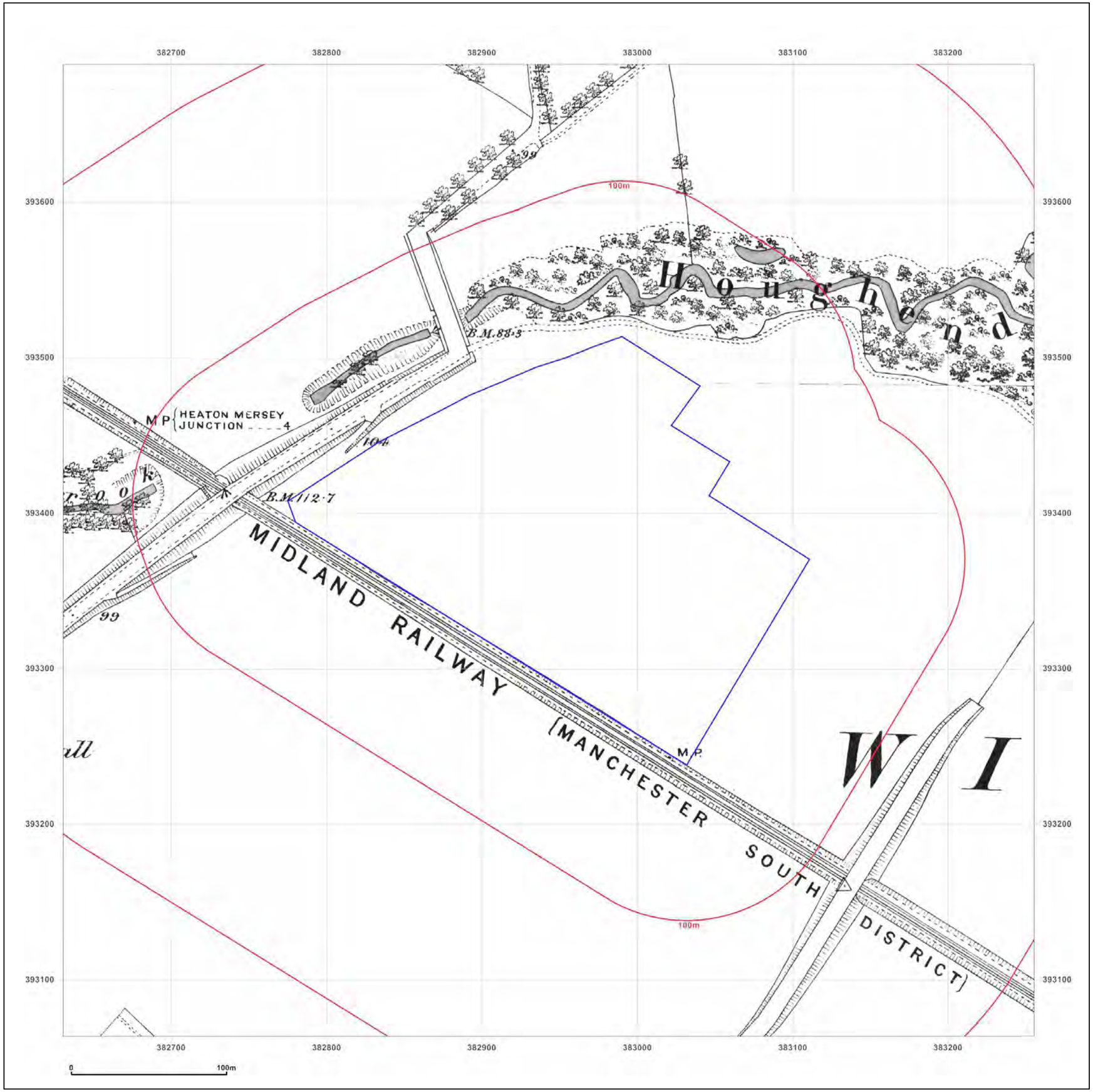

Groundsure INSIGHTS

Site Details:

HOUGH END CENTRE,
MAULDETH ROAD WEST,
MANCHESTER, M21 7SX

Client Ref: PONW5446-M566-RB
Report Ref: GS-4798420
Grid Ref: 382943, 393376

Map Name: County Series
Map date: **1881**
Scale: 1:2,500
Printed at: 1:2,500

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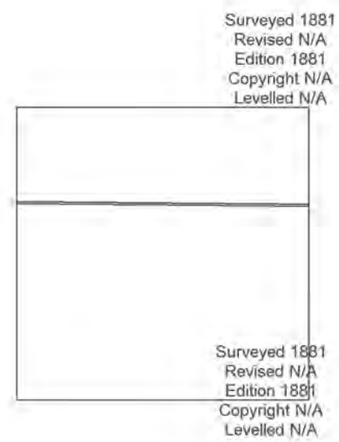

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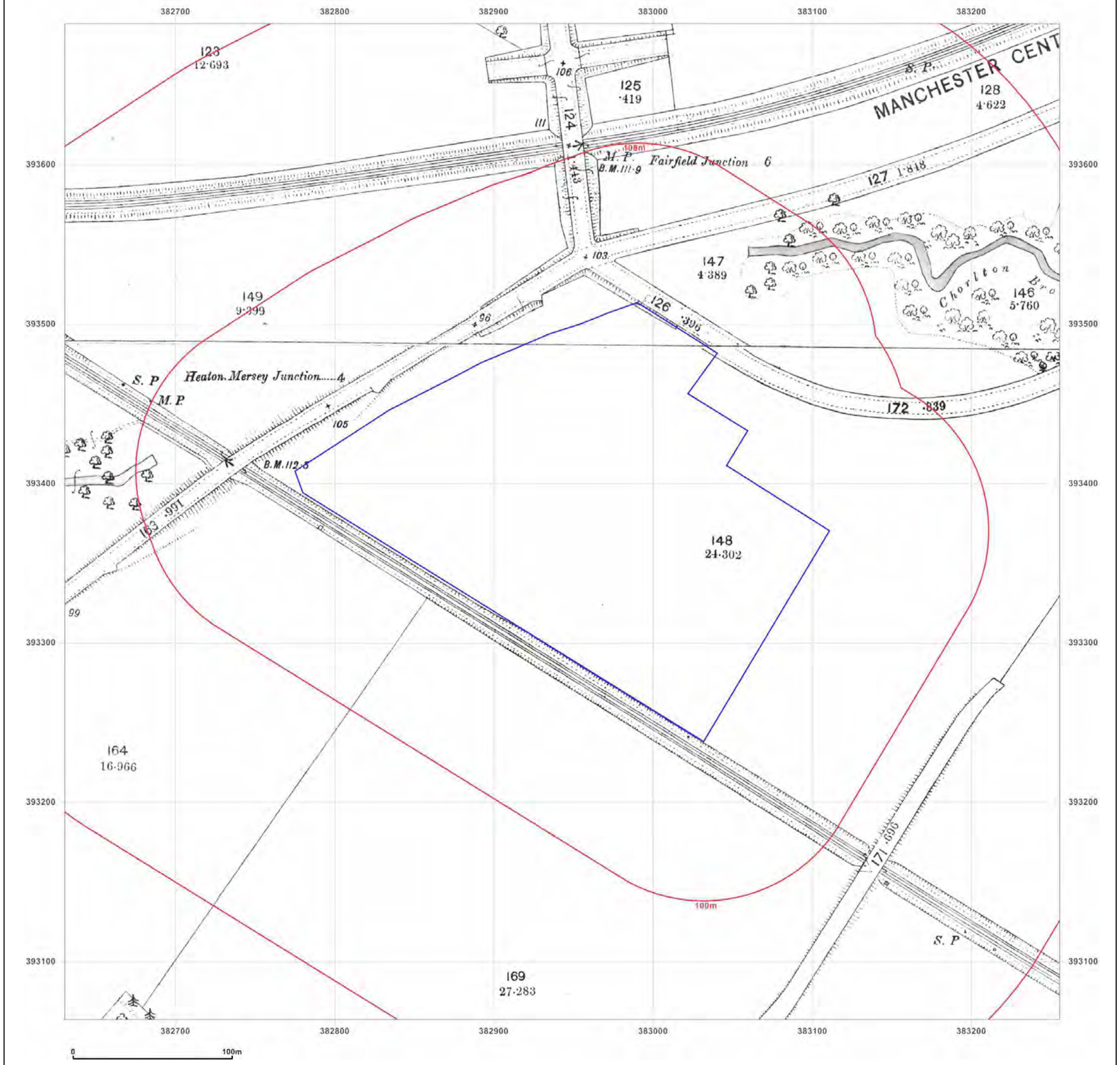

Groundsure INSIGHTS

Site Details:

HOUGH END CENTRE,
MAULDETH ROAD WEST,
MANCHESTER, M21 7SX

Client Ref: PONW5446-M566-RB
Report Ref: GS-4798420
Grid Ref: 382943, 393376

Map Name: County Series
Map date: **1894**
Scale: 1:2,500
Printed at: 1:2,500

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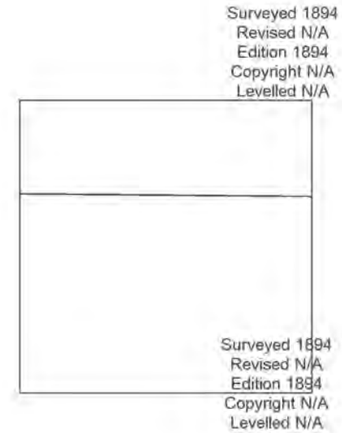

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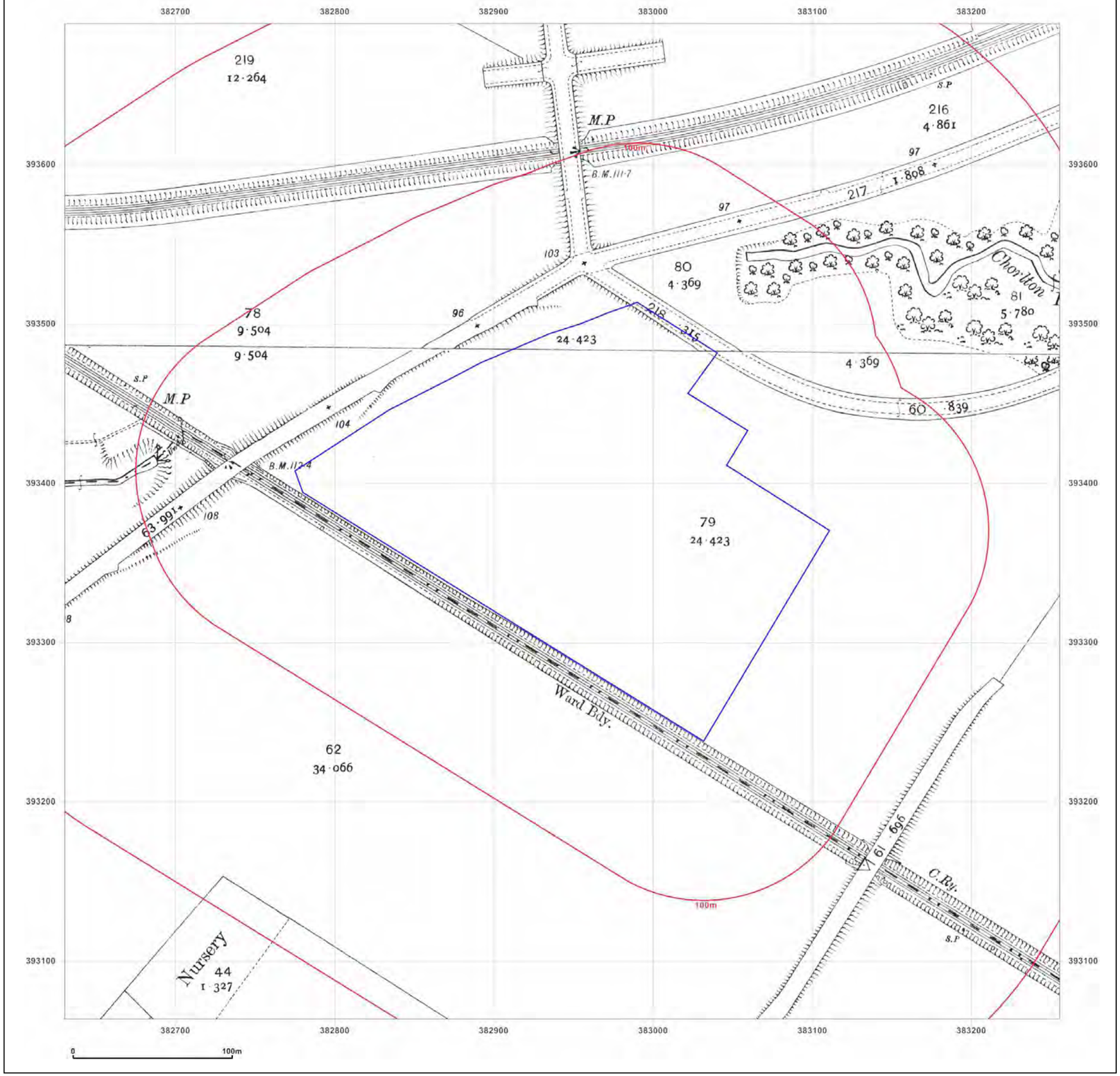

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Site Details:

