

Phase 1 & Phase 2 Geoenvironmental Desk Study & Ground Stability Risk Assessment for East Lancashire Paper Mill Island Site, Rectory Lane, Radcliffe, M26 2QU

Project No: NX418



Client



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EXECUTIVE SUMMARY

Site Location & Access	East Lancashire Paper Mill Island, Rectory Lane, Radcliffe, M26 2QU Access is gained from Rectory Lane via Spring lane.
Grid Reference	E379021, N407407.
Site Area	Approximately 0.57 hectares.
Site description & Proposed Development	The site is irregular in shape, generally level and comprises a combination of car parks and open landscaped areas. The south of the site comprises hardstanding carpark within a disused public house and associated garden beyond. Two unnamed containers are present within the car park area. The centre of the site comprises open land laid to grass with occasional mature and semi-mature trees, benches, bushes and a concrete path running east-west through. The southern boundary of this central area is marked by a row of trees and bushes separating the hardstanding car park to the south. The north of the site is demarked by an area of paving hardstand with concrete bollards on the northern and southern boundary with Howard street and Cunliffe street respectively. The north-eastern corner of the site comprises a small area of scrub and semi-mature trees. An electrical substation contained within a brick housing and concrete slab base is located within the north-eastern corner of the site. A 2m high metal high palisade fence formed the boundaries within this area. The site is located approximately 200m east of Radcliffe Metrolink station along Spring lane. It is understood the site is to be developed for a residential end-use with associated gardens and landscaped areas.
Geological Mapping	Glaciofluvial sheet deposits, Devensian – Sand and Gravel. The Pennine Middle Coal Measures Formation underlies the site and comprise a mixture of mudstone, siltstone and sandstone. Several coal seams lie within this formation. Although unlikely, based on previous ground investigations works undertaken on the adjacent East Lancashire Paper Mill site, there is evidence that previously worked shallow coal seams may be present beneath the site.
Coal Mining & Ground Stability Risk	The site is within a Coal Authority High Risk area with coal workings at depth beneath the site. The Ashclough coal seam is the nearest sub-cropping seam to the site (approx. 405m Northwest). The rock dip is likely to be around 9-10° down to the southeast. NX anticipate that this coal seam would be present approximately 70m below the rock head surface. Rotary drilling recorded very shaley coal in RH02 between 5.80-6.70m bgl. Given that the seam is unrecorded, very shaley implies that it is unlikely that it's been worked and probably carbonaceous mudstone with some thin coal partings present. The BGS and Coal

	Authority have no record of it which suggests that the coal will be very thin/discontinuous/of very poor quality. Based upon information provided to date, we consider that there is a low risk of coal mining related ground instability upon the site.
Flood Risk	The site located in an EA defined Zone 2 and Zone 3 flood risk area (from fluvial/tidal models) and high risk from rivers and sea. There have been 3 recent flood events within 200m: 80m SW, January 2008, River Irwell unknown cause 122m SE, December 2015, River Irwell channel capacity exceeded 165m SE, October 1998, River Irwell obstruction/blockage of channel The site is stated to be at risk from surface water flooding. The risk of surface flooding is deemed to be 1 in 30 year event (0.3 – 1.0 m). The Groundsure data indicates that the Environment Agency has classified a moderate risk of groundwater flooding on the site. The appointed engineer should establish if a quantitative flood risk assessment is required.
Site History	On-Site Historical mapping shows the site to have comprised a brewery and works in the north east of the site and open fields, allotments and residential housing in the centre and south of the site. A chimney is present in the north of the site associated with the brewery. The north of the site is cleared circa by 2003 and an electricity substation is present. Offsite The site has historically been located within a coal mining area which was active throughout the 1900's, with various past coal wharfs and collieries located within 500m of the site. There are also railways, cotton mills, infilled reservoirs, engineering works, dye works, sand pits, chemical works, paper mills and factories within 500m of the site with potential for contamination.
Utility Locations	Underground services impact the site and the design team should familiarize themselves with their presence and implications on the development. An electricity substation is also located in the north eastern corner.
Landfill Sites & Ground Gases	Made ground is present upon site with demolished properties and the former allotment. Several waste disposal sites were recorded within 500m of the site including: - Gravel pits 39m East (E) - Reservoirs 60m East - Historical refuse tip 399m Southeast (SE)

- Historical landfill 254m SE – Paper mill & infilled reservoirs
- Historical landfill 318m E – Boiler house
- Scrap Yard 204m SW

Further information can be found on the attached Groundsure report.

Given the developmental history of the site and surrounding area, the risk from hazardous ground gas is considered to be low to moderate generation potential and a moderate risk to existing properties and site users.

The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

Geotechnical Assessment

The Made Ground deposits are considered unsuitable as an adequate founding stratum due to the proposed loads and the possible risks of unacceptable total and differential settlements occurring. It is recommended suspended floor slab to be adopted.

Preliminary foundation assessment indicates that for Made Ground less than 1.5m thick, the conventional strip footings. For the Made Ground between 1.5m and 3.0m thick, deep trench fill can be considered but may not be a cost-effective solution and ground improvement using vibro stone columns and/or driven piles will be able to provide adequate capacity. A degree of ground treatment will be required where former buildings have occupied the site. It is recommended RC foundations to be designed to prevent differential settlement.

There are several buried services including a culverted watercourse underneath the site, the foundation solution should allow for protection measures and ensure no damage to these services.

NHBC guidance in relation to trees should be followed, due to the presence of glacial clay. Heave protection measures should be used for foundations and drainage where trees are present within influencing distance.

Pavement Construction

An initial design CBR value of 2% is recommended for the Made Ground and clay deposits.

Where access roads are to be adopted, design CBR values should be confirmed by carrying out in-situ plate load tests.

Soakaways

Given the low permeability of the underlying clays we consider that soakaway are unlikely to be suitable at the site. If soakaways are to be considered then soakaways should be carried out in line with BRE 365 Soakaway Design.

Groundwater and Excavations

Any excavations extending below the water table would need to be dewatered in advance of the main excavation works. Sump pumps or possibly well points may be required for this. It is recommended that groundwater levels are monitored during the construction work to enable any dewatering requirements to be identified in advance.

Excavation stability is likely to be moderate to good in the upper 1.00m of strata but poor below this depth in the underlying granular materials. Excavations would need to be battered back to a suitable angle of repose or fully supported during construction. Below 1.80m bgl running sand conditions should be anticipated. However, infilled demolition arisings were recorded within the area of WS1/TP01 (former brewery and chimney) which will require pre-treatment (excavation/screening/crushing and replacement) prior to formation of the adopted foundation solution.

Excavations should be feasible with conventional plant.

The presence of other relic below ground structures should be anticipated associated infrastructure having previously occupied the site. Deepening of foundations should be anticipated within these areas. The locations of which are shown on historical mapping within Appendix C.

Conceptual Model

Chemical analysis carried out across the site recorded concentrations generally below Tier 1 guidelines for a residential end use. However, in areas where made ground have been recorded (particularly beneath former building areas and hardstand), direct contact with asbestos fibres and lead contamination may remain a potentially viable pathway in garden and construction scenario.

For preliminary assessments remediation or mitigation can be expected to comprise the following:

- Excavation & removal from site of granular made grounds, or cohesive made ground with asbestos fibres from areas where future site levels are to be reduced.
- Placement of clean cover soil system within of soft landscaping, public open spaces or domestic gardens; where site levels are to be raised.
- Removal and replacement with clean cover systems within soft landscaping, public open spaces or domestic gardens where site levels are to be more or less unchanged.

The depths of material to be removed or the thickness of a soil barrier shall need to be determined once the final site development proposals are known.

Within areas of private domestic gardens (including superficial hardstanding paved areas), a minimum 600mm of clean cover / removal & replacement of made grounds should be assumed at this stage.

Within areas of soft landscaping a minimum 600mm of clean cover / removal & replacement of made grounds should be assumed.

Within areas of areas of public open space to be grassed; a minimum 600mm of clean cover / removal & replacement of made ground should be assumed.

Certification of ground gas measures are classified as Situation 2 (Amber 1) conditions and Low-level ground gas protection measures should be adopted, utilising Low Permeability membrane and ventilated sub-floor void that creates a permeability contrast to limit the ingress of gas into buildings. Independent verification of protection measures are required to satisfy planning conditions relating to ground gas risk.

Gas protection measures should be installed as prescribed in BRE 414 with the ventilation of the sub-floor void designed to provide a minimum of one complete volume change per 24 hours.

The risks presented to controlled water receptors are deemed to be low given the low sensitivity of the underlying aquifer and low source generating potential of the site.

Any imported subsoil/topsoil materials will require chemical validation to demonstrate that they are suitable for a residential end use and taken to depths sufficient to provide a sufficient cover system for all proposed materials used which are capable to support root growth.

A potable water supply risk assessment is required to establish the nature of water supply pipework for the proposed development.

No radon protection measures are necessary in the construction of new dwellings on the site.

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1.0 INTRODUCTION

1.1 Instruction

NX Consulting Limited have been commissioned by Great Places Housing Association (The Client) to conduct a pre-acquisition Phase 1 Geoenvironmental Desk Study and ground stability risk assessment and preliminary phase 2 assessment on land at Rectory Lane, Radcliffe, M26 2QU.

It is understood the site is to be developed for residential purposes with associated gardens, landscaping areas and access roads.

1.2 Scope of Work

Guidance set out in CLR11¹, GPLC1-3² and the National Planning Policy Framework (NPPF)³ states that a Preliminary Risk Assessment with a site reconnaissance is required as a minimum to ascertain if there is a potential contamination risk/preliminary flooding risk and inform part of a pre-acquisition survey .

The aim of any Desk Top Study is to assess the potential ground related risks at the site. In order to achieve the above stated aims and objectives, the following scope of works has been determined:

- Present a discussion of the current site status and key environmental influences around the site.
- Undertake and present a historical site and area review, primarily referring to old Ordnance Survey Maps.
- Undertake preliminary data searches.
- Present a discussion of the ground and groundwater conditions within the topographical and area context.
- Present a preliminary ground contamination assessment discussing the results of the research above, not only concerning potential on-site conditions and contamination but also with an overview of the potential for migration on or off-site with respect to the surrounding neighboring sites.
- The information gathered will be used to identify potential geotechnical constraints associated with the redevelopment of the site.
- Present a preliminary qualitative risk assessment and make recommendations for a characterisation stage of physical investigation and testing, if appropriate.

1 EA (2004). "Model Procedures for the Management of Land Contamination." R&D Publication CLR 11.

2 EA (2010). "Guiding Principles for Land Contamination." GPLC1-3.

3 DCL (2012). "National Planning Policy Framework." Department of Communities and Local Government. March 2012.

The objectives of the NX Consulting preliminary geoenvironmental site investigation were as follows:

- To provide further information on ground conditions to facilitate design of buildings and infrastructure for the site.
- To conduct limited chemical analysis on collected soil and groundwater samples of Made Ground and natural soils and provide a semi-quantitative assessment

of potential risks from contaminants to human health and/or controlled waters, comprising a further Refined Conceptual Model.

- Provide preliminary recommendations regarding any outline remedial measures necessary to mitigate any risks to human health or controlled waters resulting from contamination on the site; or recommendations for any further work.

The overall scope of the current work comprised 7no. windowless sample boreholes to a maximum depth of 5.0mbgl, 2no. open hole rotary boreholes to a maximum depth of 40.0mbgl and 4no. machine excavated trial pits to a maximum depth of 2.0mbgl.

1.3 Report Layout

- Section 2 of this report provides a summary of the Phase 1 desk study findings; including the site history, as established from available public record information.
- Section 3 details the preliminary risk assessment and site investigation design.
- Section 4, 5, 6 & 7 details the intrusive investigation carried out to validate the foundation recommendations, geotechnical conditions identified by the investigation and makes recommendations in respect of foundations, pavement construction and soakaway drainage.
- Section 8 presents the records of the chemical analyses undertaken and gives the results of the qualitative risk assessment carried out using the results of the chemical analyses and taking account of the proposed end use of the site.
- Section 9 provides outlying remedial measures arising from this investigation.

1.4 Limitations

The accuracy of the data supplied by third parties should be considered in the context of any known site conditions for which NX Consulting Limited cannot be held liable.

The comments made in this report are based on the data available at the time of its completion. Any unusual or conflicting evidence discovered during any future site works must be presented to NX Consulting as soon as possible so that any implications may be considered.

This report is provided for the benefit only of the party to whom it is addressed. NX Consulting does not extend responsibility to any third party for the whole or any part of the contents. NX Consulting owes no duty of care in relation to this report to any third party. The investigation and reportage has been undertaken with all reasonable skill, care and due diligence. NX Consulting disclaims any responsibility to the client or others in respect of any matter(s) outside this agreed scope of the above works.

In addition to the above it should be noted that when investigating or developing land, sub-surface conditions might vary both spatially and over time. Whilst this investigation

and subsequent interpretation has been undertaken to reasonably characterise current sub-surface conditions at the site within the scope of works and agreed budget, the absence of certain ground, contamination or groundwater conditions at the individual locations is not a guarantee that these conditions do not exist elsewhere on the site. Additional information, changes in legislation or revised practices may necessitate re-interpretation of part or all of this report.

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2.0 PHASE 1 ASSESSMENT SUMMARY

This section summarises pertinent information gained from reviewing the Groundsure Geosight, Enviroinsight Reports and Historical Mapping. Full copies are presented in Appendix B and C respectively.

2.1 Site Location & Setting

Table 2.1 – Site location and Setting

Site Location	East Lancashire Paper Mill Island, Rectory Lane, Radcliffe, M26 2QU Access is gained from Rectory Lane via Spring lane.	
Site Description	The site is irregular in shape, generally level and comprises a combination of car parks and open landscaped areas. The south of the site comprises hardstanding carpark within a disused public house and associated garden beyond. Two unnamed containers are present within the car park area. The centre of the site comprises open land laid to grass with occasional mature and semi-mature trees, benches, bushes and a concrete path running east-west through. The southern boundary of this central area is marked by a row of trees and bushes separating the hardstanding car park to the south. The north of the site is demarked by an area of paving hardstand with concrete bollards on the northern and southern boundary with Howard street and Cunliffe street respectively. The north-eastern corner of the site comprises a small area of scrub and semi-mature trees. An electrical substation contained within a brick housing and concrete slab base is located within the north-eastern corner of the site. A 2m high metal high palisade fence formed the boundaries within this area. The site is located approximately 200m east of Radcliffe Metrolink station along Spring lane. It is understood the site is to be developed for a residential end-use with associated gardens and landscaped areas.	
Grid Reference	E379021, N407407.	
Site Area	Approximately 0.57 hectares.	
Site Setting	Surrounding area:	North: Residential Properties. East: Residential properties and open field South: Residential properties and open field West: Residential properties

2.2 Geology, Hydrology and Hydrogeology

Table 2.2 – Summary of Geology Hydrology and Hydrogeology

Drift Geology	On site: Glaciofluvial sheet deposits, Devensian – Sand and Gravel
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Table 2.2 – Summary of Geology Hydrology and Hydrogeology

	Surrounding area: Glaciofluvial sheet deposits, Devensian – Sand and Gravel
Solid Geology	On Site: Pennine Middle Coal Measures Formation – Mudstone, Siltstone and Sandstone
	Immediate surrounding area: Pennine Middle Coal Measures Formation – Mudstone, Siltstone and Sandstone
Hydrology	Narrow culverted watercourse passes under the site running north to south. Inland river not influenced by tidal action flows underground on site but flows at surface level 16m NW. Outfalls to River Irwell 110m to south.
	River Irwell – 107m SE
Hydrogeology	Superficial deposits – Secondary A Bedrock deposits – Secondary A
Water Abstractions	No groundwater abstractions lie within 500m of the site. Historical surface water abstraction lies 399m north west of the site.
Source Protection Zone	The site does not lie within a source protection zone.
Flood Risk	The site located in an EA defined Zone 2 and Zone 3 flood risk area (from fluvial/tidal models) and high risk from rivers and sea. There have been 3 recent flood events within 200m: • 80m SW, January 2008, River Irwell unknown cause • 122m SE, December 2015, River Irwell channel capacity exceeded • 165m SE, October 1998, River Irwell obstruction/blockage of channel
	The site is stated to be at risk from surface water flooding. The risk of surface flooding is deemed to be 1 in 30 year event (0.3 – 1.0 m). The Groundsure data indicates that the Environment Agency has classified a moderate risk of groundwater flooding on the site.
Shrink Swell Clays	Negligible risk
Landslides	Very low risk
Ground Dissolution of soluble Rocks	Negligible Risk
Compressible deposits	Negligible Risk

Table 2.2 – Summary of Geology Hydrology and Hydrogeology

Collapsible Deposits	Very Low Risk
Running Sands	Very low risk – No identified constraints on land use unless water table rises rapidly.

2.3 Mining Extraction and Natural Cavities

Table 2.3 – Mining and Mineral Extraction

Coal Mining	A historic Colliery lies 285m north west
Johnson Poole and Bloomer	The site is recorded as within a JPB coal mining area
Other mining	- Sand and Gravel britpit 74m west - Sandstone britpit 337m south west - Sand and Gravel surface mineral workings 258m south east
Historic Ground Workings	- Gravel pits 48m west - Reservoirs 39m east - Refuse heap 80m west - Pond 94m east All remaining surface ground workings can be found on the attached Groundsure report.

2.4 Site History

Historical maps of the site area have been obtained from Groundsure. Pertinent information determined from review of these maps is set out in the following table (overleaf); a full copy of the maps is presented in Appendix C.

Table 2.4 – Site History

Map Date	On Site Potentially Contaminative Past Uses	Off Site Potentially Contaminative Past Uses
1848-1850	Site comprises of open fields and a group of buildings in the north east corner named Spring Lane Brewery. A brook/stream is present in the west of the site running north to south towards the River Irwell.	- Several unnamed buildings bound the site to the north. - A well is present to the west. - Bleach works approx. 400m north east. - Print works approx. 400m east - Colliery and cotton mill approx. 750m west. - Several dye works, railway stations, sand pits, bleach works, cotton mills and collieries feature south west of the site between 100m and 1000m.

Table 2.4 – Site History

Map Date	On Site Potentially Contaminative Past Uses	Off Site Potentially Contaminative Past Uses
1890-1893	Further unnamed buildings have been built in the south east corner of the site	- East Lancashire paper mill has been built south east of the site within 100m. - Radcliffe railway station has been built 150m west of the site. - Further development in the surrounding township including a colliery 400m north
1907-1909	Alignment of brook/stream appears to have changed.	- Wilton Cotton Mill 100m south - Pioneer Cotton Mill 200m south east. - Cotton mill 100m north - Iron works and dye works 200m north west. - Tramway runs along northern boundary of site. - Further development of the railways connecting different collieries in the surrounding area – non within 500m.
1927-1932	Brook/Stream culverted beneath the site.	- Engineering works approx. 180m north of site. - Chemical works approx. 300m south west of site. - Iron works approx. 400m west of site. - Sewage works approx. 450m south east of site. - Further development of surrounding township.
1937	No further development on site however the brewery appears to have relocated 150m north west of site	Park Street Cotton mill 100m north of site.
1955-1956	The open space has now been named as allotment gardens.	- Warehouse 50m south west of site. - Engineering works 150m south west of site, adjacent to the preexisting Wilton Cotton Mill.
1965	No further development on site	By this time there are 15 mills/works within 500m of the site, and 22 within 750m of the site.
1987-1992	Brewery now named as works, with an electrical substation. The buildings in the south east corner have been demolished.	Works 50m south west of site.
1992-1995	No further development on site	Largely unchanged.

Table 2.4 – Site History

Map Date	On Site Potentially Contaminative Past Uses	Off Site Potentially Contaminative Past Uses
2001	All buildings on site appear to have been demolished except for the electrical substation	Wilton Mill 100m south west appears to have been demolished.
2010	No further development on site	East Lancashire paper mill appears to have been demolished.
2021	No further development on site	Petrol station 250m west.