HOUGH END CENTRE,
MAULDETH ROAD WEST,
MANCHESTER, M21 7SX

Client Ref: PONW5446-M566-RB
Report Ref: GS-4798420
Grid Ref: 382943, 393376

Map Name: County Series

Map date: **1907**

Scale: 1:2,500

Printed at: 1:2,500

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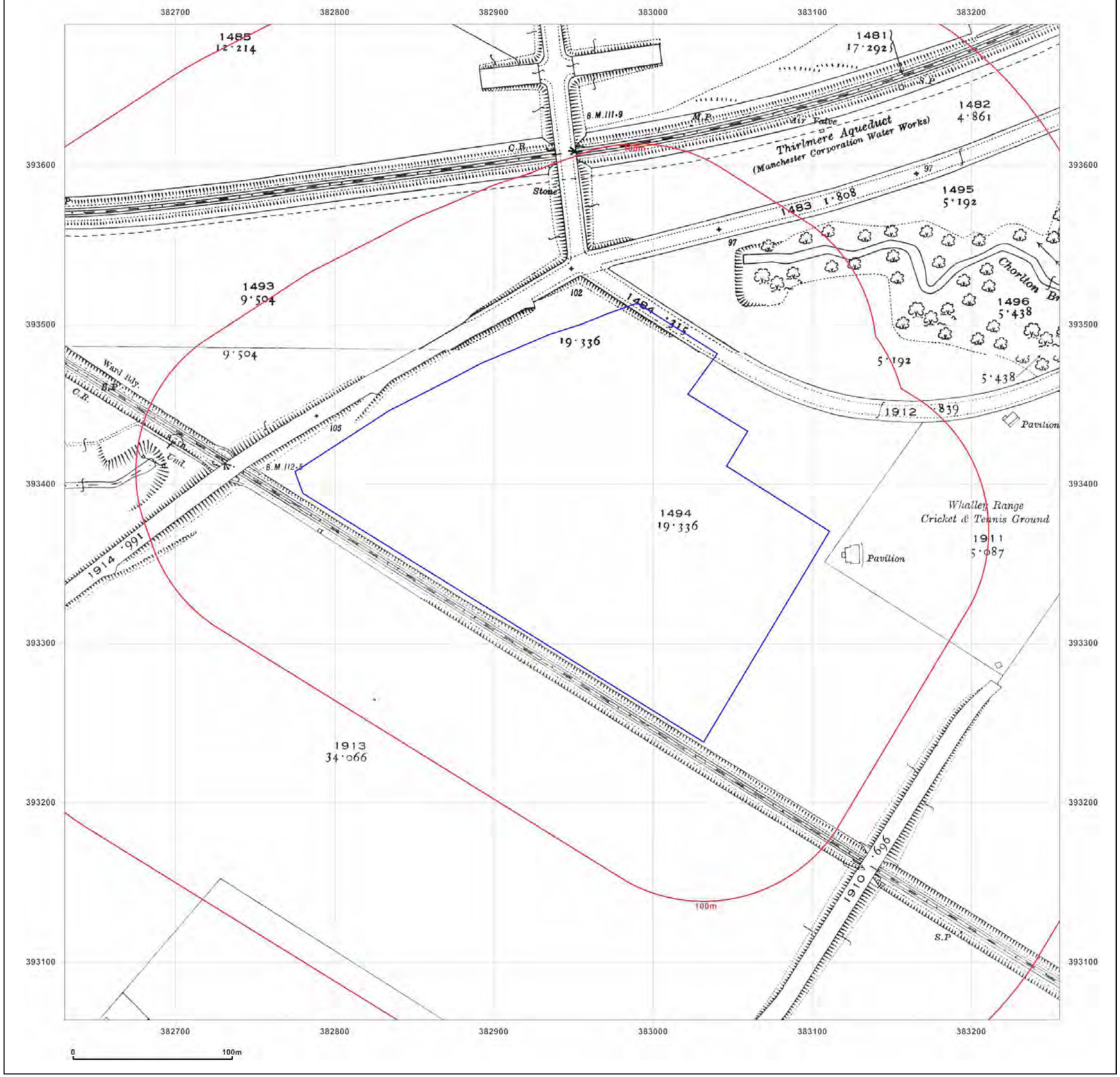

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MANCHESTER, M21 7SX

Client Ref: PONW5446-M566-RB
Report Ref: GS-4798420
Grid Ref: 382943, 393376

Map Name: County Series

Map date: **1922**

Scale: 1:2,500

Printed at: 1:2,500

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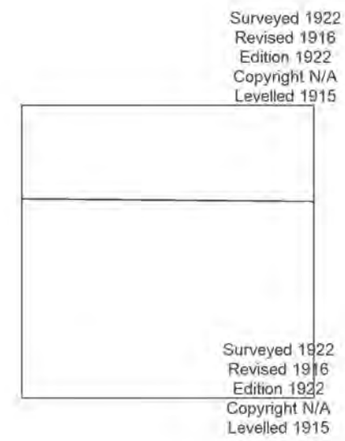

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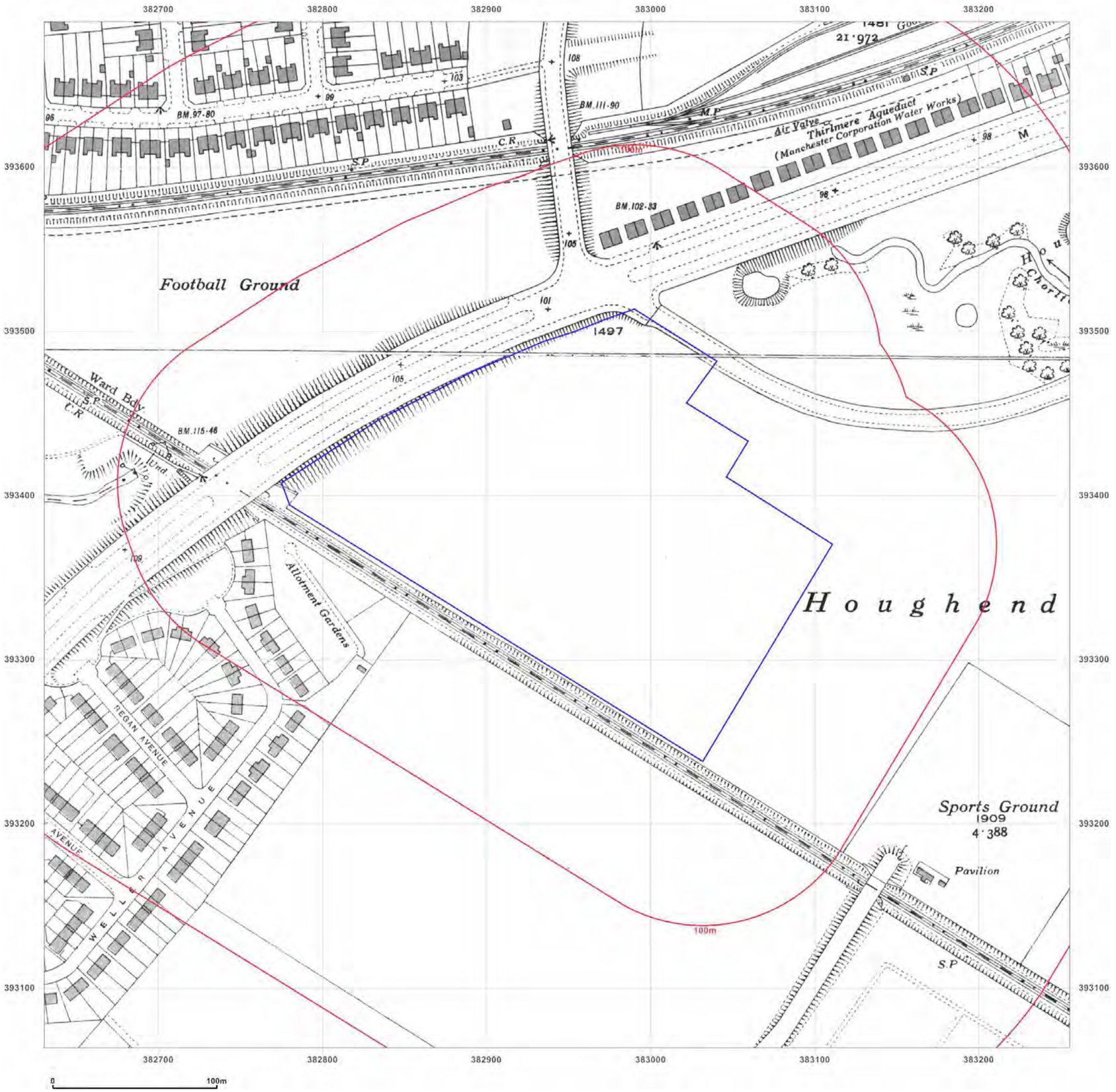

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Site Details:

HOUGH END CENTRE,
MAULDETH ROAD WEST,
MANCHESTER, M21 7SX

Client Ref: PONW5446-M566-RB
Report Ref: GS-4798420
Grid Ref: 382943, 393376

Map Name: County Series

Map date: **1933**

Scale: 1:2,500

Printed at: 1:2,500

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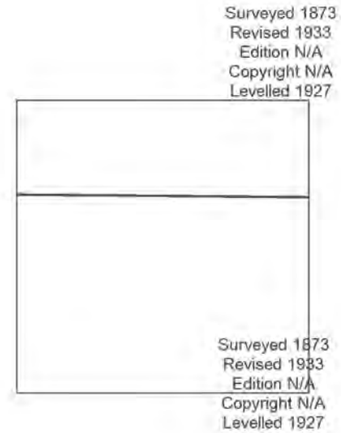

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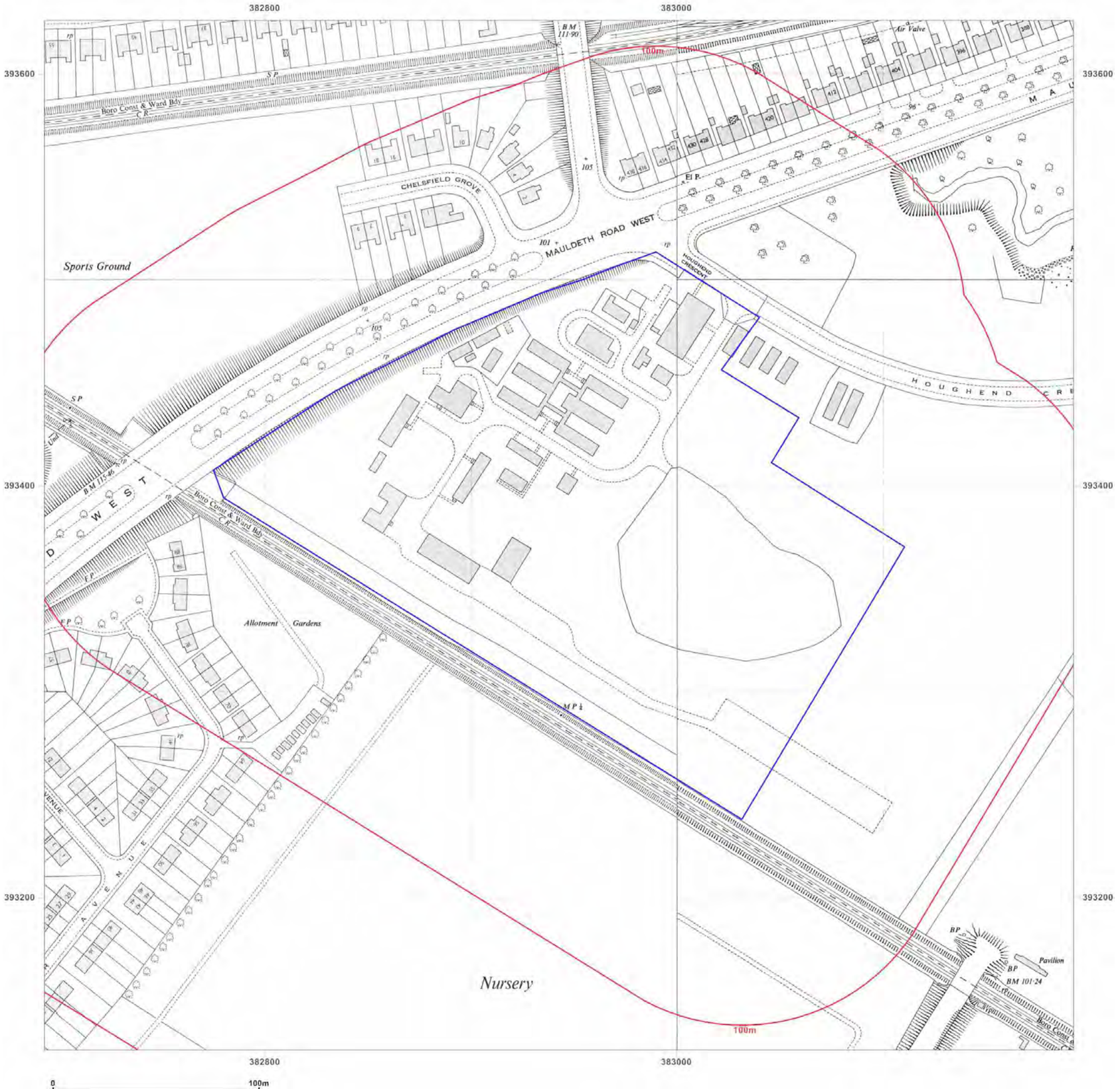

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Site Details:

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MANCHESTER, M21 7SX

Client Ref: PONW5446-M566-RB
Report Ref: GS-4798420
Grid Ref: 382943, 393376

Map Name: National Grid

Map date: **1950-1954**

Scale: 1:1,250

Printed at: 1:2,000

N
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Surveyed 1954
Revised 1954
Edition N/A
Copyright N/A
Levelled 1927

Surveyed 1950
Revised 1950
Edition N/A
Copyright N/A
Levelled 1927

Surveyed 1954
Revised 1954
Edition N/A
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Levelled 1948

Surveyed 1950
Revised 1950
Edition N/A
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Client Ref: PONW5446-M566-RB
Report Ref: GS-4798420
Grid Ref: 382943, 393376

Map Name: National Grid
Map date: **1955**
Scale: 1:1,250
Printed at: 1:2,000

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Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
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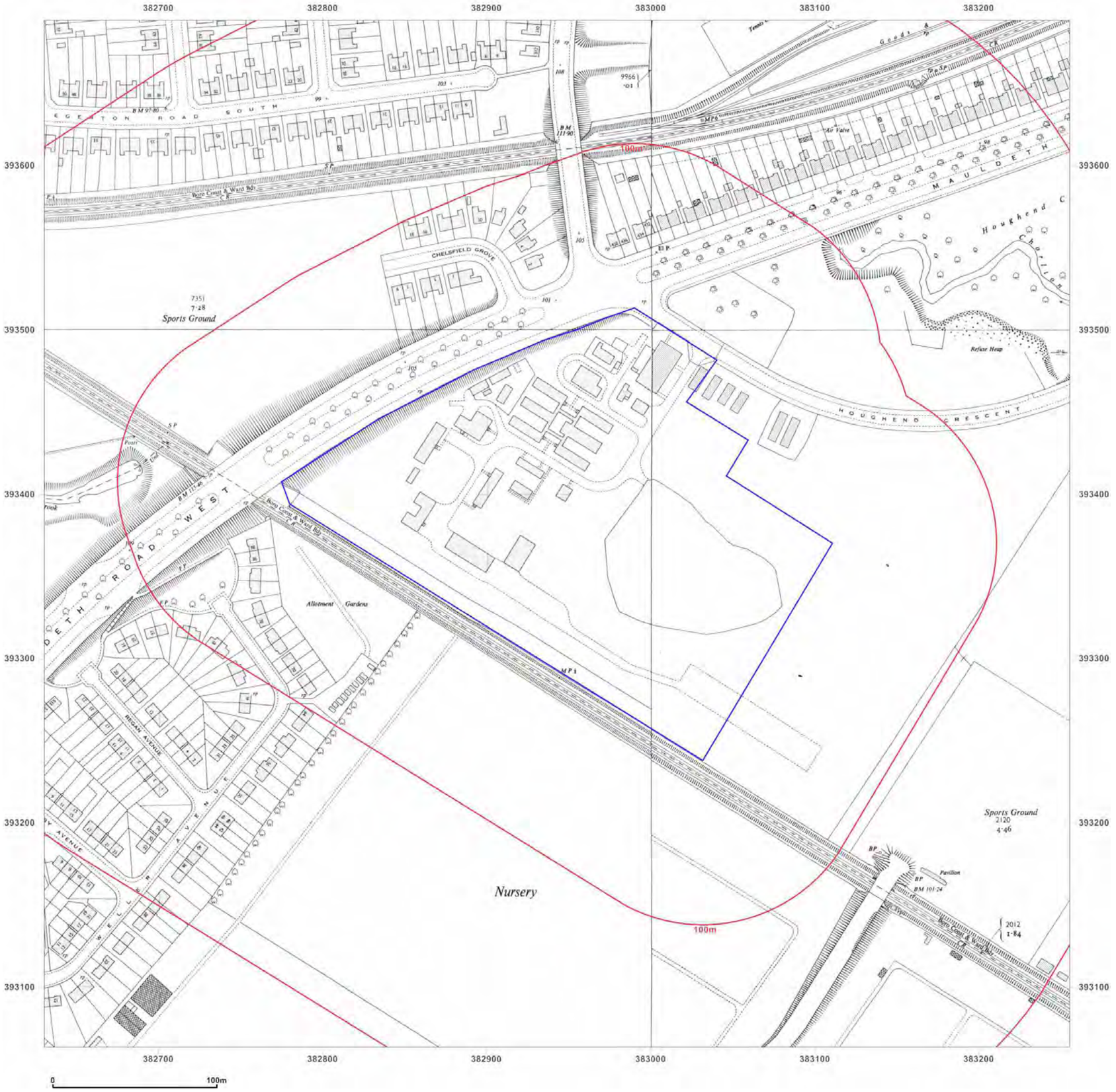

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Site Details:

HOUGH END CENTRE,
MAULDETH ROAD WEST,
MANCHESTER, M21 7SX

Client Ref: PONW5446-M566-RB
Report Ref: GS-4798420
Grid Ref: 382943, 393376

Map Name: National Grid

Map date: **1950-1955**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1954	Surveyed 1950
Revised 1954	Revised 1950
Edition 1955	Edition N/A
Copyright N/A	Copyright 1951
Levelled 1948	Levelled 1948

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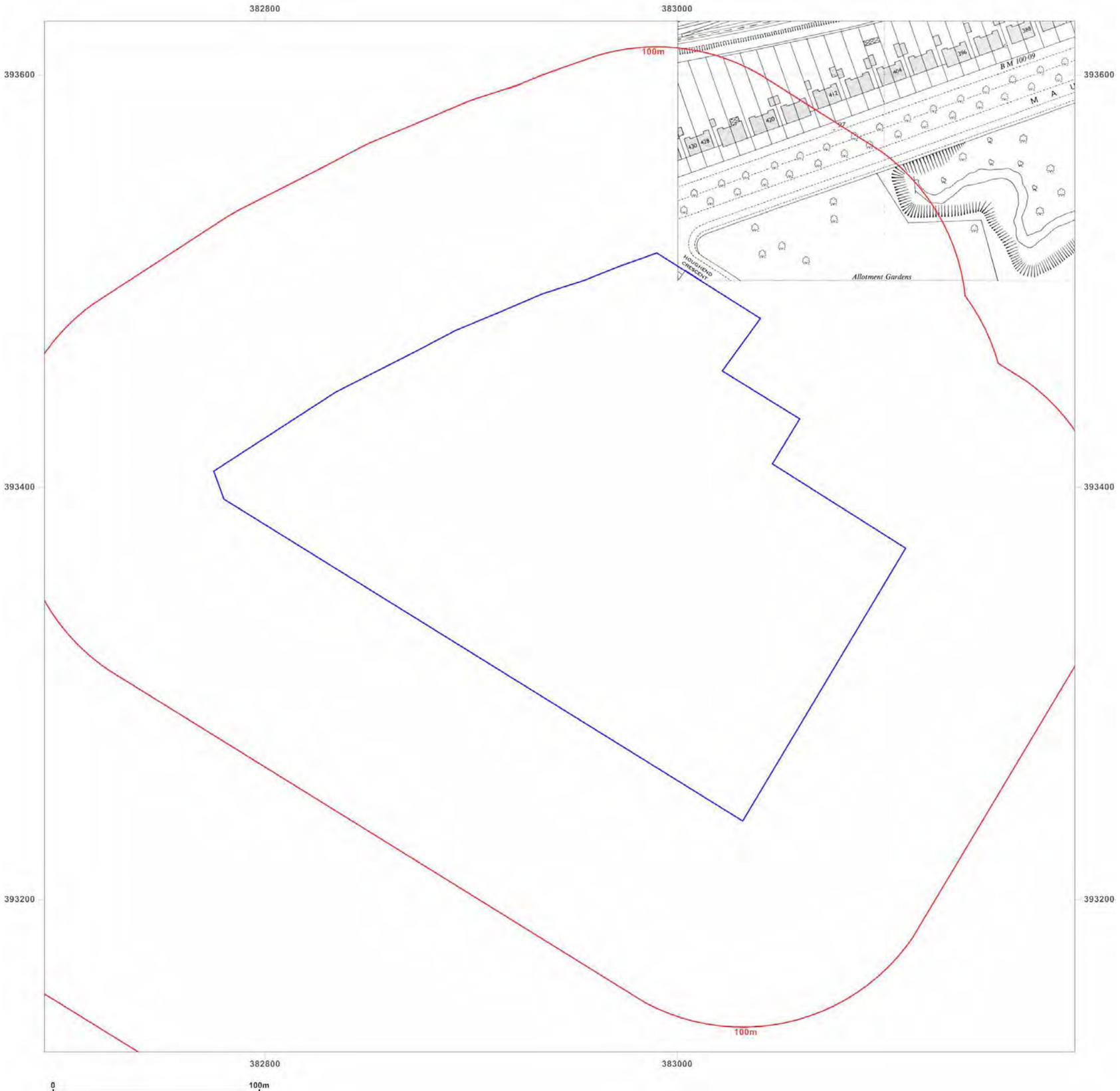

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Site Details:

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MANCHESTER, M21 7SX

Client Ref: PONW5446-M566-RB
Report Ref: GS-4798420
Grid Ref: 382943, 393376

Map Name: National Grid
Map date: **1961**
Scale: 1:1,250
Printed at: 1:2,000

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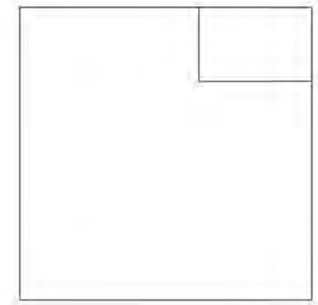
Surveyed 1950
Revised 1960
Edition N/A
Copyright 1961
Levelled 1958



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Client Ref: PONW5446-M566-RB
Report Ref: GS-4798420
Grid Ref: 382943, 393376

Map Name: National Grid

Map date: **1971-1972**

Scale: 1:1,250

Printed at: 1:2,000

N
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Surveyed 1954
Revised 1971
Edition N/A
Copyright 1971
Levelled 1958

Surveyed 1954
Revised 1972
Edition N/A
Copyright 1972
Levelled 1958

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MANCHESTER, M21 7SX

Client Ref: PONW5446-M566-RB
Report Ref: GS-4798420
Grid Ref: 382943, 393376

Map Name: National Grid

Map date: **1978-1983**

Scale: 1:1,250

Printed at: 1:2,000

N
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Surveyed 1958
Revised 1982
Edition N/A
Copyright 1982
Levelled 1958

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1978
Levelled 1958

Surveyed 1950
Revised 1983
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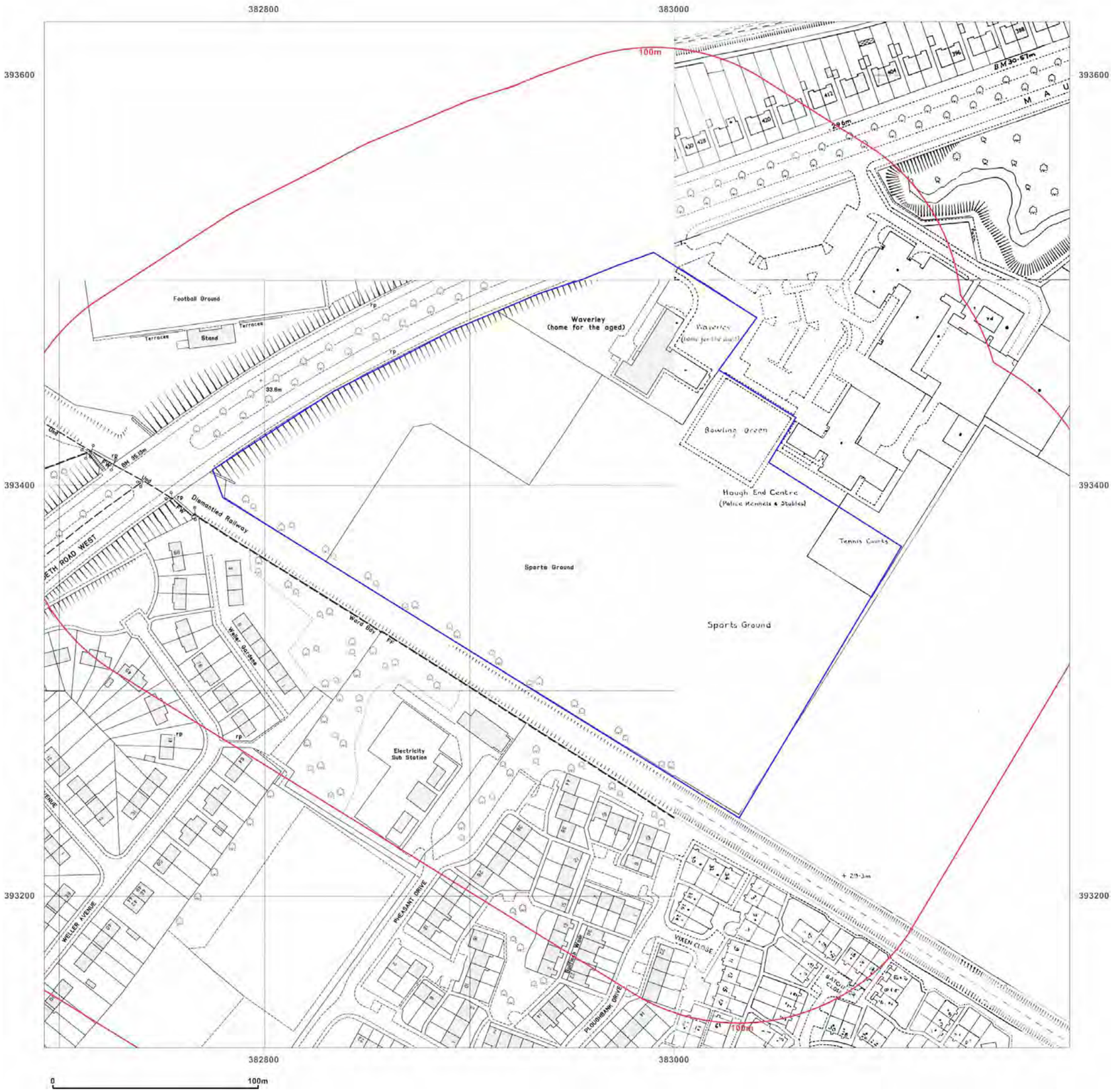

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Site Details:

HOUGH END CENTRE,
MAULDETH ROAD WEST,
MANCHESTER, M21 7SX

Client Ref: PONW5446-M566-RB
Report Ref: GS-4798420
Grid Ref: 382943, 393376

Map Name: National Grid
Map date: **1981-1986**
Scale: 1:1,250
Printed at: 1:2,000

N
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Surveyed 1958
Revised 1983
Edition N/A
Copyright 1983
Levelled 1958

Surveyed 1954
Revised 1985
Edition N/A
Copyright 1986
Levelled 1958

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1981
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MANCHESTER, M21 7SX

Client Ref: PONW5446-M566-RB
Report Ref: GS-4798420
Grid Ref: 382943, 393376

Map Name: National Grid
Map date: **1992**
Scale: 1:1,250
Printed at: 1:2,000

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Revised N/A
Edition N/A
Copyright 1992
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1992
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
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Surveyed N/A
Revised N/A
Edition N/A
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MANCHESTER, M21 7SX

Client Ref: PONW5446-M566-RB
Report Ref: GS-4798420
Grid Ref: 382943, 393376

Map Name: National Grid
Map date: **1992-1993**
Scale: 1:1,250
Printed at: 1:2,000

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Surveyed 1992 Revised 1992 Edition N/A Copyright N/A Levelled N/A	Surveyed N/A Revised N/A Edition N/A Copyright 1993 Levelled N/A
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MANCHESTER, M21 7SX

Client Ref: PONW5446-M566-RB
Report Ref: GS-4798420
Grid Ref: 382943, 393376

Map Name: National Grid
Map date: **1993**
Scale: 1:1,250
Printed at: 1:2,000

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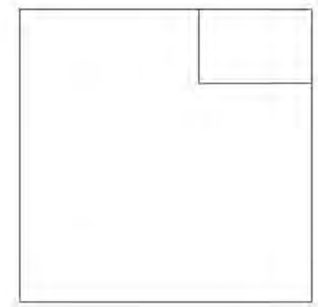
Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A