2.5 Environmental Information

Table 2.5 – Environmental Information

Landfill Sites and Other Waste Disposal Facilities	- Historical refuse tip 399m SE - Historical landfill 254m SE – Paper mill - Historical landfill 318m E – Boiler house - Scrap Yard 204m SW Other waste sites can be found on the attached Groundsure report
Potentially contaminative land uses	- Electrical substation onsite - Unspecified works 12m W (Site walkover found Knotweed treatment works) - Vehicle repair 42m SW - Tank 105m E - East Lancashire paper mill 126m E - Electricity substation 149m S - Unspecified works 150m SE and SW - Container and storage depot 163m S - Electricity substation 167m NW
Ecological Setting	No SSSI's, Areas of Outstanding Beauty, Special Areas of Conservation are located in the immediate area.
Radon	The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

2.6 Coal Mining

Table 2.7 – Coal Authority Information

Coal Authority Mining Report	The Coal Authority Mining Report (Ref:51002394719001) dated February 2021 has been obtained for the subject site by NX Consulting. A summary of the findings are provided as follows: <i>The property is in a surface area that could be affected by underground mining in 5 seams of coal at 150m to 350m depth, and last worked in 1893. Any movement in the ground due to coal</i>
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	<i>mining activity associated with these workings should have stopped by now.</i> <i>The site is not within a surface area that could be affected by present underground mining.</i> <i>There are no recorded coal mine entries known to the Coal Authority within, or within 20 m of the boundary of the property;</i> <i>The Coal Authority is not aware of any damage due to geological faults or other lines of weakness that have been affected by coal mining.</i> <i>The property is not within the boundary of an opencast site from which coal has been removed by opencast methods.</i> <i>The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres of the enquiry boundary, since 31 October 1994.</i> <i>The Coal Authority has no record of a mine gas emission requiring action.</i>
Coal Authority Interactive Map	The Coal Authority Interactive Map indicates that the site not within a defined Coal Authority High Risk Area. No recorded coal seams subcrop beneath the site. The nearest outcropping seam situated approximately 150m to the north west is shown to be present at 61m below ground level. A mine entry is present 150m to the north west. Several further mine entries are recorded approximately 500m north west of the site. A series of coal seams striking northeast - southwest outcrops at the surface approximately 250m north west of site and dips towards the south east towards the site.
British Geological Survey Mapping	BGS Sheet 85 Manchester shows that several coal seams lie beneath the site, however none outcrop at a surface level on site. The local coal seams strike northeast/southwest and dip approximately 15 degrees south east. These coal seams have been displaced by a series of steeply dipping northwest/southeast trending normal faults, therefore varying in dip direction (northeast or southwest). The Bradley Fold fault dips southwest, and positioned approximately 100m north of site. The fault truncates at least 5 coal seams in close proximity to the site including the RAMS (Bottom Furnace) coal. The Ashclough coal seam is the nearest sub-cropping seam to the site (approx. 405m Northwest). The rock dip is likely to be around 9-10o down to the southeast. NX anticipate that this coal seam would be present approximately 70m below the rock head surface. A BGS borehole 133m east of the site records a 0.3m thick coal seam 84.73m deep.

Based upon information provided to date, we consider that there is a low risk of coal mining related ground instability upon the site.

2.7 WYG Report for East Lancashire Paper Mill Site (ELPM)

White Young Green (WYG) carried out a Phase 1 desk Study of the larger East Lancashire Paper mill site to the south west. The report included a review of a number of reports, made available by the Homes and Communities Agency (HCA), these include;

- Remedial Strategy for land at East Lancashire Paper Mill, Radcliffe. Prepared by Encia Consulting Limited for P&F Properties Limited. (Report ref: 5996/3/Rev-A, July 2005);
- East Lancashire Paper Mill, Radcliffe. Report on Supplementary Groundwater/ Ground Gas Monitoring. Prepared by Encia Consulting Limited for P&F Properties Limited. (Report ref: 5996/BRB, November 2005); and,
- Summary Status Report for The East Lancashire Paper Mill Site. Prepared by ADM Regeneration Limited for P&F Properties Limited. (Report ref: 10109_SSR_01, August 2013).

The WYG report referenced a BGS record of one mine shaft, located approximately 350m northwest of the site at Withins Lane Colliery and two water well boreholes which have been drilled at the site. The Withins Colliery Shaft (BGS Reference: SD70NE25) record shows that the coal seams encountered in the Withins Colliery shaft are not considered a risk to the proposed future site development.

Based on the observations identified on the Encia rotary borehole logs and from a water well borehole (BGS Reference: SD70NE28, bored 1954) (broken ground and loss of drilling flush) was recorded in 3no seams of coal at approximate depths of 17.00m bgl, 51.00 and 84.00m (Possibly Top Three Yard Mine or Top Yard Mine, RAMS mine and unnamed coal seam respectively) may have been worked beneath the East Lancashire Paper Mill site.

In summary, the report found that the Top Three Yard Mine has been possibly identified beneath the ELPM site sub-cropping at the top of bedrock to 19m below the top of bedrock in the south east corner. The Top Yard Mine may be present on site above the Top Three Yard Mine and if present would be to the south of the identified sub-crop. The Rams Mine is found beneath the Top Three Yard Seam. The fault indicated on the geological map may lie further south based on the geology encountered within the exploratory holes.

If this is the case, then the potential exists for the Top Five Quarters Mine to sub crop beneath the south east corner of the ELPM site and further intrusive works and possible remedial drill and grout works were recommended.

2.8 Ground Stability Risk Assessment

Made ground is anticipated to depths of 3.0 to 4.0m beneath parts of the site over glaciofluvial sand and gravel deposits.

The Pennine Middle Coal Measures Formation underlies the site comprising a mixture of mudstone, siltstone and sandstone and underlying coal seams. BGS mapping indicates that to the south of the fault the solid geology comprises Westphalian Coal Measures. The sequence includes Nob End Rock (sandstone) and Pennine Middle Coal Measures in the east and west respectively.

2no. BGS borehole records are available 133m E and 237m E and noted to consist of loose silty SAND with occasional roots, clay and gravel to 2.8m bgl, overlying compact/dense SAND and GRAVEL to 6.5m bgl, overlying soft to firm silty CLAY to 7.1m bgl, overlying interbedded silty CLAY, and SAND and GRAVEL to 10.9m bgl where it transitions into very soft mudstone. The deeper borehole found interbedded layers of marl, mudstone and shale, with a 0.30m thick coal seam at 84.73m bgl.

The WYG report highlighted that borehole logs recorded probable mineworkings in 3no seams of coal at approximate depths of 17.00m bgl, 51.00 and 84.00m (Possibly Top Three Yard Mine or Top Yard Mine, RAMS mine and unnamed coal seam respectively) may have been worked beneath the East Lancashire Paper Mill site.

Coal Authority & BGS Mapping

The property is in a surface area that could be affected by underground mining in 5 seams of coal at 150m to 350m depth, and last worked in 1893.

BGS mapping indicates that none outcrop at a surface level on site. The nearby coal seams strike northeast/southwest and dip approximately 15 degrees south east. These coal seams have been displaced by a series of steeply dipping northwest/southeast trending faults varying in dip direction (northeast or southwest). The Bradley fold fault dips to the southwest, positioned approximately 100m north of site, and is seen to truncate at least 5 coal seams in close proximity to the site; including the RAMS (Bottom Furnace) coal seam. These coal seams outcrop to the northwest and dip southeast towards the site at anticipated depths of 120m below ground level and deeper.

The Ashclough coal seam is the nearest sub-cropping seam to the site (approx. 405m Northwest). The rock dip is likely to be around 9-10° down to the southeast. NX anticipate that this coal seam would be present approximately 70m below the rock head surface.

Risk Assessment

The property is in a surface area that could be affected by underground mining in 5 seams of coal at 150m to 350m depth, and last worked in 1893.

Rotary drilling recorded very shaley coal in RH02 between 5.80-6.70m bgl. Given that the seam is unrecorded, very shaley implies that it is unlikely that it's been worked and probably carbonaceous mudstone with some thin coal partings present. The BGS and Coal Authority have no record of it which suggests that the coal will be very thin/discontinuous/of very poor quality.

Given the depth of the anticipated seams, proposed low level housing and cover of superficial clay, sand and gravel deposits, we consider that the risks from ground instability associated with former coal workings is deemed to be low.

3.0 PRELIMINARY CONCEPTUAL MODEL

The site characterisation attempts to identify potential previous and existing site sources of contamination. The conceptual model links the identified sources likely to cause significant possibility of significant harm via pathways to identified critical receptors. The conceptual model is therefore based on a number of identified source-pathway-receptor scenarios. For land to be classified as contaminated a significant pollutant linkage will need to be identified which will include each component of the conceptual model. The absence or removal of a source or interception of a pathway will 'break' the pollutant linkage.

The conceptual model is characterised by identification of the following:

- On-site sources, which may impact on-site receptors via plausible pathways.
- On-site source, which may impact off-site receptors via plausible pathways.
- Off-site sources, which may impact on-site receptors via plausible pathways.

The change of land use will require assessment of the new site development layout within the context of introducing new exposure pathways. The planning regime will require assessment of the site to ensure the new development will not be classed as contaminated land as defined in the National Planning Policy Framework 2018.

3.1 Risk Assessment

Section 6.3 of the CIRIA Report "Contaminated Land Risk Assessment: A Guide to Good Practice" (CIRIA Report C552) describes in detail the concepts underlying the risk-based approach to assessing potentially contaminated land, introduce the roles of key legislation and describe the qualitative methodology adopted for evaluating and characterising risk.

Current best practice in the UK promotes a risk-based approach to dealing with both soil and groundwater contamination. The principal aim of the approach is to ensure protection of human health and the environment in a thorough, transparent and cost-effective manner.

Fundamental to the risk-based approach is the concept that for 'Contaminated Land' to be designated, as a consequence of historic activities, a pathway for contamination must be shown to exist between a source of contamination and a receptor. The combined presence of a source, pathway and a receptor is described as a 'pollutant linkage'.

The concepts associated with a contaminant source, pathway and receptor are defined in DETR Circular 02/2000 'Contaminated Land Environmental Protection Act 1990: Part II A'. A **source** of contamination may be considered as a 'substance which is in, on or under land that has the potential to cause harm or to cause pollution of controlled waters'. A **receptor** can be considered as either 'a living organism, a group of living organisms, an ecological system or a piece of property which is being, or could be harmed, by a contaminant or controlled waters which are being, or could be, polluted by a contaminant'. A **pathway** may be considered as one or more routes by, or through, which a receptor is being, or could be, exposed to or affected by a contaminant. Typical pathways may include migration in groundwater, surface water run-off or infiltration, inhalation, dermal contact and ingestion.

The risks posed by an identified pollutant linkage can often be mitigated by removing the source of contamination, treating the source of contamination, blocking the relevant pathway(s) or by protecting the receptor.

PRINCIPLES OF RISK EVALUATION

The risk evaluation methodology presented below is qualitative in nature and is therefore a subjective method. It is based upon guidance presented in CIRIA publication referenced C552, 'Contaminated land risk assessment ~ A guide to good practice', 2001 and involves the classification of the following:

The magnitude of the potential **consequence** (severity) of risk occurring (Table C 1).

The magnitude of the **probability** (likelihood) of the risk occurring (Table C 2).

These are then considered in conjunction to give a risk matrix (Table C 3)

Classification	Definition	Examples
Severe	Short-term (acute) risk to human health likely to result in 'significant harm' as defined by the Environmental Protection Act 1990, Part II A. Short-term risk of pollution (note: Water Resources Act contains no scope for considering significance of pollution) of sensitive water resource. Catastrophic damage to buildings/property. A short-term risk to a particular ecosystem, or organism forming part of such ecosystem (note the definitions of ecological systems within the Draft Circular on Contaminated Land, DETR, 2000).	High concentrations of cyanide on the surface of an informal recreation area. Major spillage of contaminants from site into controlled water. Explosion, causing building collapse (can also equate to a short-term human health risk if buildings are occupied).
Medium	Chronic damage to Human Health ('significant harm' as defined in DETR, 2000). Pollution of sensitive water resources (note: Water Resources Act contains no scope for considering significance of pollution). A significant change in a particular ecosystem, or organism forming part of such ecosystem. (Note: the definitions of ecological systems within Draft Circular on Contaminated Land, DETR, 2000).	Concentrations of a contaminant from site exceed the generic, or site-specific assessment criteria. Leaching of contaminants from a site to a major or minor aquifer. Death of a species within a designated nature reserve.
Mild	Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services ('significant harm' as defined in the <i>Draft Circular on Contaminated Land</i> , DETR, 2000). Damage to sensitive buildings/structures/services or the environment.	Pollution of non-classified groundwater. Damage to building rendering it unsafe to occupy (e.g. foundation damage resulting in instability).
Minor	Harm although not necessarily significant harm, which may result in a financial loss, or expenditure to resolve. Non-permanent health effects to human health (easily prevented by means such as personal protective clothing etc). Easily repairable effects of damage to buildings, structures and services.	The presence of contaminants at such concentrations that protective equipment is required during site works. The loss of plants in a landscaping scheme. Discolouration of concrete.

Table C 1: Classification of Consequence

Classification	Definition
High likelihood	There is a pollution linkage and an event that either appears very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor of harm or pollution.
Likely	There is a pollution linkage and all the elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.
Low Likelihood	There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such event would take place and is less likely in the shorter term.
Unlikely	There is a pollution linkage, but circumstances are such that it is improbable that an event would occur even in the very long term.

Table C 2: Classification of Probability

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

Table C3: Comparison of Consequence Against Probability

Very High Risk	There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR, there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not undertaken already) and remediation are likely to be required.
High Risk	Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not undertaken already) is required and remedial works may be necessary in the short term and are likely over the longer term.
Moderate Risk	It is possible that harm could arise to a designated receptor from an identified hazard. However, 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. Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer term.
Low Risk	It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst 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.

Table C 4: Description of the classified risks and likely action required

Table 6.0. Phase 1 Conceptual Site Model (CSM) and Preliminary Risk Assessment (Proposed Residential End Use)

SOURCE -PATHWAY -RECEPTOR LINKAGE				QUALITATIVE RISK ASSESSMENT		
Potential Contaminant Source	Location	Receptors	Pathways to Receptors	Associated Hazard (Potential Severity)	Likelihood of Occurrence	Risk*
Potential contaminants may be present beneath the site - Ash and clinker - Heavy metals, sulphates and PAHs. - Hydrocarbons - VOC/SVOC/ - Electrical substation in the north east of the site (PCBs).	Possibly within sub surface strata & Groundwater	Ground water (Secondary Superficial Aquifer – Low Risk)	Vertical percolation to groundwater	Groundwater (Medium – pollution of sensitive water resource)	Low Likelihood - Localised leakages and spillages may migrate into sub-surface aquifer resources.	Moderate/Low Site investigation works required.
		Surface Water – on site river, tributary to river Irwell	Lateral percolation & Surface Run-off to surface water	Surface Water (Medium – pollution of sensitive water resource)	Low Likelihood – Given distance to River Irwell	Moderate/Low Site investigation works required.
		End user of site.	Direct contact, Ingestion, Inhalation (Dust and Vapours)	Human Health (Severe).	Low likelihood - Made Ground on site; there is potential for localised asbestos and contaminants to be present within the near sub-surface soils and groundwater.	Moderate/Low Site investigation works required.
		Site Workers, Construction Staff.	Direct contact, Ingestion, Inhalation (Dust and Vapours)	Human Health (Minor – providing suitable PPE equipment is worn)	Low likelihood - Made Ground on site; there is potential for localised asbestos and contaminants to be present within the near sub-surface soils and groundwater.	Very low risk (if PPE equipment worn and potential asbestos suppressed)
		End user of site (Staff and patrons)	Migration through strata and accumulation under buildings of explosive and asphyxiating gases.	Human Health (Severe)	Low Likelihood - The site history recorded numerous former structures, infilled gravel pits/reservoirs on site and surrounding area which may generate low levels of hazardous ground gas.	Moderate Site investigation works required.

* Risk refers to the potential risk that the Source, Pathway, Receptor linkage is complete and is used to determine if any further investigation/measures are required. It does not indicate immediate emergency risk to any individual or feature present on the site unless specifically noted.

4.0 FIELDWORKS

4.1 General

An intrusive investigation was carried by Taylor Drilling and monitored by an engineer from NX Consulting between the 26th April 2021 and 28th April 2021.

A plan showing all the exploratory hole locations is presented in Appendix A. All locations were checked for services against available service plans and scanned with a cable avoidance tool (CAT) prior to the intrusive investigation; in line with NX Consulting health and safety methodology.

4.2 Windowless Sampler Boreholes

7no. windowless sample boreholes (WS1 through to WS7) were formed to a maximum depth of 5.0mbgl. Hand pits to 1.2mbgl were formed in all boreholes prior to drilling.

A groundwater monitoring well was installed in WS1, WS3, WS4 and WS7 to circa 2.50mbgl on completion. These comprised an upper 0.50m of plain pipe connected to a length of slotted pipe with a pea gravel surround.

Detailed Boreholes log sheets are included in Appendix D.

4.3 Rotary Boreholes

2no. open hole rotary boreholes water flush (RBH1 & RBH2) were formed to a maximum depth of 40.00mbgl under Coal Authority permit No: 21958.

Detailed boreholes log sheets are included in Appendix D.

4.4 Trial Pits

4no. machine excavated trial pits (TP1 through to TP4) were formed to a maximum depth of 2.0mbgl.

Detailed trial pit log sheets are included in Appendix D.

4.5 Sample Collection and Analysis

Environmental sample collection was carried out in accordance with BS EN ISO 22475-1:2006. All soil and groundwater samples were collected using either clean stainless steel utensils or clean disposable gloves and placed directly into clean containers provided by the laboratory. Samples obtained during the investigation were subjected to a range of geochemical testing at appropriate UKAS accredited laboratories. Testing was carried out in accordance with the procedures outlined in BS EN ISO14688-1:2002, 14688-2:2004, and 14689-1:2003.

5.0 GROUND CONDITIONS

5.1 Ground Conditions

Made Ground

Ground conditions identified from 7no. windowless sample boreholes and 4no trial pits have identified Made Ground, to a maximum depth of 2.40 metres below ground level (mbgl) (WS7).

The made ground in WS1 and TP1 comprised black/brown slightly organic sand with gravel of clinker, coal and brick (MG1) to 0.1mbgl overlying 0.2m of light brown sand with gravel and cobbles of brick and sandstone (MG2), overlying 1.7m of brown/red sand with gravel of brick, coal, clinker, slate and sandstone, and cobbles of brick (MG3). MG3 was found in WS2 to 0.5mbgl underlying 0.15m of MG1. In WS3, MG3 was found to 0.7mbgl underlying a 0.1m thick concrete slab.

The made ground in the grass (WS4, WS5, WS6, and TP3) comprised 0.1 – 0.3m of brown/black slightly organic sand with a fine gravel of mixed lithology. A layer of black/brown slightly organic sand with gravel of brick, coal, clinker, and mixed lithology (glass and tiles in WS6), and subangular cobbles of brick slate and sandstone was recorded to depths of 0.1mbgl to 1.3mbgl. In WS6 a layer of brown/black slightly organic sand with subangular gravel of mixed lithology and angular limestone cobbles was recorded between 0.1mbgl and 0.4mbgl.

The made ground in the hardstand borehole (WS7) comprised 0.1m of concrete overlying 0.15m of MG2, overlying 0.2m of MG3, overlying 0.1m of concrete. A layer of MG3 was recorded between 0.55mbgl and 0.8mbgl, overlying black sand and gravel of coal, clinker and brick, with angular cobbles of brick and slate recorded to 1.1mbgl. A layer of brown/orange sandy clay with subangular gravel of coal, brick and mixed lithology was recorded between 1.1mbgl and 1.2mbgl. A layer of dark grey/black soft silty clay with angular gravel of coal and clinker and subrounded mudstone cobbles was recorded between 1.2mbgl and 2.4mbgl.

The made ground in TP2 comprised 0.03m of paving slab overlying MOT type 1 limestone gravel to 0.3mbgl. A layer of dark brown/black clayey silty sand with subangular gravel of brick, coal, clinker, slate, bathroom tiles, timber and other mixed lithology including plastic was recorded to 1.0mbgl.

The made ground to TP4 comprised Tarmac to 0.05mbgl, overlying MG2 to 0.3mbgl, overlying MG3 to 0.5mbgl overlying a layer of orange/yellow/brown clayey sand and gravel of mixed lithology with subrounded cobbles of sandstone to 0.75mbgl, overlying MG3 to 1.0mbgl.

Glacial Till

The Made Ground is underlain by firm to stiff or stiffer Glacial Clay with coal, slate, and sandstone secondary constituents. Glacial clay was recorded between 1.3mbgl and 5.0mbgl.

SPT N values within the clay deposits were in the range 8-43 indicating firm to stiff to very stiff conditions.

Shear vane values within the clay deposits were in the range 22 - 60 KPa indicating firm to stiff clays.

Sand and Gravel

In WS5 & WS6, fine to coarse sand with a fine gravel was recorded between 2.1mbgl and 5.0mbgl, interbedded with the glacial clay.