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Site Details:

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MANCHESTER, M21 7SX

Client Ref: PONW5446-M566-RB
Report Ref: GS-4798420
Grid Ref: 382943, 393376

Map Name: National Grid
Map date: **1994**
Scale: 1:1,250
Printed at: 1:2,000

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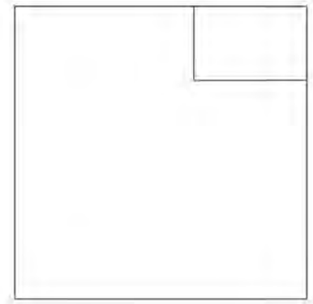
Surveyed N/A
Revised N/A
Edition N/A
Copyright 1994
Levelled N/A



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Client Ref: PONW5446-M566-RB
Report Ref: GS-4798420
Grid Ref: 382943, 393376

Map Name: National Grid

Map date: **1994**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
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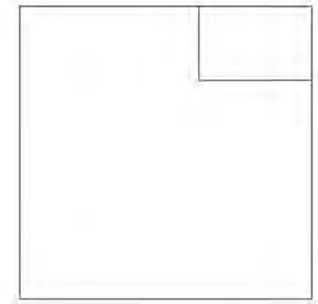
Surveyed 1994
Revised 1994
Edition N/A
Copyright 1994
Levelled N/A



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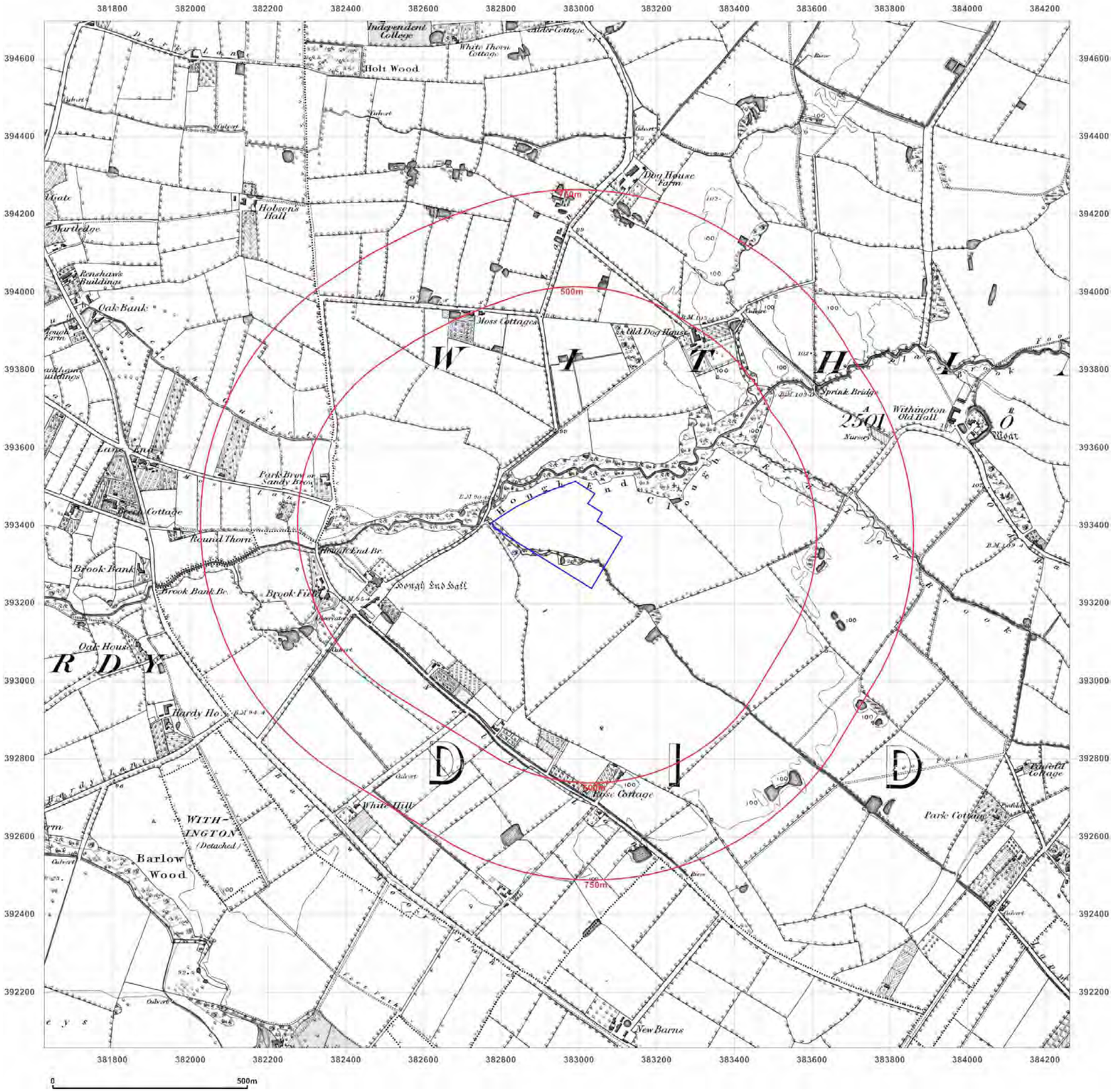

Groundsure INSIGHTS

Site Details:

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MAULDETH ROAD WEST,
MANCHESTER, M21 7SX

Client Ref: PONW5446-M566-RB
Report Ref: GS-4798420
Grid Ref: 382943, 393376

Map Name: County Series

Map date: **1849**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1845
Revised 1849
Edition 1849
Copyright N/A
Levelled N/A

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Production date: 12 March 2018

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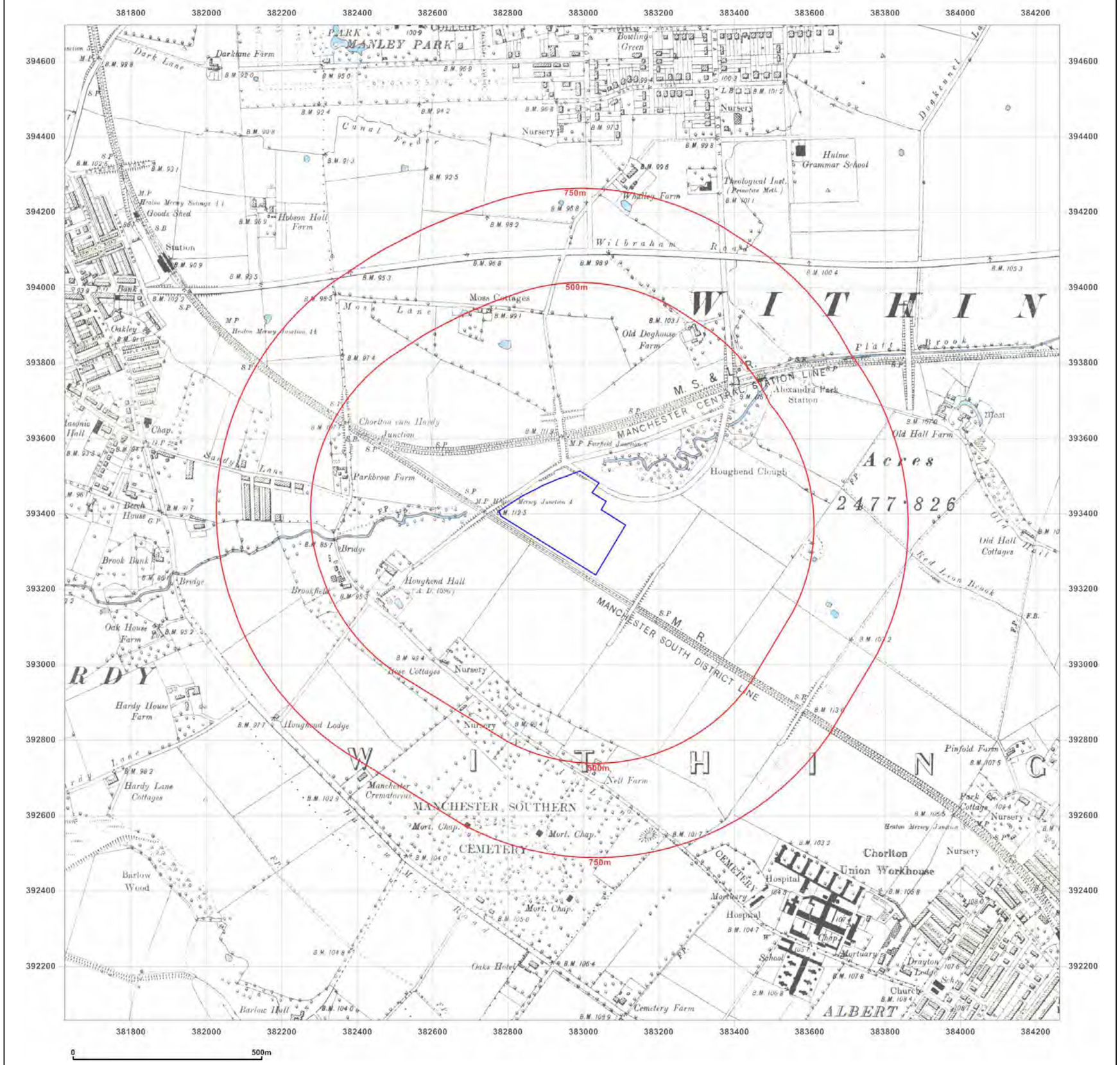

Groundsure INSIGHTS

Site Details:

HOUGH END CENTRE,
MAULDETH ROAD WEST,
MANCHESTER, M21 7SX

Client Ref: PONW5446-M566-RB
Report Ref: GS-4798420
Grid Ref: 382943, 393376

Map Name: County Series

Map date: **1892**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1892
Revised 1892
Edition 1892
Copyright N/A
Levelled N/A

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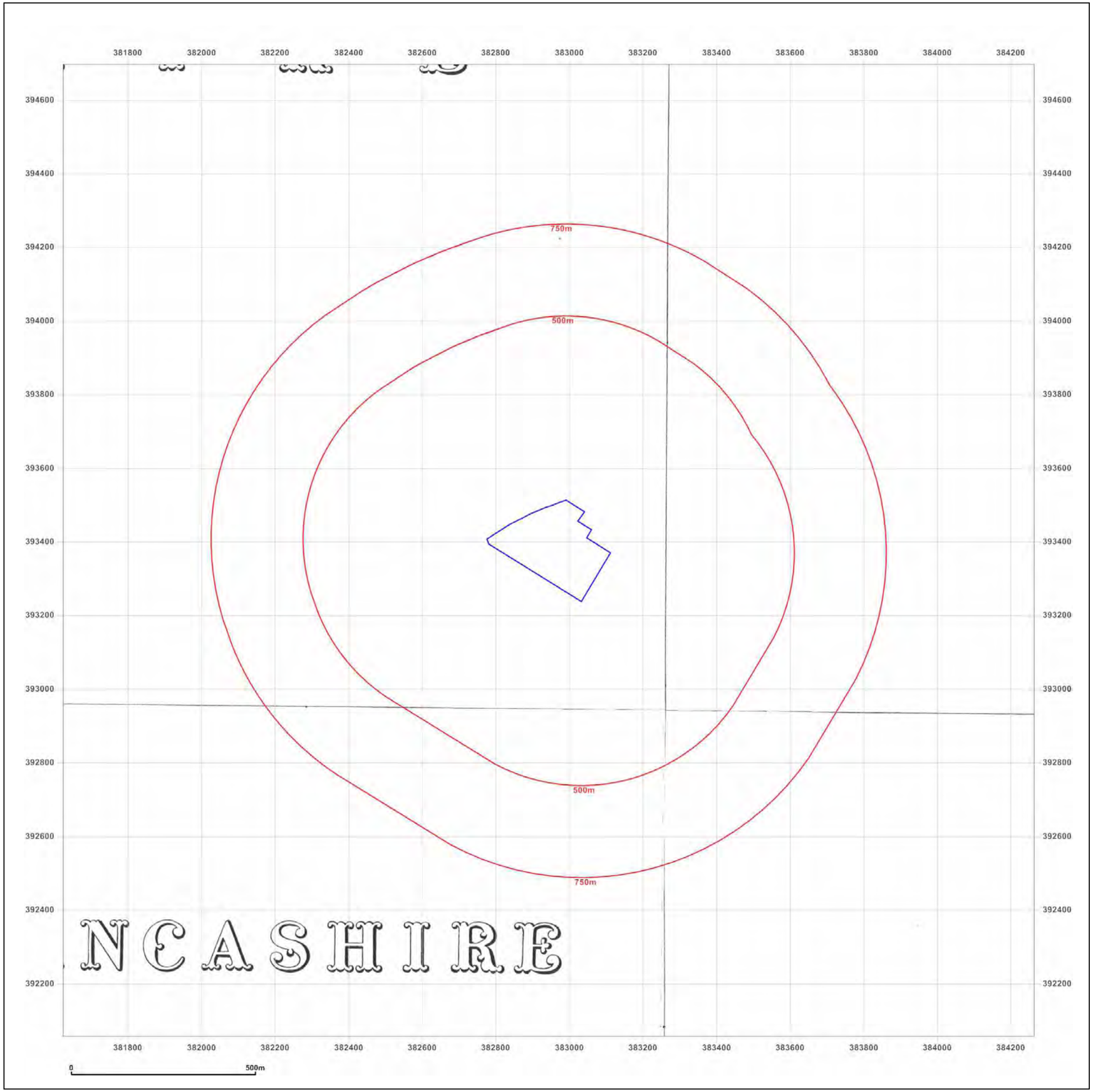

Groundsure INSIGHTS

Site Details:

HOUGH END CENTRE,
MAULDETH ROAD WEST,
MANCHESTER, M21 7SX

Client Ref: PONW5446-M566-RB
Report Ref: GS-4798420
Grid Ref: 382943, 393376

Map Name: County Series
Map date: **1897**
Scale: 1:10,560
Printed at: 1:10,560

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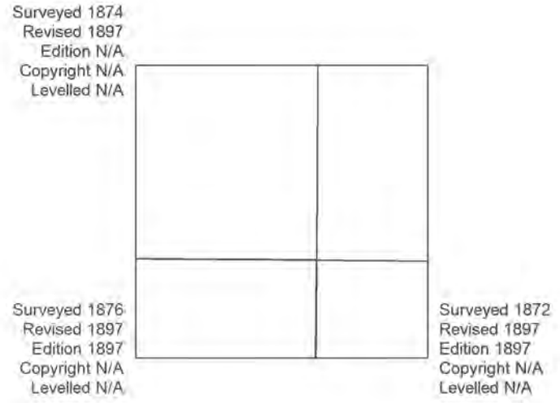

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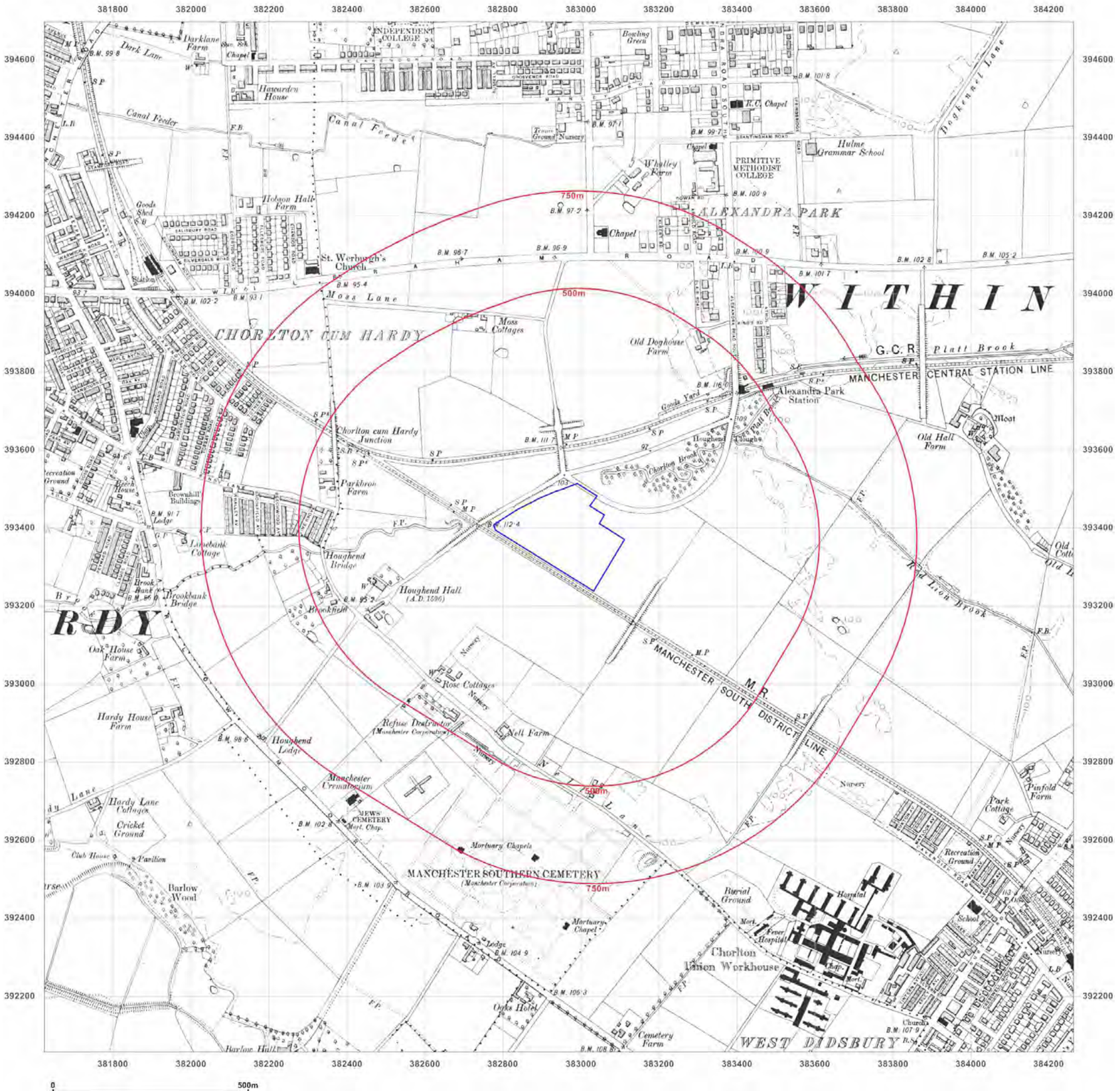

Groundsure INSIGHTS

Site Details:

HOUGH END CENTRE,
MAULDETH ROAD WEST,
MANCHESTER, M21 7SX

Client Ref: PONW5446-M566-RB
Report Ref: GS-4798420
Grid Ref: 382943, 393376

Map Name: County Series

Map date: **1905**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1892
Revised 1905
Edition 1905
Copyright N/A
Levelled N/A

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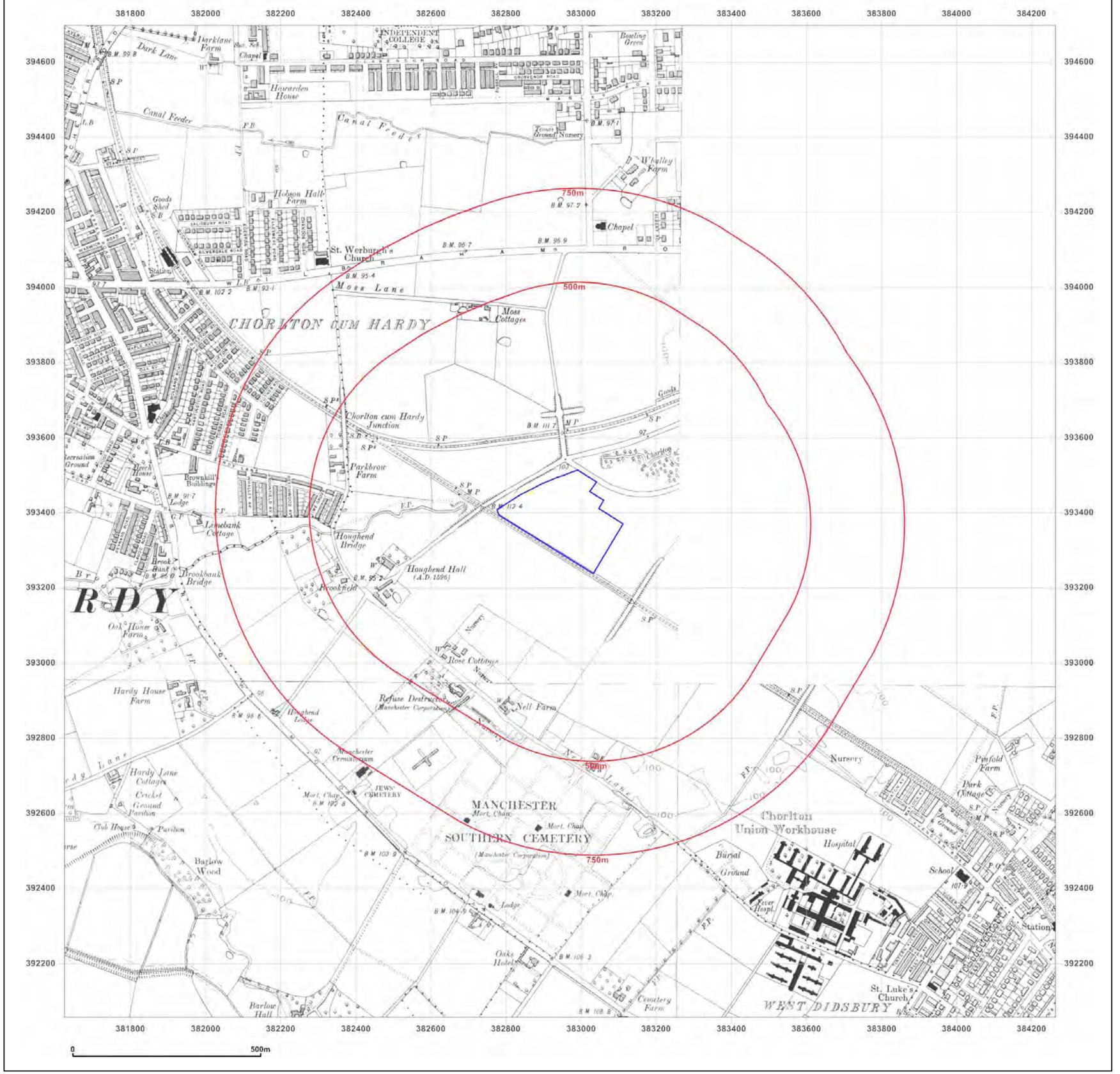

Groundsure INSIGHTS

Site Details:

HOUGH END CENTRE,
MAULDETH ROAD WEST,
MANCHESTER, M21 7SX

Client Ref: PONW5446-M566-RB
Report Ref: GS-4798420
Grid Ref: 382943, 393376

Map Name: County Series

Map date: **1908-1911**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1873
Revised 1911
Edition 1911
Copyright N/A
Levelled N/A

Surveyed 1873
Revised 1908
Edition 1908
Copyright N/A
Levelled N/A

Surveyed 1872
Revised 1908
Edition 1911
Copyright N/A
Levelled N/A

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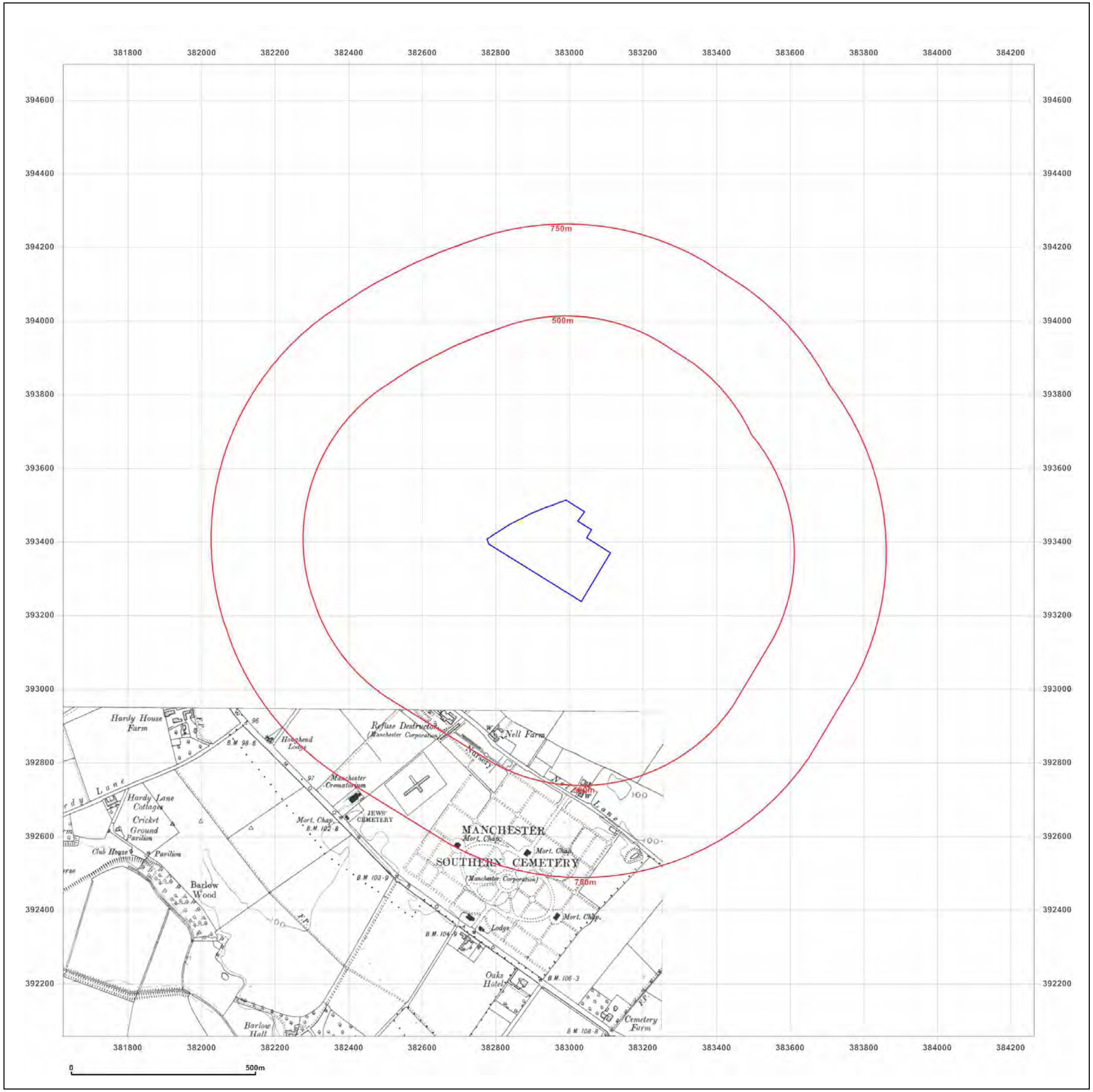

Groundsure INSIGHTS

Site Details:

HOUGH END CENTRE,
MAULDETH ROAD WEST,
MANCHESTER, M21 7SX

Client Ref: PONW5446-M566-RB
Report Ref: GS-4798420
Grid Ref: 382943, 393376

Map Name: County Series

Map date: **1911**

Scale: 1:10,560

Printed at: 1:10,560

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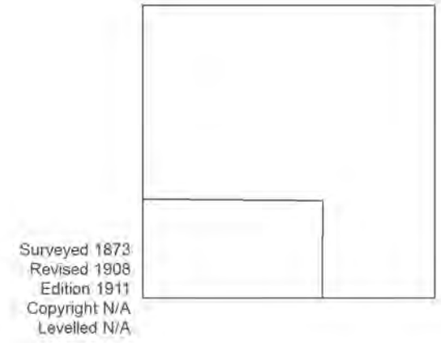