In WS2, WS3, WS5 & WS6, a layer of yellow/brown silty clayey angular sand and gravel of coal, slate and sandstone was recorded at depths between 0.5mbgl and 2.3mbgl, overlying the glacial till.

Bedrock

Bedrock, comprising mudstone, siltstone, sandstone and coal seams was tentatively proven in WS6 and WS7 between depths of 3.5mbgl and 5.0mbgl and at 8.70m bgl and 5.80m bgl to proven depths of 40.00m bgl, in RB01 & RBH02 respectively.

5.2 Groundwater

Groundwater was recorded in WS4, WS5, WS6 & WS7 between 1.94mbgl (WS5) and 3.97mbgl (WS4). Groundwater was found to be absent in WS1, WS2, WS3, TP1, TP2, TP3, & TP4.

5.3 Underground Service Plans

Underground services, BT Lines, gas mains, combined and foul sewers, CCTV, electric cables and possible fibre optic cables may all impact the site and the design team and Client should familiarise themselves with their presence.

5.4 Below ground obstructions

No obstructions were encountered within the made ground and superficial deposits and excavations should be achievable with conventional plant.

The presence of other relic below ground structures should be anticipated beneath the former school and associated infrastructure having previously occupied the site. The location of which are shown on historical mapping within Appendix C.

5.5 Contamination

No visual or olfactory evidence of hydrocarbon and/or solvent contamination was identified during drilling works.

6.0 GEOTECHNICAL TESTING

6.1 Laboratory Analysis

A programme of laboratory testing was undertaken in accordance with BS 1377 (1990) "Methods of Test for Soils for Civil Engineering Purposes". The results are presented in Appendix D and are summarised below.

BS Test Number	Description
Part 2:3	Moisture Content
Part 2:5	Plasticity index
Part 2:9	Particle Size Distribution
Part 3:5,9	pH and Sulphate

Moisture Content

5no. samples of clay and 2no. samples of sand were tested for natural moisture content. The results are summarised below:

Property	Range	Mean
Moisture Content	11 -30	15.86

Plasticity Index

5no. samples of clay were analysed for plasticity index and hence shrinkage/swelling potential. The results are summarised below:

Property	Range
Plasticity index	13-23%
*Amended Plasticity index	11.05% –20.7%

The results demonstrate Clay is of low to medium plasticity with a corresponding low to moderate volume change potential based on amended plasticity.

Particle size distribution

6no. samples were selected for the determination of particle size distribution. The resultant grading curves have been included in Appendix D.

Sulphate and pH

Samples were analysed for pH and soluble sulphate:

Property	Range (g/l)
Sulphate as SO ₄ (g/l)	0.018 – 0.15
Sulphate as SO ₄ (mg/kg)	260-2000
pH	6.5-9.2

7.0 GEOTECHNICAL ASSESSMENT

7.1 General

It is understood that the site is to be redeveloped with new 2-storey residential housing. No building loads or finished site/building levels have been provided to NX Consulting at the time of drafting this document.

The following assessment should be considered preliminary. The recommendations should be verified and validated once the development details are finalised. At this stage, neither the proposed site level nor the cut and fill plan are available. The proposed ground level is assumed to be similar to the existing site level and without significant changes to be made.

Ground conditions identified from 7no. windowless sample boreholes and 4no trial pits have identified Made Ground, to a maximum depth of 2.40 metres below ground level (mbgl) (WS7).

Infilled demolition arisings were recorded within the area of WS1/TP01 which will require pre-treatment (excavation/screening/crushing and replacement) prior to formation of the adopted foundation solution.

Mudstone bedrock was 'tentatively' but not definitively proven in window sampler boreholes WS6 & WS7 between at depths of 3.50m & 5.00 mbgl. RBH01 & RBH02 recorded interbedded siltstone, mudstone and sandstone bedrock at depths ranging from 8.70m bgl (RBH01) & 5.80m bgl (RBH02).

The Made Ground is underlain by generally interbedded firm to stiff or stiffer Glacial Clay and sand/sand and gravel between 0.50m bgl to 2.40m and 3.50m bgl to 5.00m bgl.

SPT N values within the clay deposits were in the range 8-43 indicting firm to stiff to very stiff conditions.

SPT N values within the granular deposits were in the range 6-19 indicting loose to medium dense.

Groundwater was recorded in WS4, WS5, WS6 & WS7 between 1.94mbgl (WS5) and 3.97mbgl (WS4). Groundwater was found to be absent in WS1, WS2, WS3, TP1, TP2, TP3, & TP4.

7.2 Foundations

The Made Ground deposits are considered unsuitable as an adequate founding stratum due to the proposed loads and the possible risks of unacceptable total and differential settlements occurring. It is recommended suspended floor slab to be adopted.

Preliminary foundation assessment indicates that for Made Ground less than 1.5m thick, the conventional strip footing of indicative 600mm and 750mm wide founded at min. 1.25m on medium strength Glacial Till (min. Cu 40kPa) will be adequate for an applied

line loads of 40kN/m and 70kN/m for 2 to 3 storey residential housing, respectively. The total settlement is anticipated to be within 25mm.

For the Made Ground between 1.5m and 3.0m thick, deep trench fill can be considered but may not be a cost-effective solution. For Made Ground thicker than 1.5m, ground improvement using vibro stone column as well as driven piles will be able to provide adequate capacity.

Alternatively, bored type or CFA piles are considered the most feasible solution and will cause less impact on the assets owned by others. It is recommended RC foundations to be designed to prevent differential settlement.

Foundation design should also take into account the potential impact of trees and soil volume change potential.

There are several buried services including a culverted watercourse underneath the site, the foundation solution should allow for protection measures and ensure no damage to these services.

NHBC guidance in relation to trees should be followed, due to the presence of glacial clay. Heave protection measures should be used for foundations and drainage where trees are present within influencing distance.

7.3 Earthworks, Excavations and Groundwater

Earthworks materials should be classified in accordance with Table 6/1 of Department of Transport Specification for Highways Works.

The option for classifying soil/fill should be selected and should maximize the potential to win suitable fill from the site. Unsuitable materials will require removal from site to suitably licensed waste management facility.

Any excavations extending below the water table would need to be dewatered in advance of the main excavation works to prevent running sand conditions from developing. Sump pumps or possibly well points may be required for this. It is recommended that groundwater levels are monitored during the construction work to enable any dewatering requirements to be identified in advance.

Excavation stability is likely to be moderate to good in the upper 1.00m of strata but poor below this depth in the underlying granular materials. Excavations would need to be battered back to a suitable angle of repose or fully supported during construction. Below 1.80m bgl running sand conditions should be anticipated. However, infilled demolition arisings were recorded within the area of WS1/TP01 (former brewery and chimney) which will require pre-treatment (excavation/screening/crushing and replacement) prior to formation of the adopted foundation solution.

Excavations should be feasible with conventional plant.

The presence of other relic below ground structures should be anticipated beneath the former brewery and areas of residential housing and associated infrastructure having previously occupied the site. Deepening of foundations and breaking out of surface slabs should be anticipated within these areas. The locations of which are shown on historical mapping within Appendix C.

All excavations and basement construction should be conducted in line with CIRIA Report 97 – Trenching Practice and BRE 440 Foundations, Basements and External Works 2002.

Any replaced 'site won' or imported materials will again need to be compacted in a controlled manner in line with the Department of Transport, Specification for Highway Works.

Where possible all soils should be retained on site to reduce disposal costs.

The made ground is likely to be unsuitable as a structural fill; requiring treatment prior to re-use upon site.

Pavement Construction

An initial design CBR value of 2% is recommended for the granular Made Ground deposits (below topsoil).

Where access roads are to be adopted, design CBR values should be confirmed by carrying out in-situ plate load tests.

Groundwater

Any excavations extending below the water table would need to be dewatered in advance of the main excavation works to prevent running sand conditions from developing. Sump pumps or possibly well points may be required for this. It is recommended that groundwater levels are monitored during the construction work to enable any dewatering requirements to be identified in advance.

If groundwater or surface water flows into foundation excavations, 'blinding' concrete should be used at the base of the foundation and excavations.

Foundation concrete should be poured as soon as possible afterwards.

A suitably qualified hydrogeologist should be employed to help in design of dewatering measures.

7.3 Concrete Classification

Concrete Design

The results from the chemical laboratory sulphate and pH analysis for the site indicate that a worst-case Design Sulphate Class of DS-1 and an Aggressive Chemical

Environment for Concrete (ACEC) class of AC-1[Table C2 given in BRE Special Digest 1:2005, 3rd Edition, 'Concrete in aggressive ground'] is considered to be applicable for the site.

7.4 Soakaway Drainage

Given the low permeability of the underlying glacial clays we consider that soakaway are unlikely to be suitable at the site. If soakaways are to be considered then soakaways should be carried out in line with BRE 365 Soakaway Design.

8.0 GEOCHEMICAL GROUND AND GROUNDWATER ASSESSMENT

8.1 Introduction

The preliminary conceptual site model identified that, the potential for the existence of contamination beneath the site, was low to moderate. No significant risk to controlled water receptors were deemed to be apparent at the site. Total soils, leachate analysis carried out in WAC testing did not establish concentrations which are likely to impact controlled water receptors. As such, leachate and groundwater analysis in this instance is considered to be unnecessary. Though potential risks to human health receptors needed to be quantified.

No visual or olfactory evidence of hydrocarbon/solvent contamination was recorded during the ground investigation.

Selected samples of made ground and natural drift deposits were tested for a number of general screening tests including pH and metals, cyanide, phenols, asbestos, sulphide, sulphur, TPHWCG and speciated PAH were undertaken during the intrusive investigation to confirm, or otherwise, the site's anticipated risk status.

Waste Acceptance Testing was carried out to enable materials to be classified prior to disposal to landfill; if deemed necessary by the appointed contractor.

The following contamination assessment sub-sections will discuss the identified risks associated with individual contaminant groups based on contamination testing results, undertaken on samples from the intrusive investigation.

8.2 Rationale

In May of 2008, Contaminated Land: Application in Real Environments (CLAIRE) in conjunction with the Chartered Institute of Environmental Health (CIEH), with support from the Soil and Groundwater Technology Association (SAGTA), released a document entitled 'Guidance on Comparing Soil Contamination Data with a Critical Concentration'⁷.

The document provides advice on the use of statistical techniques in the assessment of soil contamination data. It forms part of a package of improved UK guidance highlighted in the Defra discussion paper 'Assessing risks from land contamination – a proportionate approach. Soil Guideline Values: the Way Forward (CLAN 06/2006). The overall aim is to increase understanding of the role statistics can play in quantifying the uncertainty attached to estimates of the mean concentration of contaminants thereby creating a more informed basis for regulatory decision-making.

The guidance presents a structured approach that can be followed when employing statistical techniques for data assessment.

In April 2012 revised Statutory Guidance stated that:

"New technical tools and advice may be developed and used to help regulators and others conform to this Guidance."

"Tools might be developed to help assessors apply the Category 1-4 Screening Levels (C4SLs) approach in relation to specific substances or situations. For example, this might include the development of generic screening levels to help assessors decide when land might be assumed to be in Category 4."

C4SLs are intended as generic screening values to help show when land is within Category 4. They describe a level of risk that whilst above 'minimal' is still 'low', providing a 'higher simple test' for deciding that land is suitable for use and definitely not contaminated.

Current Soil Guideline Values / Generic Assessment Criteria can now be replaced with more pragmatic (but still strongly precautionary) Category 4 Screening Levels and provide a higher simpler test for deciding that land is suitable for use and definitely not contaminated

C4SL's retained and used the CLEA framework, modified according to considerations of the underlying assumptions and science, within the context of Defra's policy background.

8.3 Soil Guideline Values

The Environment Agency's position on CLEA guidance is as follows:

"The CLEA guidance is non-statutory. It does not purport to interpret the policies or procedures of the Environment Agency and shall not operate as a statutory license, waiver, consent or approval from the Environment Agency"⁹.

"The CLEA guidance describes the soil concentrations above which, in the opinion of the Environment Agency, there may be concern that warrants further investigation and risk evaluation for both threshold and non-threshold substances. These levels are a guide to help assessors estimate risk. It does not provide a definitive test for telling when risks are significant"⁹.

The soil guideline value (SGV) is derived by estimating the concentration of a substance in soil, which will result in an amount of the contaminant entering the human body that is equal to the relevant Health Criteria Value(s). Revised guidance and software has been published for calculation of generic assessment criteria, which will lead to the publication of SGVs based on the new approach. New TOX and SGV reports for priority substances are due to be published after March 2009. The 'old' ten SGV reports will be replaced.

The Environment Agency and DEFRA have produced two new reports - "Human health toxicological assessment of contaminants in soil" and "Updated technical background to the CLEA model". This has led to the withdrawal of CLR7-10, which no longer reflects the current approach and formed the basis of the existing SGVs, as a result all the existing SGV reports have been withdrawn.

The publication of new substance specific TOX reports will lead to the withdrawal of the existing reports. Practitioners are expected to produce their own generic assessment criteria using the CLEA software and handbook.

8.4 Site Soils

8.4.1 NX Consulting Investigation

The chemistry analysis results, presented in Appendix F, have been compared against the Tier 1 criteria for a *residential end* use (conservative due to the sensitivity of site receptors) to reflect the development proposals.

For risk assessment purposes a soil organic matter value of 1.0% has been assumed for both the Made Ground and natural strata. The pH of the soils is generally very slightly alkaline (mean value of 7.58).

Tier 1 thresholds have been exceeded in the following:

Parameter Group	Screening value (mg/kg)	Maximum Concentration of Exceedances (mg/kg)	Locations
Lead	450	2500 580 560 6000	WS4 @ 1.0mbgl WS5 @ 0.05mbgl WS6 @ 0.4mbgl TP1 @ 0.5mbgl
Arsenic	37	58 74 710 61 190	WS4 @ 0.05mbgl WS4 @ 1.0mbgl WS5 @ 0.05mbgl WS5 @ 1.1mbgl WS6 @ 0.4mbgl
Naphthalene	2.3	4.6	WS6 @ 0.4mbgl
Benzo (a) anthracene	7.2	8 14 25	WS4 @ 0.05mbgl WS5 @ 0.05mbgl WS6 @ 0.4mbgl
Chrysene	15	22	WS6 @ 0.4mbgl
Benzo (a) pyrene	2.2	6.7 6.8 13 23	WS1 @ 0.5mbgl WS4 @ 0.05mbgl WS5 @ 0.05mbgl WS6 @ 0.4mbgl
Benzo (b) fluoranthene	2.6	8.9 7.4 14 2.7 23	WS1 @ 0.5mbgl WS4 @ 0.05mbgl WS5 @ 0.05mbgl WS5 @ 1.1mbgl WS6 @ 0.4mbgl
Dibenzo(ah)anthracene	0.24	1.1 0.27 2.1 0.32 3.8	WS1 @ 0.5mbgl. WS4 @ 0.05mbgl WS4 @ 1.0mbgl WS5 @ 0.05mbgl WS5 @ 1.1mbgl WS6 @ 0.4mbgl

No asbestos was recorded during soil screening, although given the nature of previous development on the site, it cannot be discounted at this stage.

8.4.2 Water Supply

Approval should be obtained from the relevant water supply company before supply pipes are installed in order to confirm pipe selection. Pipe selection is currently made based on the UK Water Industry Research Ltd [UKWIR] report entitled "Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites".

Parameter Group	PE Threshold Concentration (mg/kg)	PVC Threshold Concentration (mg/kg)	Maximum Concentration (mg/kg)
VOC Suite	0.5	0.125	Not identified in conceptual model
BTEX, MTBE	0.1	0.03	<1.00
SVOC Suite	2	1.4	Not identified in conceptual model
Phenols	2	0.4	<1.00
Mineral Oils C11-C20	10	N/A	<1.00
Mineral Oils C21-C40	500	N/A	<1.00

The results indicate that specialist protection measures are not required in relation to the water supply pipework. A UKWIR risk assessment is recommended to be completed at the depth of the proposed water supply pipework. It is anticipated that specialist water supply pipework will not be required for the proposed development based upon testing carried out to date.

8.4.3 Phytotoxicity

Phytotoxicity Guidance on the effects of metal contamination on plant growth is provided within the Ministry of Agriculture, Fisheries and Food (MAFF) Code of Good Agricultural Practice for the Protection of Soil.

Thresholds have not been exceeded within all samples analysed within the made-ground or natural soils with respect to the end use of the site.

8.4.4 Discussion and Recommendations

The environmental chemistry results together with the findings of the intrusive investigation are consistent with the site's historical uses.

Contaminants were found to be above tier 1 screening values in the soils beneath the site for 6 locations within the upper 1.10m of made ground; where ash clinker, coal gravel were recorded.

No visual or olfactory evidence of hydrocarbon or solvent contamination was encountered during the NX Consulting investigation.

Soils

PAH, arsenic and lead contaminants have been recorded in excess of tier 1 for a residential end use with plant uptake scenario, in the shallow made ground soils beneath the site. PCBs were found to be absent within the samples obtained from area of the existing electricity substation.

Given the recorded exceedances a potentially unacceptable risk may be posed to future end users of the site from shallow soils present within garden / landscaped areas.

- Based on the chemical laboratory results no significant risk is likely to be posed to indoor air of any future residential properties.
- Within areas of private domestic gardens, a minimum 600mm of clean cover / removal & replacement of made grounds should be assumed at this stage.
- Within areas of soft landscaping a minimum 600mm of clean cover / removal & replacement of made grounds should be assumed.
- Within areas of areas of public open space to be grassed; a minimum 450mm of clean cover / removal & replacement of made ground should be assumed.

Site workers involved in excavations for foundations, roads, sewers etc during the construction works may come into direct contact with the soils containing slightly elevated concentrations of inorganic and organic contaminants and unrecorded asbestos. We would therefore recommend that simple precautionary measures be adopted during the construction phase i.e. good personal hygiene, provision of suitable welfare facilities and basic personnel protective equipment.

Any areas of proposed landscaping will require imported subsoil/topsoil materials which will require chemical validation to demonstrate that they are suitable for a residential end use and taken to depths sufficient to provide a sufficient cover system for all proposed materials used which are capable to support root growth.

For any imported materials required to complete the cover soils, the frequency of testing to be undertaken shall be as given in the YALPAG document Verification Requirements for Cover Systems, Version 3.4 dated November 2017.

Groundwater

Based upon the total soils concentrations, lack of groundwater within the interbedded sand and gravel/clay deposits and predominantly low permeability clay and mudstone deposits we consider there to be a negligible risk to controlled water receptors. The nearby unnamed surface water course crossing through the site is culverted and unlikely to be in hydraulic connectivity with groundwater and site soils. As such no further groundwater or leachate testing was undertaken.

The risks presented to controlled water receptors are deemed to be low post construction. This will need to be confirmed with the local authority and Environment Agency.

8.4.5 Waste Classification

Any soils to be exported from site should be allocated an appropriate waste code, following the steps within WM3.

The results appended to this document indicate that the samples tested are likely to be classified as NON-HAZARDOUS & HAZARDOUS WASTE as a result of elevated lead compounds. This should be confirmed by the appointed waste management contractor following submission of all available test results carried out at the site to date.

It is the responsibility of those generating the waste (i.e. the site), to ensure that the waste is handled and disposed of appropriately. Waste carriers transporting, and sites accepting, this material should have a corresponding code within their permits.

Waste acceptance criteria (WAC) testing results indicate that the Made Ground soils will be suitable for a non-hazardous landfill.

To evaluate the various on-site soils for potential offsite disposal, soils are classified in accordance with the Hazardous Waste Directive (HWD) that enables the provision of a European Waste Catalogue (EWC) Code for use during offsite disposal and a Hazardous or Non-Hazardous Classification. Non-Hazardous material is suitable for disposal in a Non-Hazardous landfill; however, disposal to an Inert Landfill requires further Waste Acceptance Criteria (WAC) testing in accordance with BS EN 12457-3. Material classed as Hazardous also requires WAC testing to assign a suitable hazardous classification.

Testing conducted to date would indicate that any site materials to be removed off site to landfill; would be classified as inert or stable non-reactive waste in a non-hazardous landfill.

The Landfill Regulations require that all Hazardous and Non-Hazardous solid waste must be treated prior to offsite disposal to landfill. You can define 'treatment' by using the following 'three-point test'. All three criteria must be satisfied for all of the waste to qualify as being treated:

1. It must be a physical, thermal, chemical or biological process including sorting.
2. It must change the characteristics of the waste.
3. It must do so in order to:
 - a. Reduce its volume; or
 - b. Reduce its hazardous nature; or
 - c. Facilitate its handling; or
 - d. Enhance recovery.