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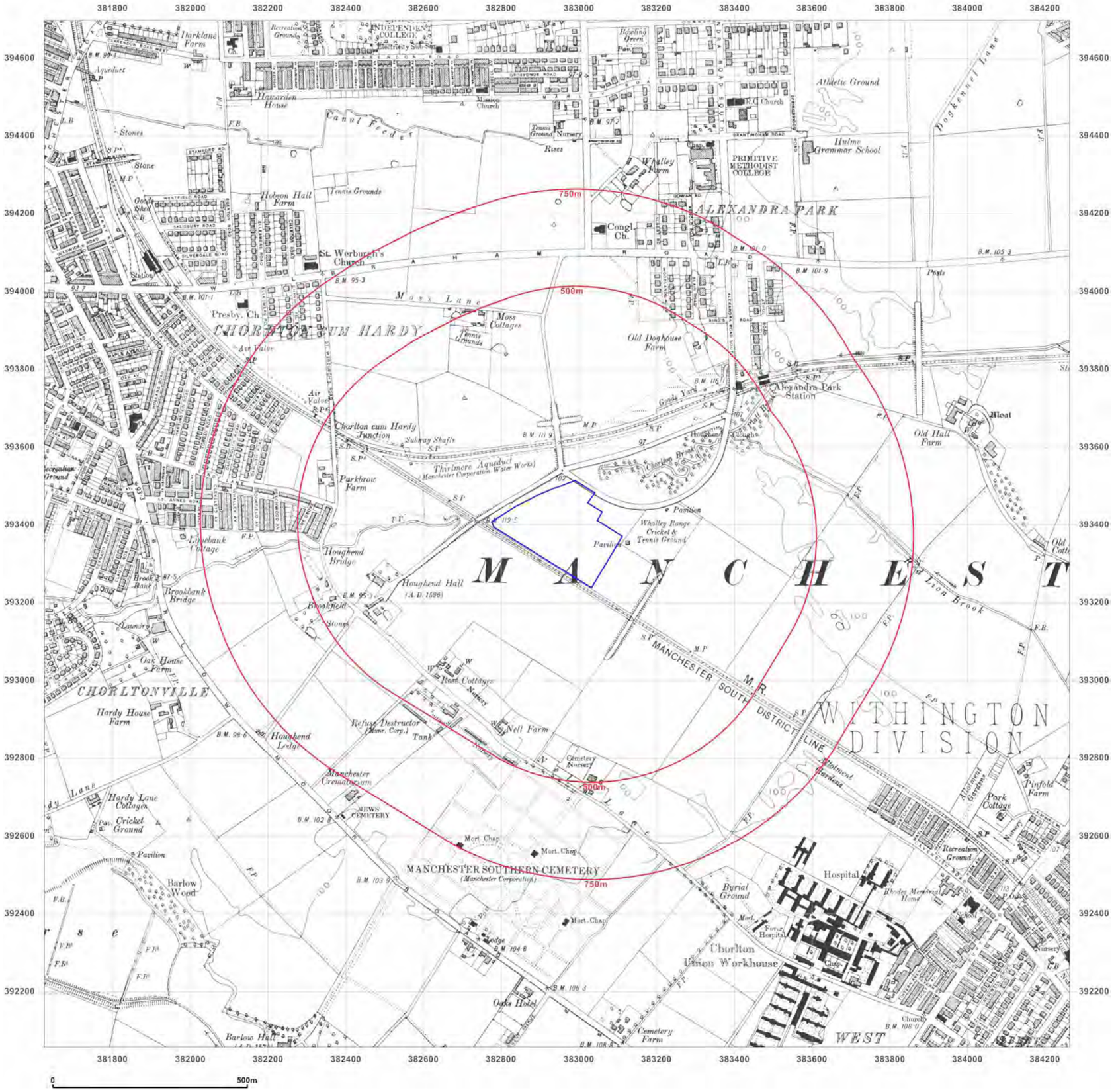
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394000
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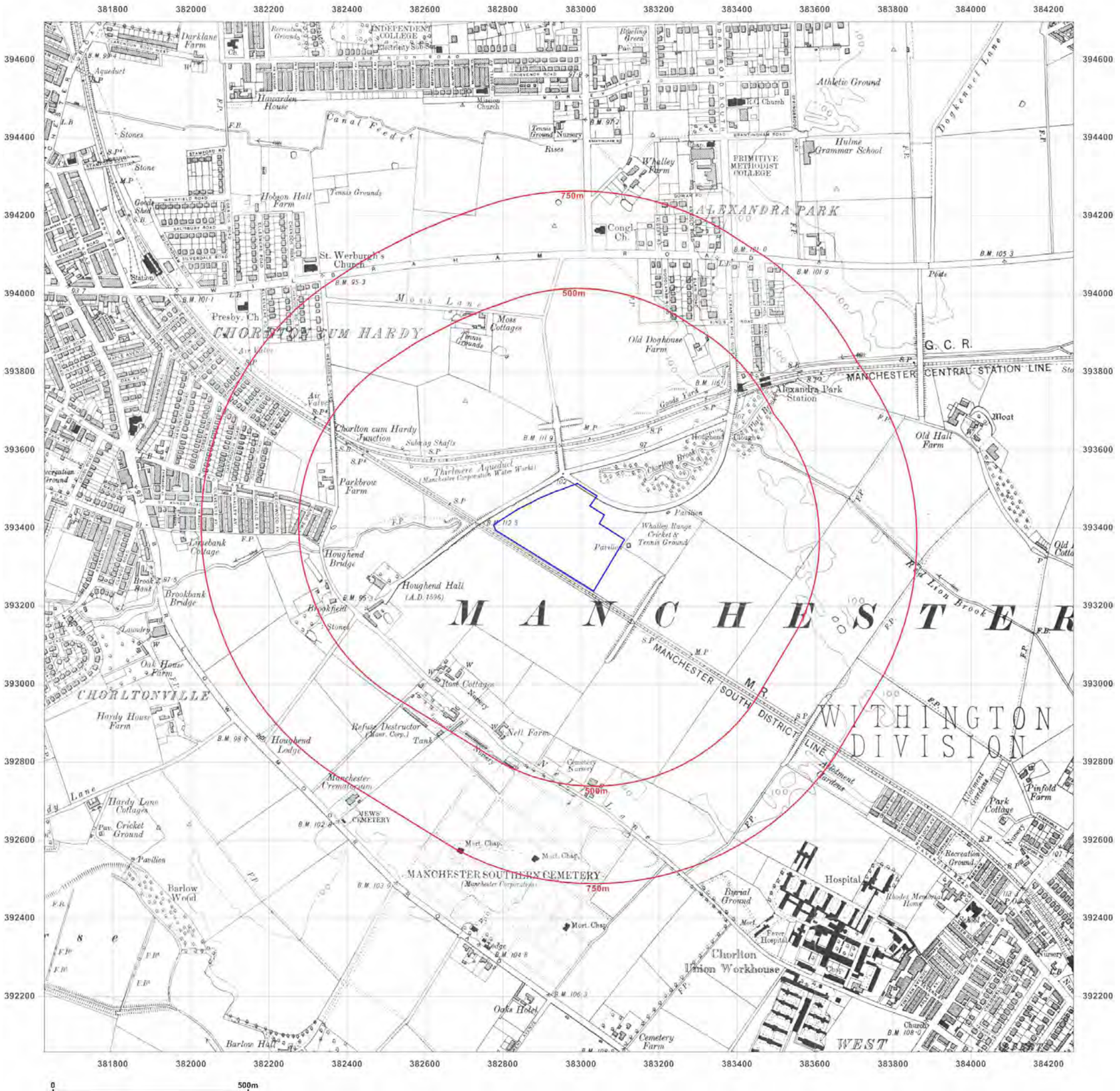
393000
392800
392600
392400
392200
750m
500m
250m
750m
MANCHESTER
CHORLTON-CUM-HARDY
ALEXANDRA PARK
CHORLTONVILLE
WITHINGTON DIVISION
WEST
MANCHESTER SOUTHERN CEMETERY
(Manchester Corporation)
Alexandra Park Station
Old Hall Farm
Old Doghouse Farm
Houghend Hall
(A.D. 1596)
Houghend Bridge
Houghend Ledge
Parkbrook Farm
Hough End Farm
Whalley Farm
Nell Farm
Hulme Grammar School
PRIMITIVE METHODIST COLLEGE
Athletic Ground
Whalley Range Cricket & Tennis Ground
Pavilion
Manchester Crematorium
Barlow Wood
Barlow Hall
Hardy House Farm
Hardy Lane Cottages
Oak House Farm
Brookbank Cottage
Brookbank Bridge
Brookfield
Moss Lane
Moss Cottages
Presby. Ch.
St. Werburgh's Church
Congl. Ch.
Mission Church
Tennis Grounds
Tennis Ground
Nursery
Roses
Canal Feeder
Thirlmere Aqueduct
(Manchester Corporation Water Works)
Subway Shafts
Old Lion Brook
Dog Kennel Lane
Pinfold Farm
Park Cottage
Recreation Ground
Hospital
Fever Hospital
Rhodes Memorial Home
Byrom Ground
Charlton Union Workhouse
Oaks Hotel
Cemetery Farm
Refuse Destructor (Manc. Corp.)
Tank
Cemetery Nursery
JEWS' CEMETERY
Mort. Chap.
Lodge
Pav. Cricket Ground
Laundry
Gas Works
Stone
Stones
Aqueduct
Air Valves
Gas Valve
Boat
MANCHESTER SOUTH DISTRICT LINE
M.R.
L.N.W.R.
Allotment Gardens
Nursery
Ch.
Sch.
P.O.
Stn.
Gdns.
Yard
Pools
Path
Rd.
Ave.
Lane
Bridge
Cottages
Farm
Hall
Grammar School
Recreation Ground
Cricket Ground
Tennis Grounds
Tennis Ground
Nursery
Allotment Gardens
Pavilion
Laundry
Oak House Farm
Brookbank Cottage
Brookbank Bridge
Brookfield



Groundsure INSIGHTS

Site Details:

HOUGH END CENTRE,
MAULDETH ROAD WEST,
MANCHESTER, M21 7SX

Client Ref: PONW5446-M566-RB
Report Ref: GS-4798420
Grid Ref: 382943, 393376

Map Name: County Series

Map date: **1923**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1844
Revised 1916
Edition 1923
Copyright N/A
Levelled 1915

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Production date: 12 March 2018

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Groundsure INSIGHTS

Site Details:

HOUGH END CENTRE,
MAULDETH ROAD WEST,
MANCHESTER, M21 7SX

Client Ref: PONW5446-M566-RB
Report Ref: GS-4798420
Grid Ref: 382943, 393376

Map Name: County Series

Map date: **1934**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1844
Revised 1934
Edition 1934
Copyright N/A
Levelled 1927

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361800
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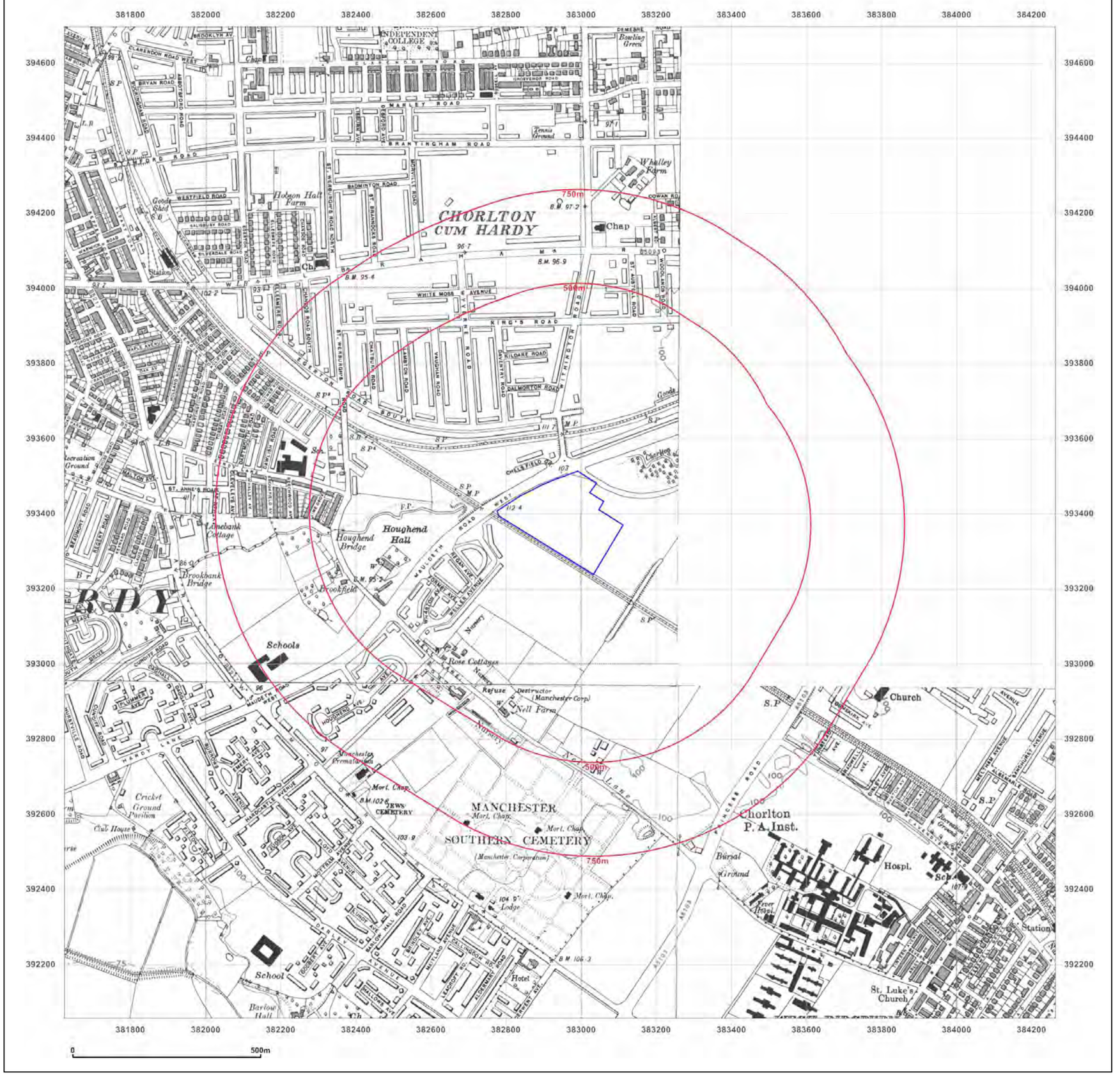
384200
394600
394400
394200
394000
393800
393600
393400
393200
393000
392800
392600
392400
392200
Manley Park
Cricket Ground
St. Bede's College Playing Fields
St. Margaret's Playing Field
Ashton Athletic Ground
Pavilion
HARTLEY METHODIST COLLEGE
Whalley Farm
Chapel
Hulme Grammar School
Playing Fields
Athletic Ground
ALEXANDRA PARK
Play Ground
Club
Hall
Council Church
BRANTINGHAM ROAD
WHITE MOSS AVENUE
Football Cricket Ground
Old Dog House Farm
Sports Grounds
LONDON & NORTH EASTERN RAILWAY
Station
Chorlton cum Hardy Junction
Football Ground
Houghend Playing Fields
Houghend Bridge
Houghend Hall
Allot. Gdns.
Tennis Courts
Band Stand
Recreation Ground
Chorlton Park
Shelter
Schools
Nursery
LONDON MIDLAND & SCOTTISH RAILWAY
Sports Ground
Nell Lane Farm
Allotment Gardens
Playing Fields
MANCHESTER
MANCHESTER SOUTHERN CEMETERY
Mort. Chap.
Withington Hospital
Rhodes Meml. Home
Recreation Ground
Hardy Lane Cottages
Cricket Ground
Playing Field
Barlow Hall School
Barlow Hall
Oaks Hotel
WEST DIDSBURY
Withington Institution
(Manchester Public Assistance Committee)
Lodge
War Meml.
Mort. Chaps.
Mort. Chap
Mort. Chaps
Mort. Chaps
Mort. Chaps



Groundsure INSIGHTS

Site Details:

HOUGH END CENTRE,
MAULDETH ROAD WEST,
MANCHESTER, M21 7SX

Client Ref: PONW5446-M566-RB
Report Ref: GS-4798420
Grid Ref: 382943, 393376

Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1873
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1873
Revised 1938
Edition 1938
Copyright N/A
Levelled N/A

Surveyed 1872
Revised 1938
Edition 1938
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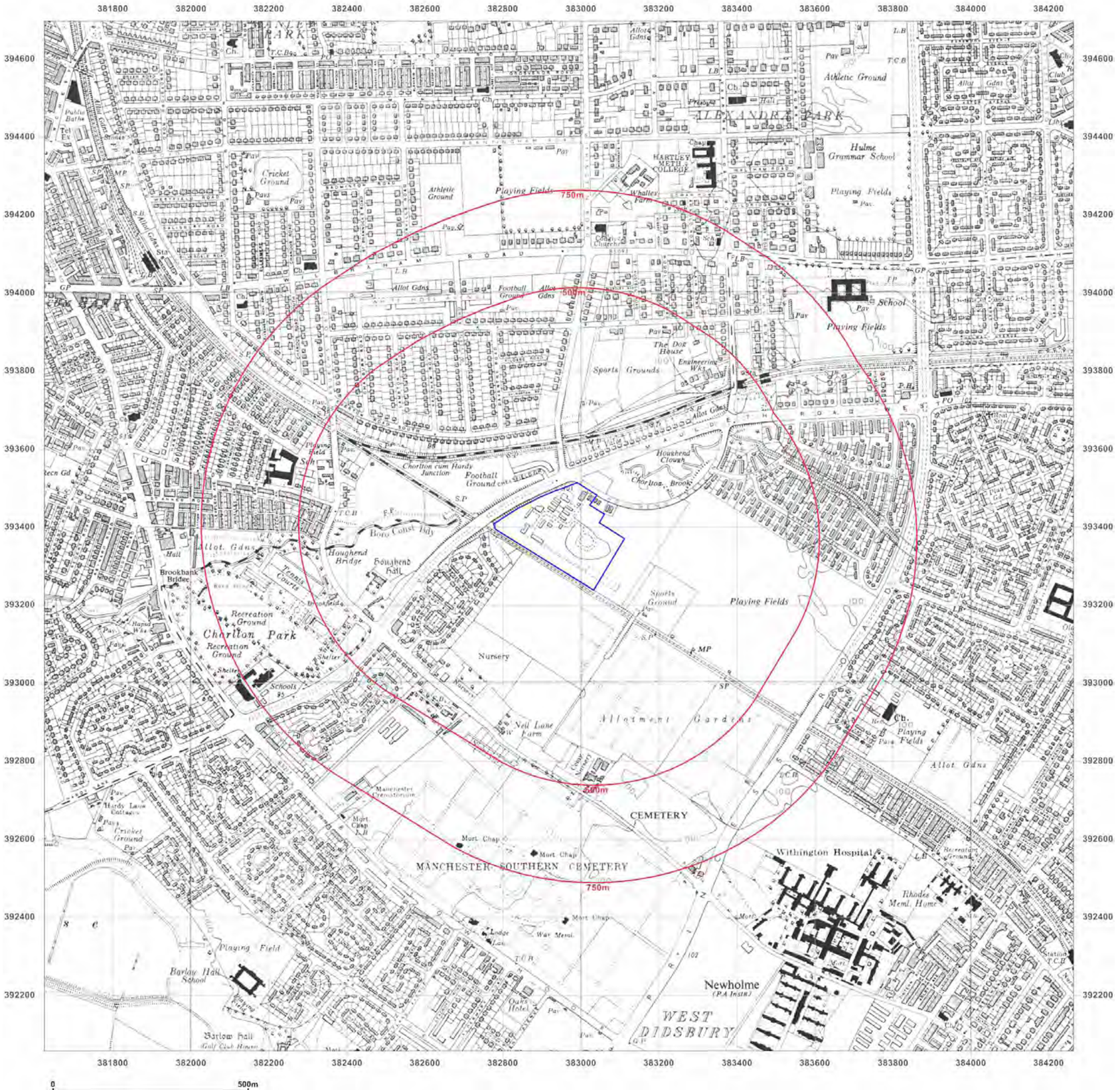

Groundsure INSIGHTS

Site Details:

HOUGH END CENTRE,
MAULDETH ROAD WEST,
MANCHESTER, M21 7SX

Client Ref: PONW5446-M566-RB
Report Ref: GS-4798420
Grid Ref: 382943, 393376

Map Name: Provisional

Map date: **1955**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed N/A
Revised 1955
Edition N/A
Copyright 1955
Levelled N/A

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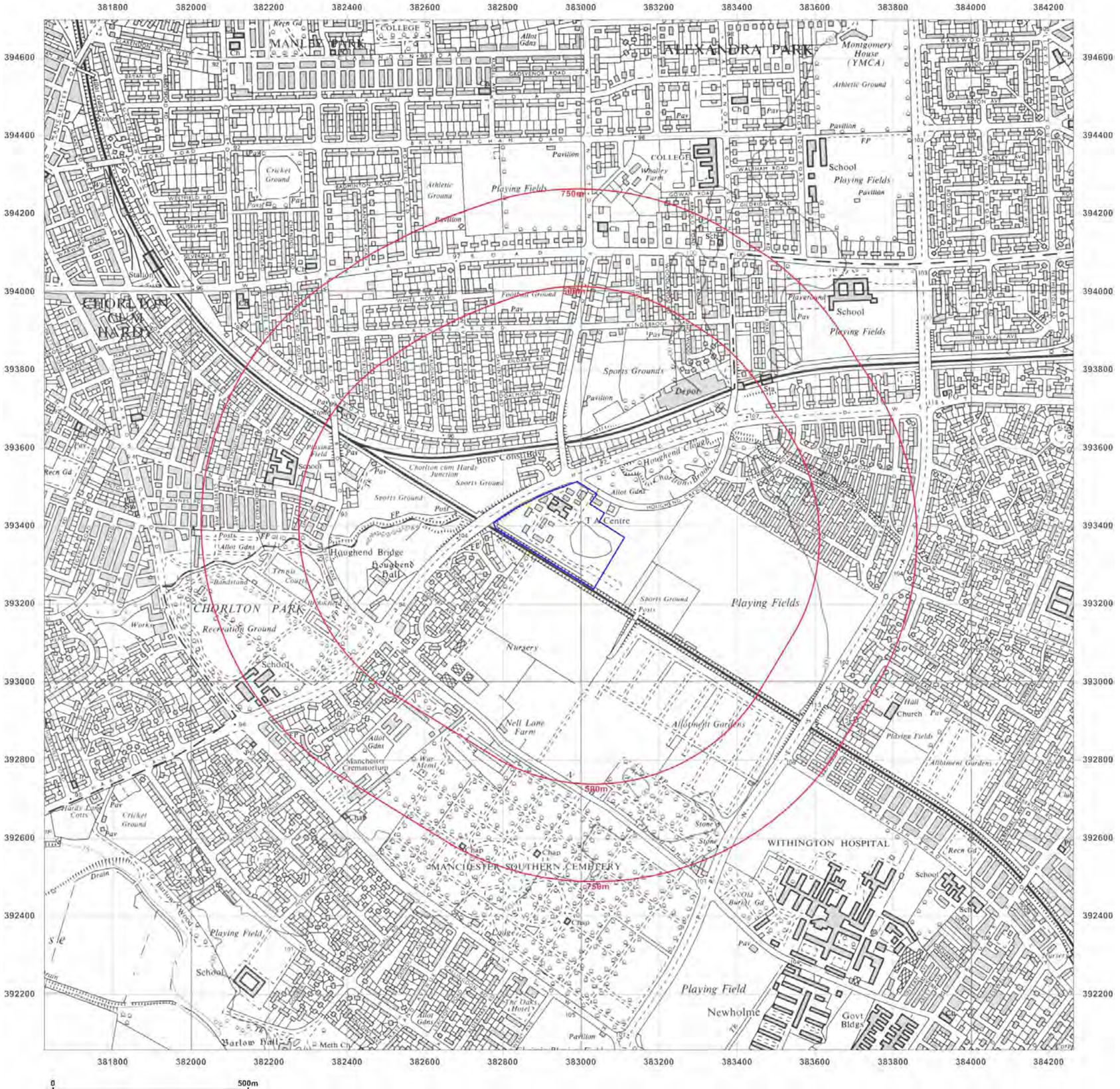

Groundsure INSIGHTS

Site Details:

HOUGH END CENTRE,
MAULDETH ROAD WEST,
MANCHESTER, M21 7SX

Client Ref: PONW5446-M566-RB
Report Ref: GS-4798420
Grid Ref: 382943, 393376

Map Name: Provisional

Map date: **1966**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1966
Revised 1966
Edition N/A
Copyright 1966
Levelled N/A

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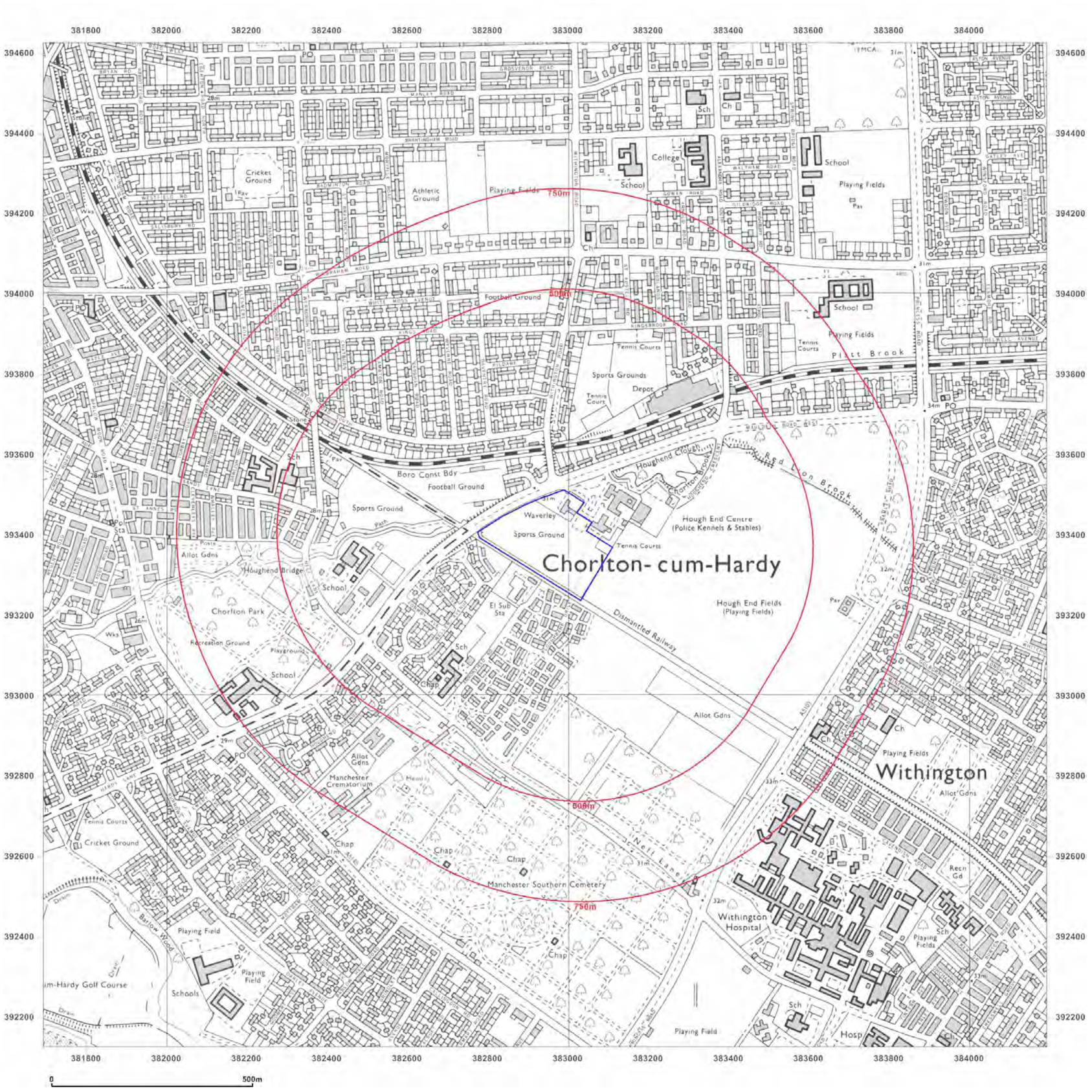

Groundsure INSIGHTS

Site Details:

HOUGH END CENTRE,
MAULDETH ROAD WEST,
MANCHESTER, M21 7SX

Client Ref: PONW5446-M566-RB
Report Ref: GS-4798420
Grid Ref: 382943, 393376

Map Name: National Grid

Map date: **1981**

Scale: 1:10,000

Printed at: 1:10,000

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Surveyed 1977
Revised 1981
Edition N/A
Copyright 1981
Levelled 1976