If site soils are removed from site to landfill WAC testing indicates site soils are unlikely to be classified hazardous waste under current UK Waste Management Regulations.

It should be noted that a site investigation is unable to identify all below ground conditions at a site and therefore, it should be noted that if during construction works soils that require offsite disposal are identified as being different to what has been preliminarily tested in this report, additional testing will be required prior to disposal or recovery at a licensed offsite facility.

It is also recommended that prior to offsite disposal or recovery of any waste soils; the receiving landfill facility should be sent copies of all relevant chemical analysis and written confirmation of acceptance of soils provided.

All producers of waste have a duty of care to ensure that any waste they produce is handled safely and within the law. They must check that anyone they pass waste on to is authorised to take it. This includes the authorised site earmarked to handle the waste and any haulier (licensed waste carrier) used to transport the waste between the sites.

All waste holders must act to keep waste safe against:

1. Corrosion or wear of waste containers;
2. Accidental spilling or leaking or inadvertent leaching from waste unprotected from rainfall;
3. Accident or weather breaking open contained waste and allowing it to escape;
4. Waste blowing away or falling while stored or transported;
5. Scavenging of waste by vandals, thieves, children, trespassers or animals.

Holders should protect waste against the above risks while it is in their possession and they should also protect it for its future handling requirements. Waste should reach not only its next holder but a licensed facility or other appropriate destination without escape. It is recommended that the container used to transport the waste is suitable not only to prevent solid and liquid residues escaping, but also any potentially dangerous vapours or odours associated with the waste.

Segregation of different categories of waste where they are produced may be necessary to prevent the mixing of incompatible wastes. Segregation may assist the disposal of waste to specialist outlets. Where segregation is practiced on sites, the waste holder should ensure that his employees and anyone else handling waste there are aware of the locations and uses of each segregated waste container.

Waste handed over to another person should be in some sort of container, which might include a skip. The only reasonable exception would be loose material loaded into a vehicle and then covered sufficiently to prevent escape before being moved. Waste containers should suit the material put in them.

A waste transfer note (WTN) is a document which must accompany any transfer of waste between different holders. The purpose of a WTN is to allow other people who handle your waste to know what they are dealing with so that they can manage it safely and properly.

A WTN must be created for each load of waste that leaves the site.

The WTN must contain enough information about the waste to enable anyone coming into contact with it to handle it safely, and either dispose of it or allow it to be recovered within the law. If insufficient information is given on the WTN the responsible party may liable to be prosecuted.

Records of all waste transferred or received must keep for at least two years.

8.5 Ground Gases

8.5.1 Asphyxiant, Noxious or Explosive Gases

The preliminary risk assessment identified the risk from hazardous ground gas as moderate risk and low to moderate source generating potential in line with CIRIA 665, due to the potential for made ground and coal workings either on site or on the immediate vicinity.

A number of infilled features have also been recorded within 250m of the site. in addition to this, limited thicknesses of made ground have been encountered and where present, material does not contain significant deleterious items/organic matter.

Gas monitoring has been undertaken to confirm this low to moderate risk.

To date 9No.round of ground gas monitoring have been undertaken in line with CIRIA 665. Atmospheric pressure ranged from 993 to 1019 with 2no visits carried out a falling atmospheric pressure.

A summary of the soil gas monitoring results is presented in Table 8.5.1 below and copies of the log sheets presented in Appendix G.

Table 8.5.1 – Summary of Gas Monitoring Results

Borehole Reference	CO2 Range (%v/v)	Flow (l/hr)	Max GSV (l/hr)	CH4 Range (%v/v)	Max GSV (l/hr)
WS1	0.6 – 2.5	0.10	<0.05	0.0-0.0	<0.05
WS3	0.1 – 4.1	0.10	<0.05	0.0-0.1	<0.05
WS4	0.1-2.7	<0.10	<0.05	0.0-0.0	<0.05
WS7	2.9-9.0	0.20	<0.05	0.0-0.1	<0.05

In line with CIRIA 665 Guidance on methane and carbon dioxide, the site is to be developed for commercial end use and the ground gas investigation has identified a maximum carbon dioxide concentration of 9.0% with a maximum flow recorded of 0.2l/hr. The maximum-recorded concentration for methane was 0.0%. In addition, hydrogen sulphide concentrations of 0.0 ppm were recorded.

On the basis of these results, certification of ground gas measures are classified as Situation 2 (Amber 1) conditions and Low-level ground gas protection measures should be adopted, utilising Low Permeability membrane and ventilated sub-floor void that

creates a permeability contrast to limit the ingress of gas into buildings. Service entries should be sealed with appropriate Visqueen or similar specialist proprietary equipment. A copy of the anticipated product and design is provided within Appendix A of this document.

Table 8.5.2 Gas Protection

Building Type	Floor Slab Type	Ventilation	Membrane	Required Points Score	Points Achieved
Conventional residential house (Building Type A)	Block and beam suspended floor (0 Points)	Suspended beam and block flooring with suspended ventilated void (2.5 points)	Full gas membrane installed to S8485:2015 and validated to CIRIA 735 (2 points)	3.5	4.5 points

Independent validation of gas protection measures is needed to achieve the required points score.

Gas protection measures should be installed as prescribed in BRE 414 with the ventilation of the sub-floor void designed to provide a minimum of one complete volume change per 24 hours.

8.5.2 Radon & Hydrocarbons

The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level. No radon protective measures are necessary.

Soil testing to date indicates that there is a low risk of vapour generation and migration into the proposed buildings. No specific protection measures are envisaged in relation to hydrocarbon contamination.

9.0 PRE-REMEDATION CONSTRAINTS AND OUTLINE REMEDIATION STRATEGY

9.1 Invasive Plants

The presence of Japanese Knotweed and/or other invasive plants was not apparent during the fieldwork; however, advice should be sought from a suitably qualified ecologist should any suspicious plant growth be encountered.

9.2 Services

A culverted watercourse, underground services, comprising BT Lines, gas mains, combined and foul sewers, CCTV, electric cables and possible fibre optic cables may all impact the site and the design team and Client should familiarise themselves with their presence. Other services may be present not identified in this assessment.

9.3 Hardstanding & Surface Cover

The site comprises areas of topsoil, external concrete, cobble setts and tarmacadam areas. Photographs presented in Appendix A shows the nature of surface cover on the site.

9.4 Land Condition and Outline Remediation

9.4.1 Foundations and Ground Stability

The Made Ground deposits are considered unsuitable as an adequate founding stratum due to the proposed loads and the possible risks of unacceptable total and differential settlements occurring. It is recommended suspended floor slab to be adopted.

Preliminary foundation assessment indicates that for Made Ground less than 1.5m thick, the conventional strip footings. For the Made Ground between 1.5m and 3.0m thick, deep trench fill can be considered but may not be a cost-effective solution and ground improvement using vibro stone columns and/or driven piles will be able to provide adequate capacity. A degree of ground treatment will be required where former buildings have occupied the site. It is recommended RC foundations to be designed to prevent differential settlement.

There are several buried services including a culverted watercourse underneath the site, the foundation solution should allow for protection measures and ensure no damage to these services.

NHBC guidance in relation to trees should be followed, due to the presence of glacial clay. Heave protection measures should be used for foundations and drainage where trees are present within influencing distance.

Pavement Construction

An initial design CBR value of 2% is recommended for the Made Ground and clay deposits.

Where access roads are to be adopted, design CBR values should be confirmed by carrying out in-situ plate load tests.

Soakaways

Given the low permeability of the underlying glacial clays we consider that soakaway are unlikely to be suitable at the site. If soakaways are to be considered then soakaways should be carried out in line with BRE 365 Soakaway Design.

Groundwater and Excavations

Any excavations extending below the water table would need to be dewatered in advance of the main excavation works. Sump pumps or possibly well points may be required for this. It is recommended that groundwater levels are monitored during the construction work to enable any dewatering requirements to be identified in advance.

Excavation stability is likely to be moderate to good in the upper 1.00m of strata but poor below this depth in the underlying granular materials. Excavations would need to be battered back to a suitable angle of repose or fully supported during construction. Below 1.80m bgl running sand conditions should be anticipated. However, infilled demolition arisings were recorded within the area of WS1/TP01 (former brewery and chimney) which will require pre-treatment (excavation/screening/crushing and replacement) prior to formation of the adopted foundation solution.

Excavations should be feasible with conventional plant.

The presence of other relic below ground structures should be anticipated associated infrastructure having previously occupied the site. Deepening of foundations should be anticipated within these areas. The locations of which are shown on historical mapping within Appendix C.

9.4.2 Contamination

The environmental chemistry results together with the findings of the intrusive investigation are consistent with the site's historical uses and present a low risk to human health receptors post construction.

Soils

PAH, arsenic and lead contaminants have been recorded in excess of Tier 1 for a residential end use with plant uptake scenario, in the shallow made ground soils beneath the site.

Given the recorded exceedances a potentially unacceptable risk may be posed to future end users of the site from shallow soils present within garden / landscaped areas.

- Based on the chemical laboratory results no significant risk is likely to be posed to indoor air of any future residential properties.
- Within areas of private domestic gardens, a minimum 600mm of clean cover / removal & replacement of made grounds should be assumed at this stage.
- Within areas of soft landscaping a minimum 600mm of clean cover / removal & replacement of made grounds should be assumed.
- Within areas of areas of public open space to be grassed; a minimum 450mm of clean cover / removal & replacement of made ground should be assumed.

Site workers involved in excavations for foundations, roads, sewers etc during the construction works may come into direct contact with the soils containing slightly elevated concentrations of inorganic and organic contaminants and unrecorded asbestos. We would therefore recommend that simple precautionary measures be adopted during the construction phase i.e. good personal hygiene, provision of suitable welfare facilities and basic personnel protective equipment.

Any areas of proposed landscaping will require imported subsoil/topsoil materials which will require chemical validation to demonstrate that they are suitable for a residential end use and taken to depths sufficient to provide a sufficient cover system for all proposed materials used which are capable to support root growth.

For any imported materials required to complete the cover soils, the frequency of testing to be undertaken shall be as given in the YALPAG document Verification Requirements for Cover Systems, Version 3.4 dated November 2017.

Groundwater

The risks presented to controlled water receptors are deemed to be low post construction. This will need to be confirmed with the local authority and Environment Agency.

Ground Gas

Certification of ground gas measures are classified as Situation 2 (Amber 1) conditions and Low-level ground gas protection measures should be adopted, utilising Low Permeability membrane and ventilated sub-floor void that creates a permeability contrast to limit the ingress of gas into buildings. Independent verification of protection measures are required to satisfy planning conditions relating to ground gas risk.

Gas protection measures should be installed as prescribed in BRE 414 with the ventilation of the sub-floor void designed to provide a minimum of one complete volume change per 24 hours.

Any soils to be exported from site should be allocated an appropriate waste code, following the steps within WM3.

The results appended to this document indicate that the samples tested are likely to be classified as NON-HAZARDOUS & HAZARDOUS WASTE (due to elevated lead compounds). This should be confirmed by the appointed waste management contractor following submission of all available test results carried out at the site to date.

It is the responsibility of those generating the waste (i.e. the site), to ensure that the waste is handled and disposed of appropriately. Waste carriers transporting, and sites accepting, this material should have a corresponding code within their permits.

Waste acceptance criteria (WAC) testing results indicate that the Made Ground soils will be suitable for a non-hazardous landfill.

This report should be issued to the regulatory authorities to prevent delays in the project. A remediation strategy and validation report may be required prior to discharge of any outlying planning conditions.

APPENDICES

Appendix A – Drawings & Site Photographs

Appendix B – GroundSure Information

Appendix C – Historical Mapping

Appendix D – Exploratory Hole Borehole Logs

Appendix E – Geotechnical Laboratory Test Results

Appendix F – Chemical Test Results

Appendix G – Gas monitoring Record Sheet

Appendix H – Conceptual Models & Risk Assessments

Appendix A – Drawings & Site Photographs



- NOTES
- All dimensions and levels are to be checked on site.
 - Any discrepancies are to be reported to the architect before any work commences.
 - This drawing shall not be scaled to ascertain any dimensions. Work to figured dimensions only.
 - This drawing shall not be reproduced without express written permission from AEW.
 - Title overlay drawings and ownership boundaries are produced using all reasonable endeavors. AEW cannot be responsible for the accuracy or scale discrepancy of base plans supplied to them.
 - All works are to be undertaken in accordance with Building Regulations and the latest British Standards.
 - All proprietary materials and products are to be used strictly in accordance with the manufacturers recommendations.
- This drawing contains the following model files: -
12216-AEW-XX-XX-M3-A-0001 [P0.1] [S0]

CDM 2015

Client notified of duties: Jan 2021
Principal Designer: CPC

Unless noted below, all known hazards have been highlighted on the drawing:

Accommodation Schedule

15	1 Bed Apartments (50m ²)
3	2 Bed Apartments (81m ²)

18 Apartments
9 Houses
27 Total Units

House Type Schedule

Key	Type	Area (m ²)	Count	Percentage
Dark Blue	2 Bed	150	12	44%
Light Blue	1 Bed	750	15	56%

Key

- Site Boundary
- Culvert
- Culvert Easement Zone
- Water Main
- Public Sewer
- Substation

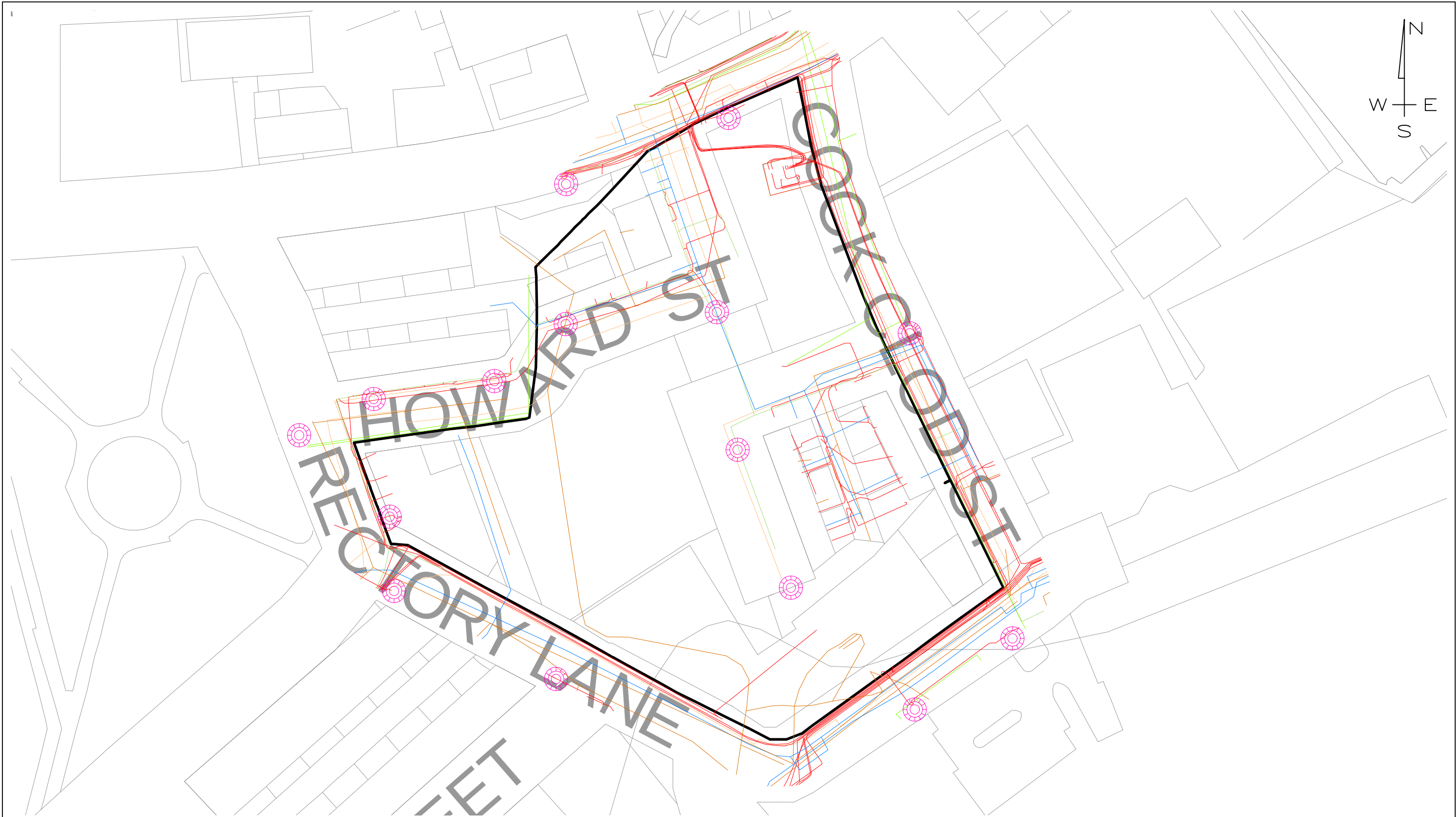
P2	05.03.2021	DS	CS
Footpath added - Issued for Pre App			
P1	24.02.2021	DS	CS
Issued For Pre App			
REV	Date	Drawn by: -	Checked by: -
Status	Purpose of Issue		
S2	Pre App		
drawing stage	Stage 2		
client	Great Places Housing Group		
project	Radcliffe, ELPM Island Site		
drawing title	Proposed Indicative Site Plan		

date 18.02.2021 drawn DS
scale @ A1 As indicated checked CS

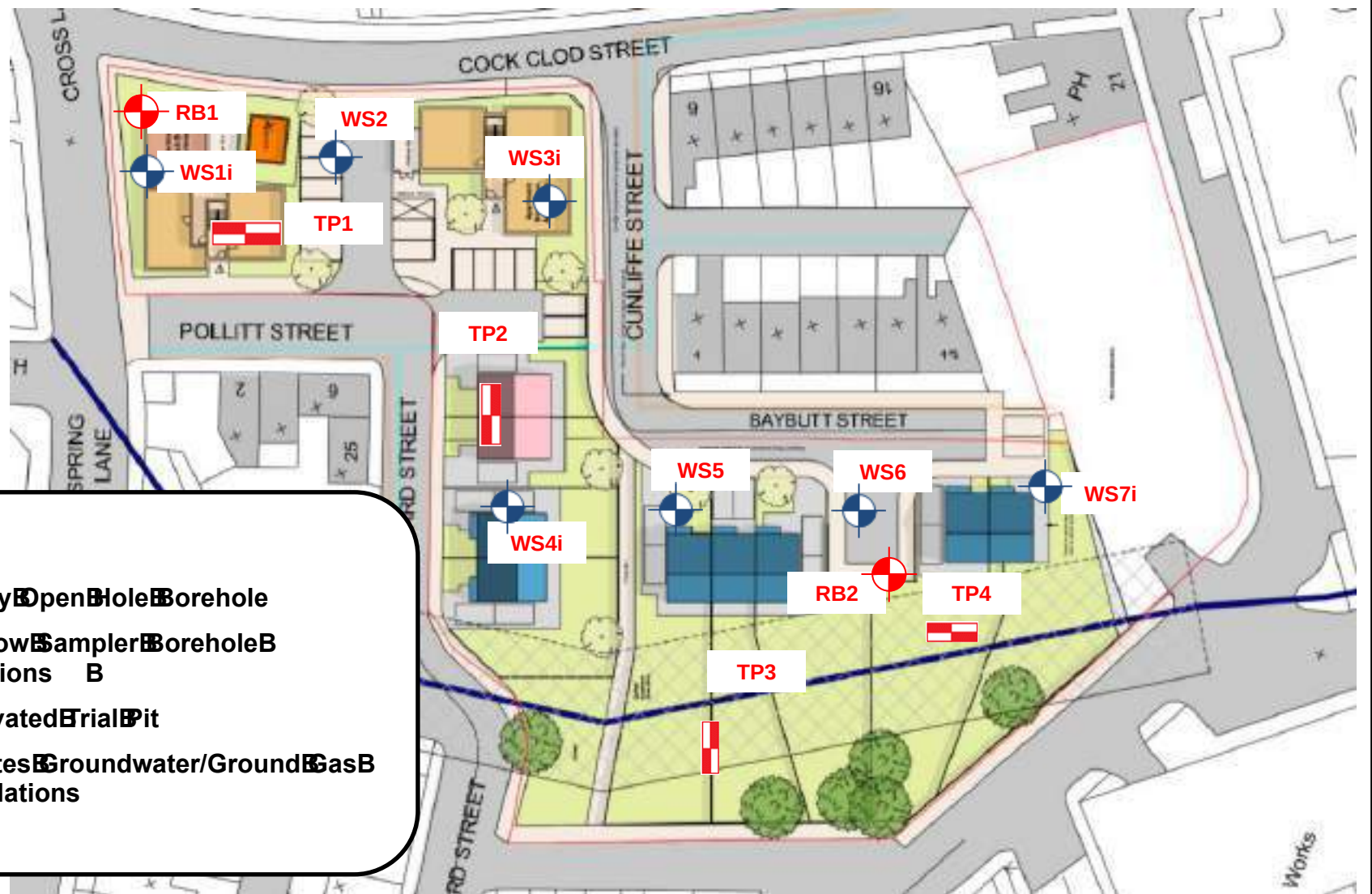


Digital Utility Overview Plan

The Overview Plan is a visual summary of the affected information from each utility company within the report compiled onto a single plan. You can use the menu on the left-hand side of the layered pdf to filter and view the utility information that is of specific interest.