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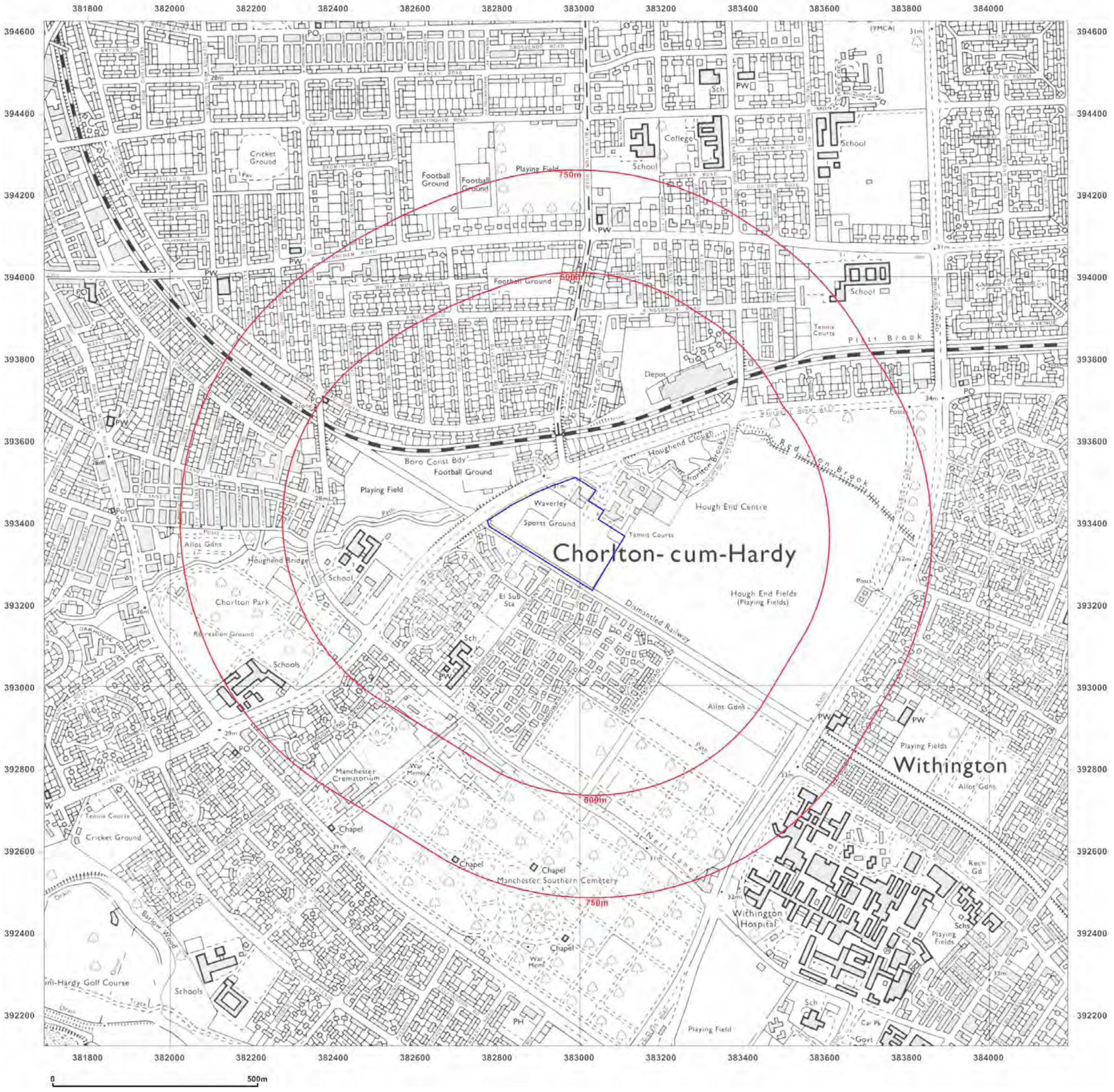

Groundsure INSIGHTS

Site Details:

HOUGH END CENTRE,
MAULDETH ROAD WEST,
MANCHESTER, M21 7SX

Client Ref: PONW5446-M566-RB
Report Ref: GS-4798420
Grid Ref: 382943, 393376

Map Name: National Grid

Map date: **1988**

Scale: 1:10,000

Printed at: 1:10,000

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Surveyed 1985
Revised 1988
Edition N/A
Copyright 1988
Levelled 1981

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Groundsure INSIGHTS

Site Details:

HOUGH END CENTRE,
MAULDETH ROAD WEST,
MANCHESTER, M21 7SX

Client Ref: PONW5446-M566-RB
Report Ref: GS-4798420
Grid Ref: 382943, 393376

Map Name: 1:10,000 Raster
Map date: **2002**
Scale: 1:10,000
Printed at: 1:10,000

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Groundsure INSIGHTS

Site Details:

HOUGH END CENTRE,
MAULDETH ROAD WEST,
MANCHESTER, M21 7SX

Client Ref: PONW5446-M566-RB
Report Ref: GS-4798420
Grid Ref: 382943, 393376

Map Name: National Grid

Map date: **2010**

Scale: 1:10,000

Printed at: 1:10,000

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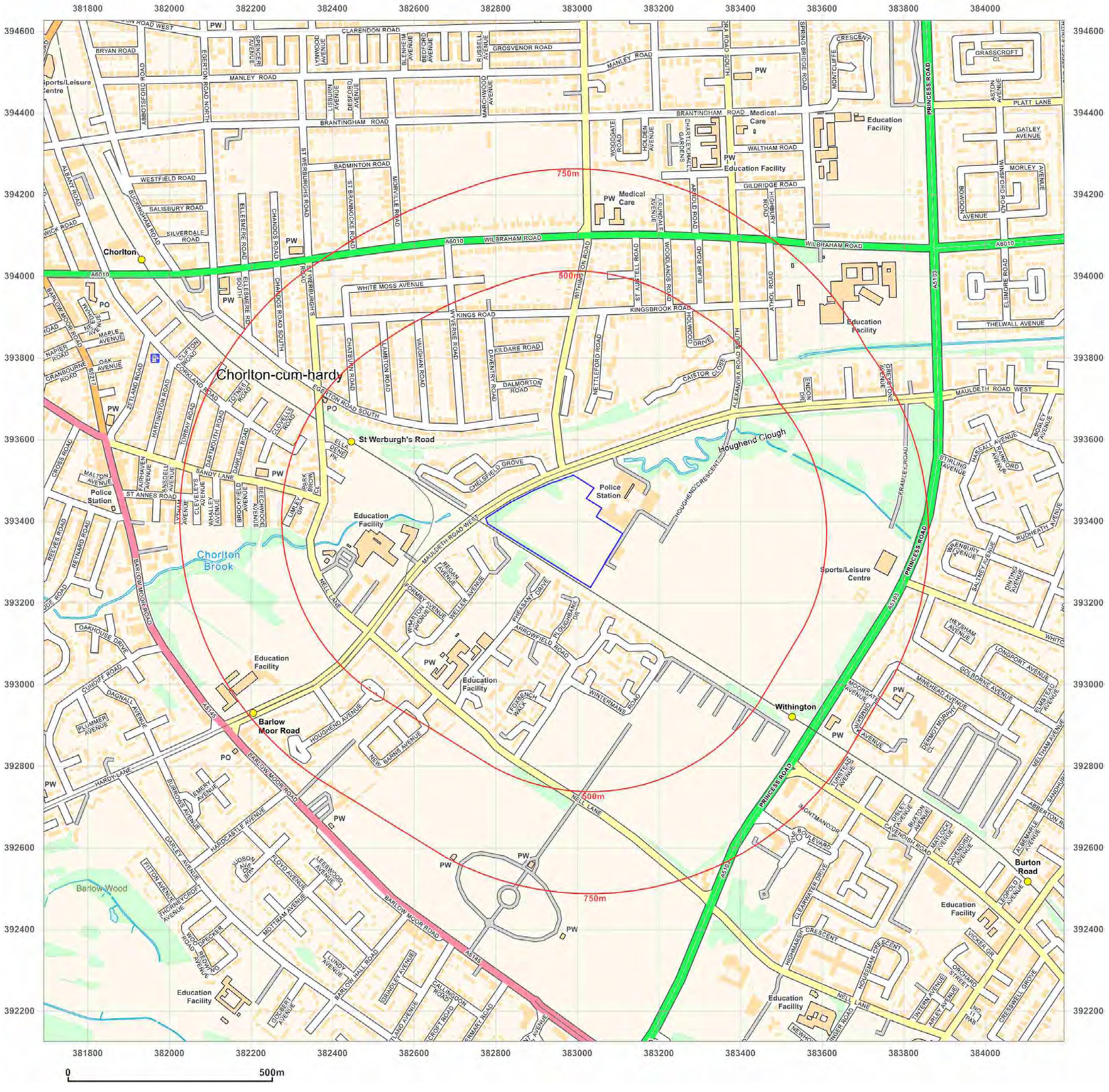

Groundsure INSIGHTS

Site Details:

HOUGH END CENTRE,
MAULDETH ROAD WEST,
MANCHESTER, M21 7SX

Client Ref: PONW5446-M566-RB
Report Ref: GS-4798420
Grid Ref: 382943, 393376

Map Name: National Grid
Map date: **2014**
Scale: 1:10,000
Printed at: 1:10,000

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Production date: 12 March 2018

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APPENDIX D

Dunelm Conditions of Offer, Notes on Limitations & Basis for Contract

Dunelm Conditions of Offer, Notes on Limitations & Basis for Contract

These conditions accompany our tender and supercede any previous conditions issued. The firm will prepare a report solely for the use of the Client (the party invoiced) and its agent(s). No reliance should be placed on the contents of this report, in whole or in part by 3rd parties. The report, its content and format and associated data are copyright, and the property of the firm. Photocopying of part or all of the contents, transfer or reproduction of any kind is forbidden without written permission from the firm. A charge may be levied against such approval, the same to be made at the discretion of the firm.

Site investigation is a process of sampling. The scope and size of an investigation may be considered proportional to levels of confidence regarding the ground and groundwater conditions. The exploratory holes undertaken investigate only a small volume of the ground in relation to the overall size of the site, and can only provide a general indication of site conditions. The opinions provided and recommendations given in this report are based on the ground conditions as encountered within each of the exploratory holes. There may be different ground conditions elsewhere on the site which have not been identified by this investigation and which therefore have not been taken into account in this report. Reports are generally subject to the comments of the local authority and Environment Agency. The comments made on groundwater conditions are based on observations made at the time that site work was carried out. It should be noted that mobile contamination, soil gas levels and groundwater levels may vary owing to seasonal, tidal and/or weather related effects. Unrecorded ancient mining may occur anywhere where seams that have been worked and influence the rock and soil above. Dissolution cavities can occur where gypsum or chalk is present. Rotary drilling is the recommended technique to prove the integrity of the rock.

Where the scope of the investigation is limited via access to information, time constraints, equipment limitations, testing, interpretation or by the client or his agents budgetary constraints, elements not set out in the proposal and excluded from the report are deemed to be omitted from the scope of the investigation.

The firm cannot be held liable and do not warrant, or otherwise guarantee the validity of information provided by third parties and subsequently used in our reports. The firm are not responsible for the action negligent or otherwise of subcontractors or third parties.

Desk studies are generally prepared in accordance with RICS guidelines. Environmental site investigations are generally undertaken as 'exploratory investigations' in accordance with the definitions provided in paragraph 5.4 of BS 10175:2001 in order to confirm the conceptual assumptions. You are advised to familiarize yourself with the typical scope of such an investigation. No pumping of water will be undertaken unless a licence or facilities/equipment have been arranged by others.

Where the type, number or/and depth of exploratory hole is specified by others, the firm cannot and will not be responsible for any subsequent shortfall or inadequacy in data, and any consequent shortfall in interpretation of environmental and geotechnical aspects which may be required at a later date in order to facilitate the design of permanent or temporary works.

All information acquired by the firm in the course of investigation is the property of the firm, and, only also becomes the joint property of the Client only on the complete settlement of all invoices relating to the project. The firm reserves the right to use the information in commercial tendering and marketing, unless the Client expressly wishes otherwise in writing. The quoted rates do not include VAT, and payment terms are 30 days from dispatch of invoice from our offices. Quotes are subject to a site visit.

We have allowed for 1 mobilisation and normal working hours unless otherwise stated. The scope of the investigation may be reviewed following the desk study and/or fieldwork. We have not allowed for acquiring services information, and cannot be responsible for damage to underground services or pipes not shown to us or not clearly shown on plans. Costs incurred will be passed on to you, and in commissioning the firm, you understand and accept that you/your agent have a contractual relationship with the firm & you accept this. Our rates assume unobstructed, reasonably level and firm access to the exploratory positions and adequate clear working areas and headroom. We have priced on the basis that you or your client have the necessary permissions, wayleaves and approvals to access land. All boreholes and pits are backfilled with arisings except where gas monitoring pipes are installed with stopcock covers. Dunelm are not responsible for any uneven surfaces as a result of siteworks and rutting and backfilled excavations may require re-levelling and/or making good by others after fieldwork is complete. Dunelm have not allowed for subsequent reinstatement as a result of settlement. No price has been provided or requested for a return visit to remove pipework and covers. No price has been provided or requested for a return visit to remove pipework and covers. Hourly rates apply to consultancy only and do not include expenses unless otherwise shown. If warranties are required, legal costs incurred will be passed on to you assuming the firm agree to complete such warranties, modified or otherwise and you understand and agree to pay all costs.

We reserve the right to pursue full payment of the invoice prior to release of any information including reports. We advise you/your client that we may elect to pursue our statutory rights under late payment legislation, and will apply 8% to the base rate for unreasonably late payments. We will also apply the right to claim any associated legal costs incurred with recovery of late payments. The firm is exempt from the CIS Scheme. The firm offer to undertake work only in strict accordance with conditions covered by our current insurances, which are available for inspection. The company are not responsible for acts, negligent or otherwise of subcontractors and as a matter of policy cannot indemnify any other parties. Professional indemnity Insurance is limited to ten times the invoice net total except where stated otherwise by the firm, and we give notice that consequential loss as a direct or indirect result of the firm's activities or omission of the same are excluded.