NOTE: No liability of any kind whatsoever is accepted by Landmark Information Group Ltd, its servant or agents, for any error or omission in respect of information contained on the plans provided. This plan is a compilation of a number of plans provided at different scales and is intended to provide a graphical representation of services within the area and it is impossible to guarantee accuracy. In addition it is a compilation of information supplied by utility companies who do not guarantee the accuracy of the information. The underground services must be verified and established on site before any excavation is carried out. This data is supplied subject to the Terms and Conditions available at www.landmark.co.uk.	ISSUE:		DESCRIPTION:			BY:	DATE:	 Bury Metropolitan Borough Council – Street Light  Cadent Gas Ltd  Electricity North West  Electricity North West – Substation  Openreach – [British Telecommunications]  United Utilities – Sewerage  United Utilities – Water  Virgin Media  Vodafone	TITLE:		 Imperium, Imperial Way, Reading, Berkshire, RG2 0TD
	A		Site off A6053 Spring Lane, Bury			PC	11/03/21		Reference No:		
									273352484_2		
	SCALE: Not to Scale		DRAWN: BSS		CHECKED: MoC		APPROVED: PC				
		DATE: 05/03/2021		DATE: 05/03/2021		DATE: 10/03/2021					



Next Generation Engineering Consultancy Services

Tel: 0161 904 0187
E-mail: admin@nxconsulting.org.uk
Web: www.nxconsulting.org.uk

Ref: NX418 Figure 1

Project:

East Lancs Paper Mill Island

Title:

Exploratory Hole Location Plan



Plate 1 – South-eastern corner of site looking east towards the former public house



Plate 2 – South-eastern corner of site looking west. Concrete bollards represent the southern boundary



Plate 3 – South east corner of site looking west. Concrete bollards represent the southern boundary curving round as the eastern boundary is the distance.



Plate 4 – Container on southern boundary of site



Plate 5 – Container in the south east corner of site. Note Services



Plate 6 – South west corner of site looking north. Concrete bollards forming the western boundary.



Plate 7 – South west corner of site looking south. Concrete bollards represent the southern/western boundary.



Plate 8 – Eastern boundary of the central grassy area looking east. Boundary marked by bushes and bollards.



Plate 9 – Central grassy area, looking west. Western boundary marked by fence in distance.



Plate 10 – Central grassy area, looking north. Northern boundary marked by fence and pavement.



Plate 11 – Central paved area, looking west.



Plate 12 – Central paved area looking south. Bollards mark northern boundary adjacent to road.



Plate 13 – North west corner looking north with electrical substation



Plate 14 – North west corner looking south



Plate 15 – Electrical substation in north west corner



Plate 16 – Cock Clod Street looking north



Plate 17 – Cunliffe street looking west



Plate 18 – Cunliffe street looking east



Plate 19 – Radcliffe street looking south



Plate 20 – Western boundary (fence) looking south



Plate 21 – Howard street looking east



Plate 22 – Howard street looking west



Plate 23 – Pollitt street looking north



Plate 24 – Southwards flowing brook north of site, looking north



Plate 25 – Cross Lane debris screen, north of site



Plate 26 – Japanese Knotweed treatment works south west of site



Plate 27 – Garage works south west of site



Plate 1 – Trial pit 1 (TP1) ground level to 0.5mbgl showing topsoil overlying sandstone gravel and cobbles



Plate 2 – TP1 gl to 0.5mbgl arisings



Plate 3 – TP1 with arisings



Plate 4 – TP1 east face



Plate 5 – TP1 2.0mbgl north face



Plate 6 – TP1 west face



Plate 7 – TP1 south face



Plate 8 – TP1 backfilled



Plate 9 – TP2 to 1.3mbgl with arisings



Plate 10 – TP2 top 0.3m south face



Plate 11 – TP2 top 0.3m arisings



Plate 12 – 0.3mbgl to 1.0mbgl arisings



Plate 13 – TP2 east face



Plate 14 – TP2 north face



Plate 15 – TP2 >1.0mbgl arisings



Plate 1 – TP3 with arisings



Plate 2 – TP3 top 0.3m



Plate 3 – TP3 top 0.3m arisings



Plate 4 – TP3 south face



Plate 5 – TP3 east face



Plate 6 – TP3 east face made ground – natural ground boundary



Plate 7 – TP3 north face



Plate 8 – TP3 made ground arisings



Plate 9 – TP3 natural ground arisings



Plate 10 – TP3 backfilled



Plate 11 – TP4 gl to approximately 0.2mbgl with arisings



Plate 12 – TP4 gl to approximately 0.4mbgl with arisings



Plate 13 – TP4 gl to approximately 0.7mbgl



Plate 14 – TP4 gl to 0.85mbgl east face



Plate 15 – TP4 gl to 0.85mbgl north face



Plate 16 – TP4 west face (left) and north face (right) gl to 1.6mbgl



Plate 17 – TP4 natural ground with coal cobbles



Plate 18 – TP4 south face gl to 1.6mbgl



Plate 19 – TP4 east face gl to 1.6mbgl



Plate 1 – Window Sampler 1 (WS1) hand pit to 1.2m below ground level (bgl)



Plate 2 – WS1 hand pit with arisings



Plate 3 – WS1 1.0mbgl to 5.0mbgl



Plate 4 – WS2 hand pit to 1.2mbgl



Plate 5 – WS2 hand pit arisings



Plate 6 – WS2 1.0mbgl to 5.0mbgl



Plate 7 – WS3 ground level to 5.0mbgl



Plate 8 – WS4 hand pit to 1.15mbgl



Plate 9 – WS4 hand pit with arisings



Plate 10 – WS4 2.0mbgl to 5.0mbgl



Plate 11 – WS5 hand pit to 1.1mbgl



Plate 12 – WS5 hand pit arisings



Plate 13 – WS5 1.0mbgl (top left) to 4.0mbgl (bottom right)



Plate 14 – WS6 hand pit to 1.1mbgl



Plate 15 – WS6 hand pit with arisings



Plate 16 – WS6 1.0mbgl to 5.0mbgl



Plate 17 – WS7 hand pit to 1.15mbgl



Plate 18 – WS7 hand pit with arisings



Plate 19 – WS7 1.0mbgl to 4.0mbgl

Appendix B – GroundSure Information

RECTORY LANE, RADCLIFFE, M26 2QU

Order Details

Date: 26/02/2021
Your ref: NX418
Our Ref: GS-7611305
Client: NX Consulting Limited

Site Details

Location: 379021 407407
Area: 0.57 ha
Authority: [Bury Metropolitan Borough Council](#)



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Summary of findings

p. 2

Aerial image

p. 8

OS MasterMap site plan

p.12

groundsure.com/insightuserguide

Contact us with any questions at:

info@groundsure.com

08444 159 000

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
13	1.1	Historical industrial land uses	1	8	68	119	-
21	1.2	Historical tanks	0	1	37	22	-
23	1.3	Historical energy features	2	0	15	21	-
25	1.4	Historical petrol stations	0	0	0	0	-
25	1.5	Historical garages	0	0	0	10	-
26	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped	On site	0-50m	50-250m	250-500m	500-2000m
27	2.1	Historical industrial land uses	1	15	102	168	-
38	2.2	Historical tanks	0	2	65	51	-
42	2.3	Historical energy features	3	0	36	52	-
46	2.4	Historical petrol stations	0	0	0	0	-
46	2.5	Historical garages	0	0	0	17	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
48	3.1	Active or recent landfill	0	0	0	0	-
48	3.2	Historical landfill (BGS records)	0	0	0	0	-
49	3.3	Historical landfill (LA/mapping records)	0	0	0	1	-
49	3.4	Historical landfill (EA/NRW records)	0	0	0	4	-
50	3.5	Historical waste sites	0	0	5	4	-
51	3.6	Licensed waste sites	0	0	0	0	-
52	3.7	Waste exemptions	0	0	15	22	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
56	4.1	Recent industrial land uses	1	3	24	-	-
58	4.2	Current or recent petrol stations	0	0	0	1	-
58	4.3	Electricity cables	0	0	0	0	-
59	4.4	Gas pipelines	0	0	0	0	-
59	4.5	Sites determined as Contaminated Land	0	0	0	0	-



59	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
59	4.7	Regulated explosive sites	0	0	0	0	-
59	4.8	Hazardous substance storage/usage	0	0	0	0	-
60	4.9	<u>Historical licensed industrial activities (IPC)</u>	0	0	8	0	-
61	4.10	<u>Licensed industrial activities (Part A(1))</u>	0	0	0	6	-
62	4.11	<u>Licensed pollutant release (Part A(2)/B)</u>	0	0	1	4	-
63	4.12	Radioactive Substance Authorisations	0	0	0	0	-
63	4.13	<u>Licensed Discharges to controlled waters</u>	0	3	7	6	-
66	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
66	4.15	Pollutant release to public sewer	0	0	0	0	-
66	4.16	<u>List 1 Dangerous Substances</u>	0	0	3	1	-
66	4.17	List 2 Dangerous Substances	0	0	0	0	-
67	4.18	<u>Pollution Incidents (EA/NRW)</u>	0	0	5	4	-
68	4.19	<u>Pollution inventory substances</u>	0	0	0	2	-
69	4.20	<u>Pollution inventory waste transfers</u>	0	0	0	1	-
70	4.21	Pollution inventory radioactive waste	0	0	0	0	-
Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
71	5.1	<u>Superficial aquifer</u>	Identified (within 500m)				
73	5.2	<u>Bedrock aquifer</u>	Identified (within 500m)				
74	5.3	<u>Groundwater vulnerability</u>	Identified (within 50m)				
75	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
75	5.5	Groundwater vulnerability- local information	None (within 0m)				
76	5.6	<u>Groundwater abstractions</u>	0	0	0	0	17
81	5.7	<u>Surface water abstractions</u>	0	0	0	1	19
86	5.8	<u>Potable abstractions</u>	0	0	0	0	3
87	5.9	Source Protection Zones	0	0	0	0	-
87	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-
Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
88	6.1	<u>Water Network (OS MasterMap)</u>	1	1	8	-	-



89	<u>6.2</u>	<u>Surface water features</u>	0	1	4	-	-
90	<u>6.3</u>	<u>WFD Surface water body catchments</u>	1	-	-	-	-
90	<u>6.4</u>	<u>WFD Surface water bodies</u>	0	0	1	-	-
90	<u>6.5</u>	<u>WFD Groundwater bodies</u>	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
92	<u>7.1</u>	<u>Risk of Flooding from Rivers and Sea (RoFRaS)</u>	High (within 50m)				
93	<u>7.2</u>	<u>Historical Flood Events</u>	0	0	3	-	-
93	7.3	Flood Defences	0	0	0	-	-
93	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
94	7.5	Flood Storage Areas	0	0	0	-	-
95	<u>7.6</u>	<u>Flood Zone 2</u>	Identified (within 50m)				
96	<u>7.7</u>	<u>Flood Zone 3</u>	Identified (within 50m)				
Page	Section	Surface water flooding					
97	<u>8.1</u>	<u>Surface water flooding</u>	1 in 30 year, 0.3m - 1.0m (within 50m)				
Page	Section	Groundwater flooding					
99	<u>9.1</u>	<u>Groundwater flooding</u>	Moderate (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
100	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
101	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
101	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
101	10.4	Special Protection Areas (SPA)	0	0	0	0	0
101	10.5	National Nature Reserves (NNR)	0	0	0	0	0
102	<u>10.6</u>	<u>Local Nature Reserves (LNR)</u>	0	0	0	0	3
102	<u>10.7</u>	<u>Designated Ancient Woodland</u>	0	0	0	0	1
102	10.8	Biosphere Reserves	0	0	0	0	0
103	10.9	Forest Parks	0	0	0	0	0
103	10.10	Marine Conservation Zones	0	0	0	0	0
103	<u>10.11</u>	<u>Green Belt</u>	0	0	1	1	2
103	10.12	Proposed Ramsar sites	0	0	0	0	0



104	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
104	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
104	10.15	Nitrate Sensitive Areas	0	0	0	0	0
104	10.16	<u>Nitrate Vulnerable Zones</u>	0	0	0	0	1
106	10.17	<u>SSSI Impact Risk Zones</u>	1	-	-	-	-
107	10.18	SSSI Units	0	0	0	0	0
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
108	11.1	World Heritage Sites	0	0	0	-	-
108	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
108	11.3	National Parks	0	0	0	-	-
108	11.4	Listed Buildings	0	0	0	-	-
109	11.5	Conservation Areas	0	0	0	-	-
109	11.6	Scheduled Ancient Monuments	0	0	0	-	-
109	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
110	12.1	<u>Agricultural Land Classification</u>	Urban (within 250m)				
111	12.2	Open Access Land	0	0	0	-	-
111	12.3	Tree Felling Licences	0	0	0	-	-
111	12.4	Environmental Stewardship Schemes	0	0	0	-	-
111	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
112	13.1	<u>Priority Habitat Inventory</u>	0	0	2	-	-
113	13.2	<u>Habitat Networks</u>	0	0	1	-	-
113	13.3	<u>Open Mosaic Habitat</u>	0	1	0	-	-
113	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	Geology 1:10,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
114	14.1	<u>10k Availability</u>	Identified (within 500m)				
115	14.2	<u>Artificial and made ground (10k)</u>	0	1	3	11	-
117	14.3	<u>Superficial geology (10k)</u>	1	1	1	4	-



118	14.4	Landslip (10k)	0	0	0	2	-
119	14.5	Bedrock geology (10k)	1	1	1	6	-
120	14.6	Bedrock faults and other linear features (10k)	0	0	3	9	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
122	15.1	50k Availability	Identified (within 500m)				
123	15.2	Artificial and made ground (50k)	0	0	1	1	-
124	15.3	Artificial ground permeability (50k)	0	0	-	-	-
125	15.4	Superficial geology (50k)	1	1	1	3	-
126	15.5	Superficial permeability (50k)	Identified (within 50m)				
126	15.6	Landslip (50k)	0	0	0	1	-
126	15.7	Landslip permeability (50k)	None (within 50m)				
127	15.8	Bedrock geology (50k)	1	1	1	6	-
128	15.9	Bedrock permeability (50k)	Identified (within 50m)				
128	15.10	Bedrock faults and other linear features (50k)	0	0	3	7	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
130	16.1	BGS Boreholes	0	0	10	-	-
Page	Section	Natural ground subsidence					
132	17.1	Shrink swell clays	Very low (within 50m)				
133	17.2	Running sands	Low (within 50m)				
135	17.3	Compressible deposits	Moderate (within 50m)				
137	17.4	Collapsible deposits	Very low (within 50m)				
138	17.5	Landslides	Very low (within 50m)				
139	17.6	Ground dissolution of soluble rocks	Negligible (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
141	18.1	Natural cavities	0	0	0	0	-
142	18.2	BritPits	0	0	1	1	-
142	18.3	Surface ground workings	0	2	45	-	-
144	18.4	Underground workings	0	0	0	1	8
145	18.5	Historical Mineral Planning Areas	0	0	0	3	-



145	18.6	Non-coal mining	0	0	0	0	0
146	18.7	Mining cavities	0	0	0	0	0
146	18.8	<u>JPB mining areas</u>	Identified (within 0m)				
146	18.9	<u>Coal mining</u>	Identified (within 0m)				
146	18.10	Brine areas	None (within 0m)				
147	18.11	Gypsum areas	None (within 0m)				
147	18.12	Tin mining	None (within 0m)				
147	18.13	Clay mining	None (within 0m)				
Page	Section	Radon					
148	19.1	<u>Radon</u>	Less than 1% (within 0m)				
Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
149	20.1	<u>BGS Estimated Background Soil Chemistry</u>	2	5	-	-	-
149	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
150	20.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
151	21.1	Underground railways (London)	0	0	0	-	-
151	21.2	Underground railways (Non-London)	0	0	0	-	-
152	21.3	Railway tunnels	0	0	0	-	-
152	21.4	<u>Historical railway and tunnel features</u>	0	0	26	-	-
153	21.5	Royal Mail tunnels	0	0	0	-	-
153	21.6	<u>Historical railways</u>	0	0	4	-	-
154	21.7	<u>Railways</u>	0	0	23	-	-
155	21.8	Crossrail 1	0	0	0	0	-
155	21.9	Crossrail 2	0	0	0	0	-
155	21.10	HS2	0	0	0	0	-



Recent aerial photograph



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Capture Date: 23/05/2019

Site Area: 0.57ha



Contact us with any questions at:

info@groundsure.com

08444 159 000

Date: 26 February 2021

Recent site history - 2015 aerial photograph



Capture Date: 11/06/2015

Site Area: 0.57ha



Contact us with any questions at:

info@groundsure.com

08444 159 000

Date: 26 February 2021

Recent site history - 2011 aerial photograph



Capture Date: 02/05/2011

Site Area: 0.57ha



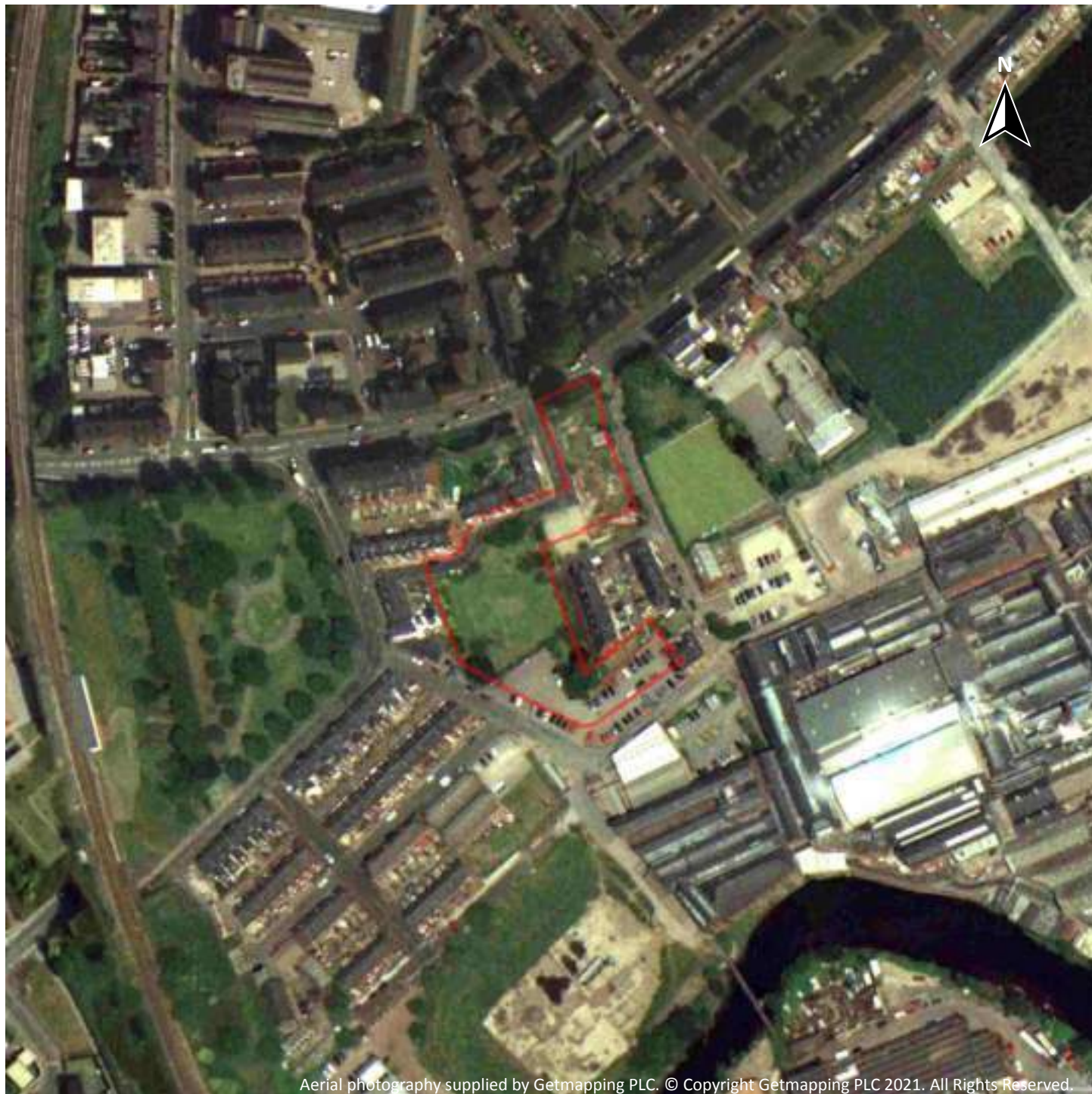
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Date: 26 February 2021

Recent site history - 2000 aerial photograph



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Capture Date: 27/06/2000

Site Area: 0.57ha



OS MasterMap site plan



Site Area: 0.57ha



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Date: 26 February 2021

1 Past land use



- Site Outline
- Search buffers in metres (m)
- Historical industrial land uses
- Historical tanks
- Historical energy features
- Historical garages

1.1 Historical industrial land uses

Records within 500m

196

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 1:10,560 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
A	On site	Brewery	1851	672160



ID	Location	Land use	Dates present	Group ID
B	7m SE	Unspecified Mill	1965	656767
C	10m SE	Paper Mill	1955	747342
B	11m SE	Paper Mill	1977	752930
B	14m SE	Paper Mill	1988 - 1991	738283
C	17m E	Paper Mill	1891 - 1938	754835
D	25m SW	Unspecified Mill	1955	759364
D	29m S	Unspecified Mill	1965 - 1991	767702
E	48m W	Gravel Pit	1851	652857
D	52m S	Unspecified Mill	1908 - 1938	743686
F	63m N	Unspecified Mill	1908	771373
F	63m N	Unspecified Commercial/Industrial	1891	643349
F	63m N	Unspecified Mill	1927 - 1938	713990
F	70m N	Unspecified Mill	1965	729758
C	71m E	Barracks	1851	693095
E	80m W	Refuse Heap	1908	758978
E	102m W	Refuse Heap	1927 - 1938	764696
B	117m E	Print Works	1851 - 1891	731949
G	121m SE	Cotton Mills	1977	659316
G	121m SE	Unspecified Mills	1988 - 1991	704567
G	121m SE	Unspecified Mills	1965	739051
H	125m NW	Unspecified Works	1977 - 1991	725304
G	128m SE	Unspecified Mill	1955	656766
H	129m NW	Unspecified Works	1965	724121
I	133m SE	Railway Sidings	1927 - 1938	736519
E	137m W	Railway Station	1965	725611
E	139m W	Railway Station	1988 - 1991	704324
E	139m W	Railway Station	1977	786452
2	141m SW	Unspecified Works	1965 - 1991	762683



ID	Location	Land use	Dates present	Group ID
3	144m SE	Unspecified Works	1988 - 1991	765296
E	149m W	Railway Station	1955	736411
H	153m W	Railway Sidings	1955	768828
H	154m NW	Railway Sidings	1965	770535
B	154m E	Unspecified Tanks	1908	666456
B	154m E	Filter Beds	1927 - 1938	711639
E	155m W	Railway Station	1891 - 1938	782244
H	157m W	Railway Sidings	1891	720079
H	157m W	Railway Sidings	1908 - 1927	741317
H	157m W	Railway Sidings	1938	791022
B	160m E	Railway Sidings	1955	724525
4	161m NE	Bleach Works	1851	658161
5	162m S	Unspecified Ground Workings	1965 - 1991	721999
G	163m SE	Unspecified Mills	1908 - 1938	772610
6	165m NE	Unspecified Works	1977 - 1991	773215
E	169m SW	Railway Building	1955	670348
K	171m SW	Railway Building	1955	670351
E	177m SW	Railway Building	1891 - 1938	700111
K	179m SW	Junction Station	1908	659384
K	179m SW	Railway Building	1938	787323
K	179m SW	Railway Building	1891	789355
L	182m W	Railway Buildings	1965	681653
L	184m W	Railway Building	1955	788787
L	185m W	Railway Building	1908	766658
B	186m E	Filter Beds	1927 - 1938	750959
L	190m W	Railway Buildings	1938	681651
B	191m SE	Unspecified Tank	1891	674802
B	194m E	Filter Beds	1955	767266



ID	Location	Land use	Dates present	Group ID
L	199m W	Railway Building	1955	670347
B	202m E	Unspecified Tanks	1908	666455
M	202m E	Filter Beds	1955	745462
B	207m E	Unspecified Ground Workings	1927 - 1938	751625
N	210m SW	Timber Yard	1988 - 1991	767289
B	210m E	Unspecified Ground Workings	1955	770611
L	213m W	Railway Buildings	1955	681652
M	217m E	Filter Beds	1927 - 1938	740593
O	217m SW	Unspecified Works	1965	679081
B	219m E	Gasometer	1851	655144
L	225m W	Railway Building	1955	702193
O	225m SW	Chemical Works	1955	721911
O	232m SW	Chemical Works	1927 - 1938	724314
H	235m NW	Iron Works	1908	672245
L	236m W	Railway Building	1908	729914
8	238m W	Railway Building	1955	670350
H	240m NW	Unspecified Works	1965	679060
G	244m SE	Unspecified Tank	1908	727343
G	244m SE	Unspecified Tank	1938	753697
L	250m W	Goods Sheds	1965	691683
R	250m W	Unspecified Mill	1991	656763
R	250m W	Unspecified Commercial/Industrial	1977 - 1988	763484
L	251m W	Goods Station	1955	762621
L	251m W	Goods Station	1908	778227
L	254m W	Good Station	1891	644023
L	254m W	Goods Station	1927 - 1938	773782
9	255m SE	Refuse Heap	1977	787422
H	259m NW	Dye Works	1908	681891



ID	Location	Land use	Dates present	Group ID
L	262m W	Railway Building	1908	670349
M	265m E	Filter Beds	1927 - 1938	744467
H	272m NW	Goods Yard	1965	659613
H	273m NW	Goods Sheds	1955	691682
H	274m NW	Railway Building	1927 - 1938	745301
T	276m SW	Unspecified Works	1965	776856
T	282m SW	Unspecified Works	1977 - 1991	741370
I	283m E	Refuse Heap	1908	724060
P	285m NW	Colliery	1891	645293
H	290m NW	Railway Building	1908	767476
T	291m SW	Refuse Heap	1965	678031
P	295m NW	Refuse Heap	1908	760800
P	295m NW	Refuse Heap	1891	779808
N	298m SW	Refuse Heap	1965	678024
T	305m SW	Unspecified Commercial/Industrial	1955	643354
V	312m SW	Unspecified Heap	1891	650989
W	314m E	Sewage Works	1908	769944
X	318m W	Unspecified Ground Workings	1988	697607
R	320m W	Industrial Estate	1988 - 1991	748531
R	320m W	Unspecified Works	1965 - 1977	773599
X	320m W	Unspecified Ground Workings	1965 - 1977	784113
Y	323m NE	Soap Works	1891	682700
Y	323m NE	Unspecified Commercial/Industrial	1908 - 1927	717282
R	327m W	Iron Works	1955	775999
Z	328m S	Unspecified Works	1965	679078
Z	328m S	Unspecified Commercial/Industrial	1977	750221
W	332m E	Unspecified Ground Workings	1965	648181
Z	332m S	Unspecified Commercial/Industrial	1955	708864



ID	Location	Land use	Dates present	Group ID
X	333m W	Unspecified Ground Workings	1938	704395
Z	334m S	Unspecified Commercial/Industrial	1988 - 1991	784304
AA	334m NW	Unspecified Ground Workings	1977 - 1991	777235
R	335m W	Iron Works	1927 - 1938	705908
R	335m W	Unspecified Commercial/Industrial	1891 - 1908	739634
X	335m W	Unspecified Ground Workings	1955	735131
W	338m E	Unspecified Heaps	1965	679643
T	338m S	Unspecified Mills	1908 - 1938	746009
T	338m S	Unspecified Commercial/Industrial	1891	772047
W	339m E	Refuse Heap	1977	790838
P	343m NW	Refuse Heap	1927 - 1938	697784
AA	347m NW	Railway Building	1891	670340
AA	347m NW	Goods Sheds	1908 - 1938	754044
10	348m NW	Railway Sidings	1988 - 1991	746287
AB	348m SW	Sandstone Quarry	1851	686656
11	349m NW	Cuttings	1851	743135
W	350m E	Sewage Works	1927 - 1938	771592
V	351m SW	Dye Works	1851	681880
T	352m SW	Railway Sidings	1955	641665
AA	352m NW	Cuttings	1965	788563
W	354m E	Sewage Works	1955	742810
AA	354m NW	Cuttings	1955	733559
P	355m N	Unspecified Ground Workings	1955	648152
T	356m SW	Unspecified Mill	1965	656764
12	357m NW	Railway Building	1891	670346
AC	358m NW	Cuttings	1927	756389
AA	359m NW	Cuttings	1908	754462
AA	359m NW	Cuttings	1891	776151



ID	Location	Land use	Dates present	Group ID
AB	364m SW	Unspecified Ground Workings	1891	648167
AD	367m NW	Railway Building	1927 - 1938	725307
AE	368m W	Cuttings	1938 - 1988	734643
W	370m E	Unspecified Tanks	1908	666454
AD	370m NW	Railway Building	1955	773543
P	373m N	Refuse Heap	1891	726545
T	380m SW	Unspecified Mills	1965	757593
AE	381m W	Cuttings	1955	740221
13	385m NW	Railway Sidings	1977	784849
AE	386m W	Cuttings	1891 - 1908	705309
T	388m SW	Unspecified Mills	1955	784683
W	389m E	Unspecified Tanks	1908	666453
AF	389m NW	Unspecified Ground Workings	1927 - 1938	737329
AG	392m SW	Unspecified Works	1988 - 1991	777650
AH	392m W	Unspecified Commercial/Industrial	1977	643348
AH	392m W	Unspecified Works	1965	679082
AG	392m SW	Unspecified Commercial/Industrial	1977	643353
W	392m E	Refuse Heap	1927 - 1938	759592
Y	392m NE	Unspecified Works	1965	679063
W	401m E	Unspecified Heap	1955	650892
14	401m SE	Refuse Heap	1988 - 1991	755598
W	402m E	Refuse Heap	1955	743623
AI	406m S	Cuttings	1965 - 1991	709910
AI	407m S	Cuttings	1955	774935
AI	411m S	Cuttings	1891 - 1938	755502
AJ	420m E	Tower Works	1955	778655
AJ	421m E	Unspecified Commercial/Industrial	1908	694693
AJ	421m E	Tower Works	1927 - 1938	704950



ID	Location	Land use	Dates present	Group ID
AJ	421m E	Unspecified Commercial/Industrial	1891	771773
AK	426m NE	Unspecified Mill	1908 - 1938	711306
AK	426m NE	Unspecified Commercial/Industrial	1891	782718
AJ	431m E	Unspecified Works	1988 - 1991	751996
AJ	431m E	Unspecified Works	1965	727566
AJ	431m E	Unspecified Commercial/Industrial	1977	774253
AC	432m W	Cuttings	1988	710586
AK	433m NE	Unspecified Mill	1955	696615
AC	436m W	Cuttings	1851	758394
AK	437m NE	Unspecified Works	1988 - 1991	728251
AG	437m SW	Cotton Mill	1851	644067
AC	438m W	Cuttings	1938	737977
AC	438m W	Cuttings	1891 - 1908	767946
AK	439m NE	Unspecified Commercial/Industrial	1977	718948
AK	439m NE	Unspecified Mill	1965	750445
AC	441m W	Cuttings	1955 - 1977	726792
AF	455m NW	Railway Building	1955	753043
AL	456m SE	Unspecified Ground Workings	1851	746947
AF	456m NW	Railway Building	1965 - 1977	755344
AF	457m NW	Railway Building	1927 - 1938	743927
AL	459m S	Unspecified Ground Workings	1927 - 1938	698249
W	463m E	Filter Beds	1891	665813
AM	463m W	Refuse Heap	1908	678023
16	467m N	Railway Building	1891	670345
AF	481m NW	Disused Canal	1988 - 1991	788290
AF	483m NW	Disused Canal	1977	706247
AM	497m W	Refuse Heap	1908	678022

This data is sourced from Ordnance Survey / Groundsure.



1.2 Historical tanks

Records within 500m

60

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
1	46m SE	Unspecified Tank	1956	94735
F	94m N	Unspecified Tank	1893	85020
B	100m E	Tanks	1984 - 1996	102509
B	104m NE	Unspecified Tank	1909	100091
B	123m E	Unspecified Tank	1984	95540
B	125m E	Unspecified Tank	1956	102574
B	125m E	Unspecified Tank	1956	89402
B	143m NE	Unspecified Tank	1984 - 1987	101215
B	144m NE	Unspecified Tank	1956 - 1996	98708
B	144m E	Unspecified Tank	1956	95770
B	144m NE	Unspecified Tank	1929 - 1937	99697
B	156m E	Tanks	1929 - 1937	90009
B	158m E	Unspecified Tank	1956 - 1996	104149
B	160m E	Unspecified Tank	1956	99474
D	164m S	Unspecified Tank	1956 - 1987	95156
D	171m S	Unspecified Tank	1929 - 1937	96272
B	175m E	Unspecified Tank	1956	88735
B	176m E	Unspecified Tank	1956 - 1996	94224
B	192m SE	Unspecified Tank	1893	85036
B	197m E	Settling Tanks	1956	99970
B	197m E	Settling Tanks	1956	97227



ID	Location	Land use	Dates present	Group ID
B	198m E	Settling Tanks	1984 - 1987	99461
B	199m E	Tanks	1909	87877
B	199m E	Settling Tanks	1996	92380
B	201m E	Unspecified Tank	1984	101766
B	203m E	Unspecified Tank	1956	92508
B	203m E	Unspecified Tank	1956	100722
B	205m E	Unspecified Tank	1956 - 1996	90801
B	210m E	Unspecified Tank	1956 - 1987	94455
B	220m E	Unspecified Tank	1984 - 1987	91954
B	221m E	Unspecified Tank	1956 - 1996	102147
P	224m N	Tanks	1988	87883
7	226m NE	Tanks	1985 - 1987	93339
G	234m SE	Unspecified Tank	1956	99607
G	234m SE	Unspecified Tank	1956	95677
B	237m E	Unspecified Tank	1996	85024
Q	238m N	Unspecified Tank	1956	89496
Q	239m N	Unspecified Tank	1956	93292
H	274m NW	Unspecified Tank	1909 - 1937	91491
W	343m E	Unspecified Tank	1996	85023
Z	359m S	Tanks	1981 - 1994	96357
AB	370m SW	Tanks	1909	87880
W	383m SE	Tanks	1909 - 1937	97918
W	384m E	Unspecified Tank	1956	94625
Y	395m NE	Unspecified Tank	1929 - 1937	97446
T	402m SW	Unspecified Tank	1956 - 1970	100605
T	408m SW	Unspecified Tank	1929 - 1937	92840
W	409m E	Unspecified Tank	1956	103930
W	410m E	Unspecified Tank	1956	94050



ID	Location	Land use	Dates present	Group ID
AH	430m W	Unspecified Tank	1956	102761
W	435m E	Tanks	1956	92422
T	442m SW	Tanks	1955	102152
T	449m SW	Tanks	1955	97577
T	453m SW	Tanks	1955	98096
AJ	453m E	Unspecified Tank	1956 - 1994	95441
T	453m SW	Tanks	1955	92130
T	456m SW	Tanks	1955	93690
AJ	470m E	Unspecified Tank	1980 - 1992	101029
AJ	470m E	Unspecified Tank	1956 - 1998	94223
T	488m SW	Unspecified Tank	1929 - 1937	104207

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m

38

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
A	On site	Electricity Substation	1996	54390
A	On site	Electricity Substation	1984 - 1987	54833
D	144m S	Electricity Substation	1956	58290
D	144m S	Electricity Substation	1956 - 1996	48810
J	149m SE	Electricity Substation	1956 - 1987	47803
J	149m SE	Electricity Substation	1956	49307
E	167m W	Electricity Substation	1994 - 1995	49012



ID	Location	Land use	Dates present	Group ID
B	183m SE	Electricity Substation	1956 - 1984	54747
B	188m E	Electricity Substation	1984 - 1996	48907
B	194m E	Electricity Substation	1956	57699
L	212m NW	Electricity Substation	1995	47864
L	212m NW	Electricity Substation	1988	55715
H	219m NW	Electricity Substation	1956 - 1995	52654
H	224m NW	Electricity Substation	1988	45636
B	226m E	Electricity Substation	1956	45640
L	227m NW	Electricity Substation	1988 - 1995	53833
B	232m E	Electricity Substation	1956 - 1996	56250
H	252m NW	Electricity Substation	1956	47533
H	253m NW	Electricity Substation	1956 - 1995	54507
H	254m NW	Electricity Substation	1988	57575
B	267m E	Electricity Substation	1996	45639
U	286m SE	Electricity Substation	1984 - 1987	47616
U	287m SE	Electricity Substation	1996	52574
R	327m W	Electricity Substation	1956	55625
Z	347m S	Electricity Substation	1970 - 1995	47168
T	395m SW	Electricity Substation	1955	52078
Y	398m NE	Electricity Substation	1985 - 1987	51206
Y	398m NE	Electricity Substation	1956 - 1994	57450
Y	400m NE	Electricity Substation	1956	58081
15	409m W	Electricity Substation	1970 - 1995	53640
AF	453m NW	Electricity Substation	1956	47823
W	463m E	Electricity Substation	1956	58153
AN	472m SW	Electricity Substation	1970	50924
AN	472m SW	Electricity Substation	1989	59333
AN	473m SW	Electricity Substation	1978 - 1988	49397



ID	Location	Land use	Dates present	Group ID
AN	474m SW	Electricity Substation	1994 - 1995	56565
AJ	479m E	Electricity Substation	1956 - 1998	47202
AJ	485m E	Electricity Substation	1956	45638

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m

0

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m

10

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
S	260m S	Garage	1956	15002
S	260m S	Garage	1956	17424
S	261m S	Garage	1984 - 1987	18996
S	265m S	Garage	1970 - 1978	19299
P	266m NW	Garage	1956	19090
P	282m NW	Garage	1956	16514
P	301m NW	Garage	1956	16435
Y	330m NE	Garage	1956 - 1966	17769



ID	Location	Land use	Dates present	Group ID
Y	331m NE	Garage	1956	16941
Y	380m NE	Garage	1987 - 1994	18556

This data is sourced from Ordnance Survey / Groundsure.

1.6 Historical military land

Records within 500m

0

Areas of military land digitised from multiple sources including the National Archives, local records, MOD records and verified other sources, intelligently grouped into contiguous features.

This data is sourced from Ordnance Survey / Groundsure / other sources.



2 Past land use - un-grouped



- Site Outline
- Search buffers in metres (m)
- Historical industrial land uses
- Historical tanks
- Historical energy features
- Historical garages

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2.1 Historical industrial land uses

Records within 500m

286

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 10,560 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 27**

ID	Location	Land Use	Date	Group ID
A	On site	Brewery	1851	672160
B	7m SE	Unspecified Mill	1965	656767
C	10m SE	Paper Mill	1955	747342



ID	Location	Land Use	Date	Group ID
B	11m SE	Paper Mill	1977	752930
B	14m SE	Paper Mill	1991	738283
B	14m SE	Paper Mill	1988	738283
C	17m E	Paper Mill	1938	754835
C	17m E	Paper Mill	1927	754835
C	17m E	Paper Mill	1908	754835
C	17m E	Paper Mill	1891	754835
D	25m SW	Unspecified Mill	1955	759364
D	29m S	Unspecified Mill	1991	767702
D	29m S	Unspecified Mill	1977	767702
D	29m S	Unspecified Mill	1965	767702
D	29m S	Unspecified Mill	1988	767702
F	48m W	Gravel Pit	1851	652857
D	52m S	Unspecified Mill	1938	743686
D	52m S	Unspecified Mill	1927	743686
D	52m S	Unspecified Mill	1908	743686
G	63m N	Unspecified Mill	1908	771373
G	63m N	Unspecified Mill	1938	713990
G	63m N	Unspecified Mill	1927	713990
G	63m N	Unspecified Commercial/Industrial	1891	643349
G	70m N	Unspecified Mill	1965	729758
C	71m E	Barracks	1851	693095
F	80m W	Refuse Heap	1908	758978
F	102m W	Refuse Heap	1938	764696
F	102m W	Refuse Heap	1927	764696
B	117m E	Print Works	1851	731949
H	121m SE	Unspecified Mills	1991	704567
H	121m SE	Cotton Mills	1977	659316



ID	Location	Land Use	Date	Group ID
H	121m SE	Unspecified Mills	1965	739051
H	121m SE	Unspecified Mills	1988	704567
I	125m NW	Unspecified Works	1991	725304
I	125m NW	Unspecified Works	1977	725304
I	125m NW	Unspecified Works	1988	725304
H	128m SE	Unspecified Mill	1955	656766
I	129m NW	Unspecified Works	1965	724121
J	133m SE	Railway Sidings	1938	736519
J	133m SE	Railway Sidings	1927	736519
F	137m W	Railway Station	1965	725611
F	139m W	Railway Station	1991	704324
F	139m W	Railway Station	1988	704324
F	139m W	Railway Station	1977	786452
K	141m SW	Unspecified Works	1991	762683
K	141m SW	Unspecified Works	1988	762683
K	143m SW	Unspecified Works	1977	762683
K	143m SW	Unspecified Works	1965	762683
L	144m SE	Unspecified Works	1991	765296
L	144m SE	Unspecified Works	1988	765296
B	144m E	Print Works	1891	731949
F	149m W	Railway Station	1955	736411
I	153m W	Railway Sidings	1955	768828
I	154m NW	Railway Sidings	1965	770535
B	154m E	Filter Beds	1938	711639
B	154m E	Filter Beds	1927	711639
B	154m E	Unspecified Tanks	1908	666456
F	155m W	Railway Station	1938	782244
F	155m W	Railway Station	1927	782244



ID	Location	Land Use	Date	Group ID
F	155m W	Railway Station	1908	782244
F	155m W	Railway Station	1891	782244
I	157m W	Railway Sidings	1938	791022
I	157m W	Railway Sidings	1927	741317
I	157m W	Railway Sidings	1908	741317
I	157m W	Railway Sidings	1891	720079
B	160m E	Railway Sidings	1955	724525
1	161m NE	Bleach Works	1851	658161
N	162m S	Unspecified Ground Workings	1991	721999
N	162m S	Unspecified Ground Workings	1977	721999
N	162m S	Unspecified Ground Workings	1965	721999
N	162m S	Unspecified Ground Workings	1988	721999
H	163m SE	Unspecified Mills	1938	772610
H	163m SE	Unspecified Mills	1927	772610
H	163m SE	Unspecified Mills	1908	772610
O	165m NE	Unspecified Works	1991	773215
O	165m NE	Unspecified Works	1977	773215
O	165m NE	Unspecified Works	1988	773215
F	169m SW	Railway Building	1955	670348
P	171m SW	Railway Building	1955	670351
F	177m SW	Railway Building	1938	700111
F	177m SW	Railway Building	1927	700111
F	177m SW	Railway Building	1908	700111
F	177m SW	Railway Building	1891	700111
P	179m SW	Railway Building	1938	787323
P	179m SW	Junction Station	1908	659384
P	179m SW	Railway Building	1891	789355
Q	182m W	Railway Buildings	1965	681653



ID	Location	Land Use	Date	Group ID
Q	184m W	Railway Building	1955	788787
Q	185m W	Railway Building	1908	766658
B	186m E	Filter Beds	1938	750959
B	186m E	Filter Beds	1927	750959
Q	190m W	Railway Buildings	1938	681651
B	191m SE	Unspecified Tank	1891	674802
B	194m E	Filter Beds	1955	767266
Q	199m W	Railway Building	1955	670347
B	202m E	Unspecified Tanks	1908	666455
R	202m E	Filter Beds	1955	745462
B	207m E	Unspecified Ground Workings	1938	751625
B	207m E	Unspecified Ground Workings	1927	751625
S	210m SW	Timber Yard	1991	767289
S	210m SW	Timber Yard	1988	767289
B	210m E	Unspecified Ground Workings	1955	770611
Q	213m W	Railway Buildings	1955	681652
R	217m E	Filter Beds	1938	740593
R	217m E	Filter Beds	1927	740593
S	217m SW	Unspecified Works	1965	679081
B	219m E	Gasometer	1851	655144
Q	225m W	Railway Building	1955	702193
S	225m SW	Chemical Works	1955	721911
S	232m SW	Chemical Works	1938	724314
S	232m SW	Chemical Works	1927	724314
I	235m NW	Iron Works	1908	672245
Q	236m W	Railway Building	1908	729914
2	238m W	Railway Building	1955	670350
I	240m NW	Unspecified Works	1965	679060



ID	Location	Land Use	Date	Group ID
H	244m SE	Unspecified Tank	1938	753697
H	244m SE	Unspecified Tank	1908	727343
Q	250m W	Goods Sheds	1965	691683
W	250m W	Unspecified Mill	1991	656763
W	250m W	Unspecified Commercial/Industrial	1977	763484
W	250m W	Unspecified Commercial/Industrial	1988	763484
Q	251m W	Goods Station	1955	762621
Q	251m W	Goods Station	1908	778227
Q	254m W	Goods Station	1938	773782
Q	254m W	Goods Station	1927	773782
Q	254m W	Good Station	1891	644023
3	255m SE	Refuse Heap	1977	787422
I	259m NW	Dye Works	1908	681891
Q	262m W	Railway Building	1908	670349
R	265m E	Filter Beds	1938	744467
R	265m E	Filter Beds	1927	744467
I	272m NW	Goods Yard	1965	659613
I	273m NW	Goods Sheds	1955	691682
I	274m NW	Railway Building	1938	745301
I	274m NW	Railway Building	1927	745301
Y	276m SW	Unspecified Works	1965	776856
Y	282m SW	Unspecified Works	1991	741370
Y	282m SW	Unspecified Works	1977	741370
Y	282m SW	Unspecified Works	1988	741370
J	283m E	Refuse Heap	1908	724060
T	285m NW	Colliery	1891	645293
I	290m NW	Railway Building	1908	767476
Y	291m SW	Refuse Heap	1965	678031



ID	Location	Land Use	Date	Group ID
T	295m NW	Refuse Heap	1908	760800
T	295m NW	Refuse Heap	1891	779808
S	298m SW	Refuse Heap	1965	678024
Y	305m SW	Unspecified Commercial/Industrial	1955	643354
AA	312m SW	Unspecified Heap	1891	650989
AB	314m E	Sewage Works	1908	769944
AC	318m W	Unspecified Ground Workings	1988	697607
W	320m W	Unspecified Works	1977	773599
W	320m W	Industrial Estate	1988	748531
AC	320m W	Unspecified Ground Workings	1977	784113
AC	320m W	Unspecified Ground Workings	1965	784113
W	321m W	Industrial Estate	1991	748531
W	322m W	Unspecified Works	1965	773599
AD	323m NE	Unspecified Commercial/Industrial	1927	717282
AD	323m NE	Unspecified Commercial/Industrial	1908	717282
AD	323m NE	Soap Works	1891	682700
W	327m W	Iron Works	1955	775999
AE	328m S	Unspecified Commercial/Industrial	1977	750221
AE	328m S	Unspecified Works	1965	679078
AB	332m E	Unspecified Ground Workings	1965	648181
AE	332m S	Unspecified Commercial/Industrial	1955	708864
AC	333m W	Unspecified Ground Workings	1938	704395
AE	334m S	Unspecified Commercial/Industrial	1991	784304
AE	334m S	Unspecified Commercial/Industrial	1988	784304
AF	334m NW	Unspecified Ground Workings	1991	777235
AF	334m NW	Unspecified Ground Workings	1977	777235
AF	334m NW	Unspecified Ground Workings	1988	777235
W	335m W	Iron Works	1938	705908



ID	Location	Land Use	Date	Group ID
W	335m W	Iron Works	1927	705908
W	335m W	Unspecified Commercial/Industrial	1908	739634
W	335m W	Unspecified Commercial/Industrial	1891	739634
AC	335m W	Unspecified Ground Workings	1955	735131
AB	338m E	Unspecified Heaps	1965	679643
Y	338m S	Unspecified Mills	1938	746009
Y	338m S	Unspecified Mills	1927	746009
Y	338m S	Unspecified Mills	1908	746009
Y	338m S	Unspecified Commercial/Industrial	1891	772047
AB	339m E	Refuse Heap	1977	790838
T	343m NW	Refuse Heap	1938	697784
T	343m NW	Refuse Heap	1927	697784
AF	347m NW	Goods Sheds	1938	754044
AF	347m NW	Goods Sheds	1927	754044
AF	347m NW	Goods Sheds	1908	754044
AF	347m NW	Railway Building	1891	670340
AG	348m NW	Railway Sidings	1991	746287
AG	348m NW	Railway Sidings	1988	746287
AH	348m SW	Sandstone Quarry	1851	686656
4	349m NW	Cuttings	1851	743135
AB	350m E	Sewage Works	1938	771592
AB	350m E	Sewage Works	1927	771592
AA	351m SW	Dye Works	1851	681880
Y	352m SW	Railway Sidings	1955	641665
AF	352m NW	Cuttings	1965	788563
AB	354m E	Sewage Works	1955	742810
AF	354m NW	Cuttings	1955	733559
T	355m N	Unspecified Ground Workings	1955	648152



ID	Location	Land Use	Date	Group ID
Y	356m SW	Unspecified Mill	1965	656764
5	357m NW	Railway Building	1891	670346
AI	358m NW	Cuttings	1927	756389
AF	359m NW	Cuttings	1908	754462
AF	359m NW	Cuttings	1891	776151
AH	364m SW	Unspecified Ground Workings	1891	648167
AJ	367m NW	Railway Building	1938	725307
AJ	367m NW	Railway Building	1927	725307
AC	368m W	Cuttings	1977	734643
AC	368m W	Cuttings	1965	734643
AC	368m W	Cuttings	1988	734643
AB	370m E	Unspecified Tanks	1908	666454
AJ	370m NW	Railway Building	1955	773543
T	373m N	Refuse Heap	1891	726545
Y	380m SW	Unspecified Mills	1965	757593
AC	381m W	Cuttings	1955	740221
6	385m NW	Railway Sidings	1977	784849
AC	386m W	Cuttings	1938	734643
AC	386m W	Cuttings	1908	705309
AC	386m W	Cuttings	1891	705309
Y	388m SW	Unspecified Mills	1955	784683
AB	389m E	Unspecified Tanks	1908	666453
AK	389m NW	Unspecified Ground Workings	1938	737329
AK	389m NW	Unspecified Ground Workings	1927	737329
AL	392m SW	Unspecified Works	1991	777650
AL	392m SW	Unspecified Works	1988	777650
AM	392m W	Unspecified Commercial/Industrial	1977	643348
AM	392m W	Unspecified Works	1965	679082



ID	Location	Land Use	Date	Group ID
AL	392m SW	Unspecified Commercial/Industrial	1977	643353
AB	392m E	Refuse Heap	1938	759592
AB	392m E	Refuse Heap	1927	759592
AD	392m NE	Unspecified Works	1965	679063
AB	401m E	Unspecified Heap	1955	650892
AN	401m SE	Refuse Heap	1991	755598
AN	401m SE	Refuse Heap	1988	755598
AB	402m E	Refuse Heap	1955	743623
AO	406m S	Cuttings	1991	709910
AO	406m S	Cuttings	1977	709910
AO	406m S	Cuttings	1965	709910
AO	406m S	Cuttings	1988	709910
AO	407m S	Cuttings	1955	774935
AO	411m S	Cuttings	1938	755502
AO	411m S	Cuttings	1927	755502
AO	411m S	Cuttings	1908	755502
AO	411m S	Cuttings	1891	755502
AQ	420m E	Tower Works	1955	778655
AQ	421m E	Tower Works	1938	704950
AQ	421m E	Tower Works	1927	704950
AQ	421m E	Unspecified Commercial/Industrial	1908	694693
AQ	421m E	Unspecified Commercial/Industrial	1891	771773
AR	426m NE	Unspecified Mill	1938	711306
AR	426m NE	Unspecified Mill	1927	711306
AR	426m NE	Unspecified Mill	1908	711306
AR	426m NE	Unspecified Commercial/Industrial	1891	782718
AQ	431m E	Unspecified Works	1991	751996
AQ	431m E	Unspecified Works	1988	751996



ID	Location	Land Use	Date	Group ID
AQ	431m E	Unspecified Commercial/Industrial	1977	774253
AQ	431m E	Unspecified Works	1965	727566
AI	432m W	Cuttings	1988	710586
AR	433m NE	Unspecified Mill	1955	696615
AI	436m W	Cuttings	1851	758394
AR	437m NE	Unspecified Works	1991	728251
AR	437m NE	Unspecified Works	1988	728251
AL	437m SW	Cotton Mill	1851	644067
AI	438m W	Cuttings	1938	737977
AI	438m W	Cuttings	1908	767946
AI	438m W	Cuttings	1891	767946
AR	439m NE	Unspecified Commercial/Industrial	1977	718948
AR	439m NE	Unspecified Mill	1965	750445
AI	441m W	Cuttings	1977	726792
AI	441m W	Cuttings	1965	726792
AI	441m W	Cuttings	1955	726792
AK	455m NW	Railway Building	1955	753043
AS	456m SE	Unspecified Ground Workings	1851	746947
AK	456m NW	Railway Building	1977	755344
AK	456m NW	Railway Building	1965	755344
AK	457m NW	Railway Building	1938	743927
AK	457m NW	Railway Building	1927	743927
AS	459m S	Unspecified Ground Workings	1938	698249
AS	459m S	Unspecified Ground Workings	1927	698249
AB	463m E	Filter Beds	1891	665813
AT	463m W	Refuse Heap	1908	678023
7	467m N	Railway Building	1891	670345
AK	481m NW	Disused Canal	1991	788290



ID	Location	Land Use	Date	Group ID
AK	481m NW	Disused Canal	1988	788290
AK	483m NW	Disused Canal	1977	706247
AT	497m W	Refuse Heap	1908	678022

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m

118

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 27**

ID	Location	Land Use	Date	Group ID
E	46m SE	Unspecified Tank	1956	94735
E	46m SE	Unspecified Tank	1956	94735
G	94m N	Unspecified Tank	1893	85020
B	100m E	Tanks	1984	102509
B	100m E	Tanks	1987	102509
B	101m E	Tanks	1996	102509
B	104m NE	Unspecified Tank	1909	100091
B	123m E	Unspecified Tank	1984	95540
B	125m E	Unspecified Tank	1956	102574
B	125m E	Unspecified Tank	1956	89402
B	143m NE	Unspecified Tank	1984	101215
B	143m NE	Unspecified Tank	1987	101215
B	144m NE	Unspecified Tank	1996	98708
B	144m E	Unspecified Tank	1956	98708
B	144m NE	Unspecified Tank	1929	99697
B	144m NE	Unspecified Tank	1937	99697
B	144m E	Unspecified Tank	1956	95770



ID	Location	Land Use	Date	Group ID
B	156m E	Tanks	1929	90009
B	156m E	Tanks	1937	90009
B	158m E	Unspecified Tank	1984	104149
B	158m E	Unspecified Tank	1987	104149
B	159m E	Unspecified Tank	1996	104149
B	159m E	Unspecified Tank	1956	104149
B	160m E	Unspecified Tank	1956	99474
D	164m S	Unspecified Tank	1956	95156
D	164m S	Unspecified Tank	1984	95156
D	164m S	Unspecified Tank	1987	95156
D	165m S	Unspecified Tank	1956	95156
D	171m S	Unspecified Tank	1929	96272
D	171m S	Unspecified Tank	1937	96272
B	175m E	Unspecified Tank	1956	88735
B	176m E	Unspecified Tank	1984	94224
B	176m E	Unspecified Tank	1987	94224
B	177m NE	Unspecified Tank	1996	94224
B	177m E	Unspecified Tank	1956	94224
B	192m SE	Unspecified Tank	1893	85036
B	197m E	Settling Tanks	1956	99970
B	197m E	Settling Tanks	1956	97227
B	198m E	Settling Tanks	1984	99461
B	198m E	Settling Tanks	1987	99461
B	199m E	Tanks	1909	87877
B	199m E	Settling Tanks	1996	92380
B	201m E	Unspecified Tank	1984	101766
B	203m E	Unspecified Tank	1956	92508
B	203m E	Unspecified Tank	1956	100722



ID	Location	Land Use	Date	Group ID
B	205m E	Unspecified Tank	1984	90801
B	205m E	Unspecified Tank	1987	90801
B	206m E	Unspecified Tank	1996	90801
B	207m E	Unspecified Tank	1956	90801
B	207m E	Unspecified Tank	1956	90801
B	210m E	Unspecified Tank	1984	94455
B	210m E	Unspecified Tank	1987	94455
B	211m E	Unspecified Tank	1956	94455
B	212m E	Unspecified Tank	1956	94455
B	220m E	Unspecified Tank	1984	91954
B	220m E	Unspecified Tank	1987	91954
B	221m E	Unspecified Tank	1996	102147
B	221m E	Unspecified Tank	1956	102147
B	222m E	Unspecified Tank	1956	102147
T	224m N	Tanks	1988	87883
U	226m NE	Tanks	1985	93339
U	226m NE	Tanks	1987	93339
H	234m SE	Unspecified Tank	1956	99607
H	234m SE	Unspecified Tank	1956	95677
B	237m E	Unspecified Tank	1996	85024
V	238m N	Unspecified Tank	1956	89496
V	239m N	Unspecified Tank	1956	93292
I	274m NW	Unspecified Tank	1929	91491
I	275m NW	Unspecified Tank	1909	91491
I	275m NW	Unspecified Tank	1937	91491
AB	343m E	Unspecified Tank	1996	85023
AE	359m S	Tanks	1989	96357
AE	359m S	Tanks	1994	96357



ID	Location	Land Use	Date	Group ID
AE	359m S	Tanks	1981	96357
AE	359m S	Tanks	1988	96357
AE	359m S	Tanks	1988	96357
AE	359m S	Tanks	1992	96357
AH	370m SW	Tanks	1909	87880
AB	383m SE	Tanks	1909	97918
AB	383m SE	Tanks	1929	97918
AB	383m SE	Tanks	1937	97918
AB	384m E	Unspecified Tank	1956	94625
AB	385m E	Unspecified Tank	1956	94625
AD	395m NE	Unspecified Tank	1929	97446
AD	395m NE	Unspecified Tank	1937	97446
Y	402m SW	Unspecified Tank	1956	100605
Y	403m SW	Unspecified Tank	1970	100605
Y	408m SW	Unspecified Tank	1929	92840
Y	408m SW	Unspecified Tank	1937	92840
AB	409m E	Unspecified Tank	1956	103930
AB	410m E	Unspecified Tank	1956	94050
AM	430m W	Unspecified Tank	1956	102761
AM	431m W	Unspecified Tank	1956	102761
AB	435m E	Tanks	1956	92422
AB	436m E	Tanks	1956	92422
Y	442m SW	Tanks	1955	102152
Y	443m SW	Tanks	1955	102152
Y	449m SW	Tanks	1955	97577
Y	450m SW	Tanks	1955	97577
Y	453m SW	Tanks	1955	98096
AQ	453m E	Unspecified Tank	1985	95441



ID	Location	Land Use	Date	Group ID
AQ	453m E	Unspecified Tank	1987	95441
Y	453m SW	Tanks	1955	92130
AQ	453m E	Unspecified Tank	1994	95441
AQ	454m E	Unspecified Tank	1966	95441
AQ	454m E	Unspecified Tank	1956	95441
Y	456m SW	Tanks	1955	93690
AQ	470m E	Unspecified Tank	1980	101029
AQ	470m E	Unspecified Tank	1987	101029
AQ	470m E	Unspecified Tank	1992	101029
AQ	470m E	Unspecified Tank	1996	94223
AQ	470m E	Unspecified Tank	1994	94223
AQ	470m E	Unspecified Tank	1998	94223
AQ	470m E	Unspecified Tank	1975	94223
AQ	470m E	Unspecified Tank	1956	94223
AQ	471m E	Unspecified Tank	1956	94223
Y	488m SW	Unspecified Tank	1929	104207
Y	488m SW	Unspecified Tank	1937	104207

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m

91

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 27**

ID	Location	Land Use	Date	Group ID
A	On site	Electricity Substation	1996	54390
A	On site	Electricity Substation	1984	54833
A	On site	Electricity Substation	1987	54833



ID	Location	Land Use	Date	Group ID
D	144m S	Electricity Substation	1956	58290
D	144m S	Electricity Substation	1984	48810
D	144m S	Electricity Substation	1987	48810
D	145m S	Electricity Substation	1956	48810
D	146m S	Electricity Substation	1996	48810
M	149m SE	Electricity Substation	1984	47803
M	149m SE	Electricity Substation	1987	47803
M	149m SE	Electricity Substation	1956	47803
M	149m SE	Electricity Substation	1956	49307
F	167m W	Electricity Substation	1995	49012
F	167m W	Electricity Substation	1994	49012
F	167m W	Electricity Substation	1995	49012
B	183m SE	Electricity Substation	1984	54747
B	184m SE	Electricity Substation	1956	54747
B	184m SE	Electricity Substation	1956	54747
B	188m E	Electricity Substation	1984	48907
B	188m E	Electricity Substation	1987	48907
B	189m E	Electricity Substation	1996	48907
B	194m E	Electricity Substation	1956	57699
B	195m E	Electricity Substation	1956	57699
Q	212m NW	Electricity Substation	1995	47864
Q	212m NW	Electricity Substation	1995	47864
Q	212m NW	Electricity Substation	1988	55715
I	219m NW	Electricity Substation	1956	52654
I	219m NW	Electricity Substation	1956	52654
I	220m NW	Electricity Substation	1995	52654
I	220m NW	Electricity Substation	1995	52654
I	224m NW	Electricity Substation	1988	45636



ID	Location	Land Use	Date	Group ID
B	226m E	Electricity Substation	1956	45640
Q	227m NW	Electricity Substation	1995	53833
Q	227m NW	Electricity Substation	1995	53833
Q	227m NW	Electricity Substation	1988	53833
B	232m E	Electricity Substation	1984	56250
B	232m E	Electricity Substation	1987	56250
B	233m E	Electricity Substation	1996	56250
B	234m E	Electricity Substation	1956	56250
I	252m NW	Electricity Substation	1956	47533
I	253m NW	Electricity Substation	1956	54507
I	253m NW	Electricity Substation	1995	54507
I	253m NW	Electricity Substation	1995	54507
I	254m NW	Electricity Substation	1988	57575
B	267m E	Electricity Substation	1996	45639
Z	286m SE	Electricity Substation	1984	47616
Z	286m SE	Electricity Substation	1987	47616
Z	287m SE	Electricity Substation	1996	52574
W	327m W	Electricity Substation	1956	55625
W	329m W	Electricity Substation	1956	55625
AE	347m S	Electricity Substation	1978	47168
AE	347m S	Electricity Substation	1988	47168
AE	348m S	Electricity Substation	1995	47168
AE	348m S	Electricity Substation	1994	47168
AE	348m S	Electricity Substation	1995	47168
AE	348m S	Electricity Substation	1970	47168
AE	348m S	Electricity Substation	1989	47168
Y	395m SW	Electricity Substation	1955	52078
Y	396m SW	Electricity Substation	1955	52078



ID	Location	Land Use	Date	Group ID
AD	398m NE	Electricity Substation	1985	51206
AD	398m NE	Electricity Substation	1987	51206
AD	398m NE	Electricity Substation	1994	57450
AD	400m NE	Electricity Substation	1956	58081
AD	400m NE	Electricity Substation	1956	57450
AP	409m W	Electricity Substation	1978	53640
AP	409m W	Electricity Substation	1988	53640
AP	410m W	Electricity Substation	1970	53640
AP	410m W	Electricity Substation	1989	53640
AP	411m W	Electricity Substation	1995	53640
AP	411m W	Electricity Substation	1994	53640
AP	411m W	Electricity Substation	1995	53640
AK	453m NW	Electricity Substation	1956	47823
AK	454m NW	Electricity Substation	1956	47823
AB	463m E	Electricity Substation	1956	58153
AB	463m E	Electricity Substation	1956	58153
AU	472m SW	Electricity Substation	1970	50924
AU	472m SW	Electricity Substation	1989	59333
AU	473m SW	Electricity Substation	1978	49397
AU	473m SW	Electricity Substation	1988	49397
AU	474m SW	Electricity Substation	1995	56565
AU	474m SW	Electricity Substation	1994	56565
AU	474m SW	Electricity Substation	1995	56565
AQ	479m E	Electricity Substation	1996	47202
AQ	479m E	Electricity Substation	1994	47202
AQ	479m E	Electricity Substation	1998	47202
AQ	479m E	Electricity Substation	1975	47202
AQ	479m E	Electricity Substation	1956	47202



ID	Location	Land Use	Date	Group ID
AQ	479m E	Electricity Substation	1980	47202
AQ	479m E	Electricity Substation	1987	47202
AQ	479m E	Electricity Substation	1992	47202
AQ	485m E	Electricity Substation	1956	45638

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m	0
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Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m	17
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Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 27**

ID	Location	Land Use	Date	Group ID
X	260m S	Garage	1956	17424
X	260m S	Garage	1956	15002
X	261m S	Garage	1984	18996
X	261m S	Garage	1987	18996
X	265m S	Garage	1978	19299
X	266m S	Garage	1956	17424
X	266m S	Garage	1970	19299
T	266m NW	Garage	1956	19090
T	266m NW	Garage	1956	19090

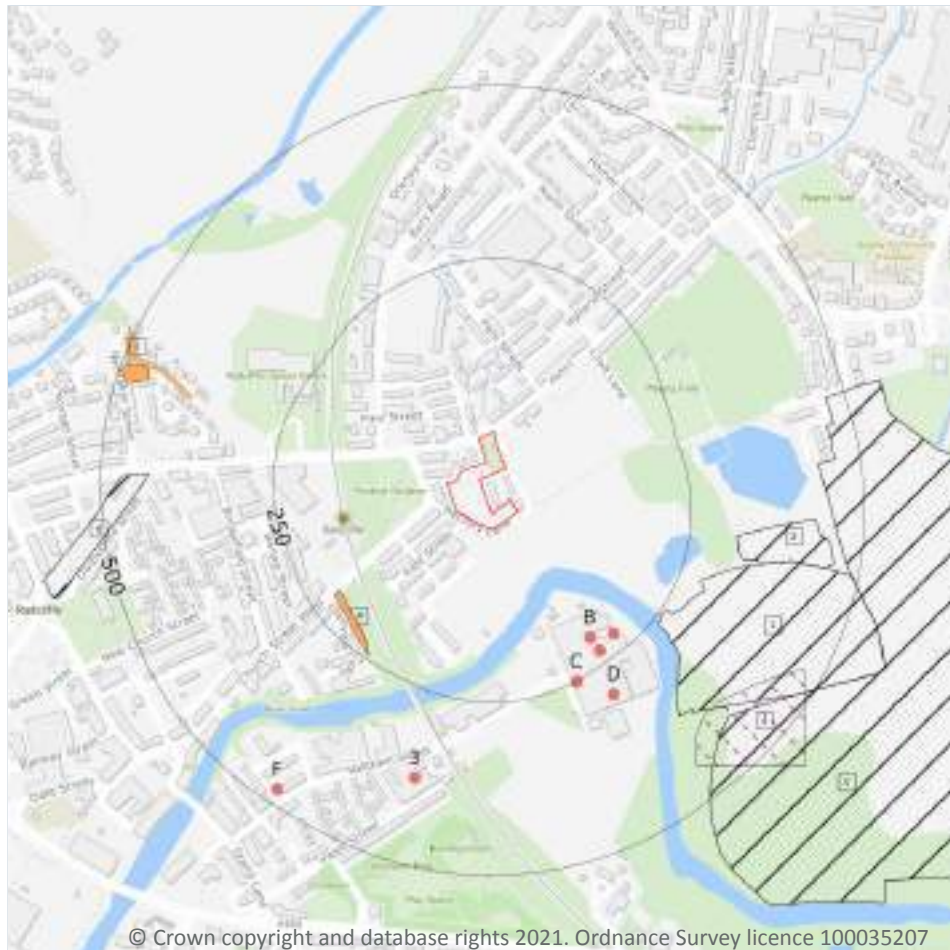


ID	Location	Land Use	Date	Group ID
X	266m S	Garage	1956	17424
T	282m NW	Garage	1956	16514
T	301m NW	Garage	1956	16435
AD	330m NE	Garage	1966	17769
AD	330m NE	Garage	1956	17769
AD	331m NE	Garage	1956	16941
AD	380m NE	Garage	1994	18556
AD	382m NE	Garage	1987	18556

This data is sourced from Ordnance Survey / Groundsure.



3 Waste and landfill



- Site Outline
- Search buffers in metres (m)
- Historical landfill (EA/NRW)
- Historical landfill (LA/OS)
- Historical waste sites
- Waste exemptions

3.1 Active or recent landfill

Records within 500m

0

Active or recently closed landfill sites under Environment Agency/Natural Resources Wales regulation.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.2 Historical landfill (BGS records)

Records within 500m

0

Landfill sites identified on a survey carried out on behalf of the DoE in 1973. These sites may have been closed or operational at this time.

This data is sourced from the British Geological Survey.



3.3 Historical landfill (LA/mapping records)

Records within 500m

1

Landfill sites identified from Local Authority records and high detail historical mapping.

Features are displayed on the Waste and landfill map on **page 48**

ID	Location	Site address	Source	Data type
4	399m SE	Refuse Tip	1996 mapping	Polygon

This data is sourced from the Ordnance Survey/Groundsure and Local Authority records.

3.4 Historical landfill (EA/NRW records)

Records within 500m

4

Known historical (closed) landfill sites (e.g. sites where there is no PPC permit or waste management licence currently in force). This includes sites that existed before the waste licensing regime and sites that have been licensed in the past but where a licence has been revoked, ceased to exist or surrendered and a certificate of completion has been issued.

Features are displayed on the Waste and landfill map on **page 48**

ID	Location	Details		
1	254m SE	Site Address: East Lancashire Paper Mill, Rear of Church Street East, Radcliffe, Bury, Greater Manchester Licence Holder Address: -	Waste Licence: Yes Site Reference: C002, WML/0109, RD/LIC/109/77 Waste Type: Inert, Industrial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 15/06/1979 Licence Surrender: -	Operator: - Licence Holder: East Lancashire Paper Mill Company Limited First Recorded 01/03/1979 Last Recorded: -
2	318m E	Site Address: Boiler house East Lancashire Paper Mill, Church Street East, Radcliffe, Bury, Greater Manchester Licence Holder Address: Church Street East, Radcliffe, Bury, Greater Manchester	Waste Licence: Yes Site Reference: RD/LIC/240/82, C057 Waste Type: Inert, Industrial, Special Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 26/08/1982 Licence Surrender: 19/09/1990	Operator: - Licence Holder: East Lancashire Paper Mill Company Limited First Recorded 31/12/1939 Last Recorded: 31/12/1989



ID	Location	Details		
5	424m SE	Site Address: Tower Farm, Off Church Street East, Radcliffe, Bury, Greater Manchester Licence Holder Address: The Octagon, 143, Derby Road, Nottingham	Waste Licence: Yes Site Reference: C010, RD/LIC/201/80, RD/LIC/018/76 Waste Type: Inert, Industrial, Commercial, Household, Special, Liquid sludge Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 13/06/1978 Licence Surrender: 10/03/1993	Operator: - Licence Holder: P D Pollution Control Limited First Recorded 31/12/1980 Last Recorded: 31/12/1992
6	430m W	Site Address: Land at Darbyshire Street, Radcliffe, Bury, Greater Manchester Licence Holder Address: -	Waste Licence: - Site Reference: C116 Waste Type: - Environmental Permitting Regulations (Waste) Reference: - Licence Issue: - Licence Surrender: -	Operator: - Licence Holder: - First Recorded 31/12/1974 Last Recorded: -

This data is sourced from the Environment Agency and Natural Resources Wales.

3.5 Historical waste sites

Records within 500m	9
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Waste site records derived from Local Authority planning records and high detail historical mapping.

Features are displayed on the Waste and landfill map on **page 48**

ID	Location	Address	Further Details	Date
A	204m SW	Site Address: N/A	Type of Site: Scrap Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1988
A	204m SW	Site Address: N/A	Type of Site: Scrap Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1989
A	204m SW	Site Address: N/A	Type of Site: Scrap Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1995

ID	Location	Address	Further Details	Date
A	204m SW	Site Address: N/A	Type of Site: Scrap Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1994
A	204m SW	Site Address: N/A	Type of Site: Scrap Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1995
E	386m W	Site Address: N/A	Type of Site: Ground Workings and Refuse Heap Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1978
E	453m W	Site Address: N/A	Type of Site: Scrap Metal Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1956
E	454m W	Site Address: N/A	Type of Site: Scrap Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1978
E	454m W	Site Address: N/A	Type of Site: Scrap Metal Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1956

This data is sourced from Ordnance Survey/Groundsure and Local Authority records.

3.6 Licensed waste sites

Records within 500m	0
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Active or recently closed waste sites under Environment Agency/Natural Resources Wales regulation.

This data is sourced from the Environment Agency and Natural Resources Wales.



3.7 Waste exemptions

Records within 500m

37

Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

Features are displayed on the Waste and landfill map on **page 48**

ID	Location	Site	Reference	Category	Sub-Category	Description
B	208m SE	Unit 29, Milltown Street, Radcliffe, M26 1wn	WEX134265	Storing waste exemption	Not on a farm	Storage of waste in secure containers
B	208m SE	Unit 29, Milltown Street, Radcliffe, M26 1wn	WEX134265	Storing waste exemption	Not on a farm	Storage of waste in a secure place
B	208m SE	Unit 29, Milltown Street, Radcliffe, M26 1wn	WEX134265	Treating waste exemption	Not on a farm	Preparatory treatments (baling, sorting, shredding etc)
B	208m SE	Unit 29, Milltown Street, Radcliffe, M26 1wn	WEX134265	Using waste exemption	Not on a farm	Use of waste in construction
B	208m SE	unit 29, Pioneer mills, Milltown street, Radcliffe, manchester, M26 1WN	WEX136908	Treating waste exemption	Not on a farm	Preparatory treatments (baling, sorting, shredding etc)
B	224m SE	Unit 47 Pioneer Mill Milltown Street MANCHESTER M26 1WN	EPR/PE5186Z Q/A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of waste in a secure place
B	224m SE	Unit 47 Pioneer Mill Milltown Street MANCHESTER M26 1WN	EPR/PE5186Z Q/A001	Treating waste exemption	Non-Agricultural Waste Only	Preparatory treatments (baling, sorting, shredding etc)
B	231m SE	Pioneer Mill, Empire Yard, Miltown Street, Radcliffe, M26 1WN	WEX246533	Using waste exemption	Not on a farm	Use of waste for a specified purpose
B	231m SE	Pioneer Mill, Empire Yard, Miltown Street, Radcliffe, M26 1WN	WEX246533	Storing waste exemption	Not on a farm	Storage of waste in a secure place
B	231m SE	Yard Opposite Pioneer Mill, Milltown Street, Radcliffe, M26 1WN	WEX256972	Treating waste exemption	Not on a farm	Preparatory treatments (baling, sorting, shredding etc)
B	231m SE	Unit 74, Pioneer Mill Milltown Street, Radcliffe, Manchester, M261WN	WEX072365	Storing waste exemption	Not on a farm	Storage of waste in secure containers
B	231m SE	Unit 74, Pioneer Mill Milltown Street, Radcliffe, Manchester, M261WN	WEX072365	Storing waste exemption	Not on a farm	Storage of waste in a secure place



ID	Location	Site	Reference	Category	Sub-Category	Description
B	231m SE	Unit 74, Pioneer Mill Milltown Street, Radcliffe, Manchester, M261WN	WEX072365	Treating waste exemption	Not on a farm	Cleaning, washing, spraying or coating relevant waste
B	231m SE	Unit 74, Pioneer Mill Milltown Street, Radcliffe, Manchester, M261WN	WEX072365	Treating waste exemption	Not on a farm	Sorting mixed waste
B	231m SE	Unit 74, Pioneer Mill Milltown Street, Radcliffe, Manchester, M261WN	WEX072365	Treating waste exemption	Not on a farm	Preparatory treatments (baling, sorting, shredding etc)
C	251m SE	PIONEER MILL, UNIT 34, MILLTOWN STREET, RADCLIFFE, MANCHESTER, M26 1WN	WEX215460	Disposing of waste exemption	Not on a farm	Burning waste in the open
C	251m SE	PIONEER MILL, UNIT 34, MILLTOWN STREET, RADCLIFFE, MANCHESTER, M26 1WN	WEX060713	Disposing of waste exemption	Not on a farm	Burning waste in the open
D	295m SE	PIONEER MILL, UNIT 75, MILLTOWN STREET, RADCLIFFE, MANCHESTER, M26 1WN	WEX153062	Using waste exemption	Not on a farm	Use of waste in construction
D	295m SE	PIONEER MILL, UNIT 75, MILLTOWN STREET, RADCLIFFE, MANCHESTER, M26 1WN	WEX153062	Treating waste exemption	Not on a farm	Cleaning, washing, spraying or coating relevant waste
D	295m SE	PIONEER MILL, UNIT 75, MILLTOWN STREET, RADCLIFFE, MANCHESTER, M26 1WN	WEX153062	Treating waste exemption	Not on a farm	Sorting mixed waste
D	295m SE	PIONEER MILL, UNIT 75, MILLTOWN STREET, RADCLIFFE, MANCHESTER, M26 1WN	WEX153062	Treating waste exemption	Not on a farm	Preparatory treatments (baling, sorting, shredding etc)
D	295m SE	PIONEER MILL, UNIT 75, MILLTOWN STREET, RADCLIFFE, MANCHESTER, M26 1WN	WEX153062	Treating waste exemption	Not on a farm	Recovery of textiles
D	295m SE	PIONEER MILL, UNIT 75, MILLTOWN STREET, RADCLIFFE, MANCHESTER, M26 1WN	WEX153062	Using waste exemption	Not on a farm	Use of baled end-of-life tyres in construction



ID	Location	Site	Reference	Category	Sub-Category	Description
D	295m SE	PIONEER MILL, UNIT 75, MILLTOWN STREET, RADCLIFFE, MANCHESTER, M26 1WN	WEX153062	Disposing of waste exemption	Not on a farm	Burning waste in the open
D	295m SE	PIONEER MILL, UNIT 75, MILLTOWN STREET, RADCLIFFE, MANCHESTER, M26 1WN	WEX153062	Using waste exemption	Not on a farm	Use of waste to manufacture finished goods
D	295m SE	PIONEER MILL, UNIT 75, MILLTOWN STREET, RADCLIFFE, MANCHESTER, M26 1WN	WEX153062	Using waste exemption	Not on a farm	Burning of waste as a fuel in a small appliance
D	295m SE	PIONEER MILL, UNIT 75, MILLTOWN STREET, RADCLIFFE, MANCHESTER, M26 1WN	WEX153062	Treating waste exemption	Not on a farm	Screening and blending of waste
D	295m SE	PIONEER MILL, UNIT 75, MILLTOWN STREET, RADCLIFFE, MANCHESTER, M26 1WN	WEX153062	Treating waste exemption	Not on a farm	Manual treatment of waste
D	295m SE	PIONEER MILL, UNIT 75, MILLTOWN STREET, RADCLIFFE, MANCHESTER, M26 1WN	WEX153062	Treating waste exemption	Not on a farm	Recovery of scrap metal
D	295m SE	PIONEER MILL, UNIT 75, MILLTOWN STREET, RADCLIFFE, MANCHESTER, M26 1WN	WEX153062	Storing waste exemption	Not on a farm	Storage of waste in a secure place
D	295m SE	PIONEER MILL, UNIT 75, MILLTOWN STREET, RADCLIFFE, MANCHESTER, M26 1WN	WEX153062	Storing waste exemption	Not on a farm	Storage of waste in secure containers
D	295m SE	PIONEER MILL, UNIT 75, MILLTOWN STREET, RADCLIFFE, MANCHESTER, M26 1WN	WEX153062	Using waste exemption	Not on a farm	Use of waste for a specified purpose
D	295m SE	PIONEER MILL, UNIT 75, MILLTOWN STREET, RADCLIFFE, MANCHESTER, M26 1WN	WEX211881	Treating waste exemption	Not on a farm	Preparatory treatments (baling, sorting, shredding etc)
3	376m S	West & Senior Ltd Milltown Street MANCHESTER M26 1WE	EPR/MF0208B E/A001	Treating waste exemption	Non- Agricultural Waste Only	Preparatory treatments (baling, sorting, shredding etc)

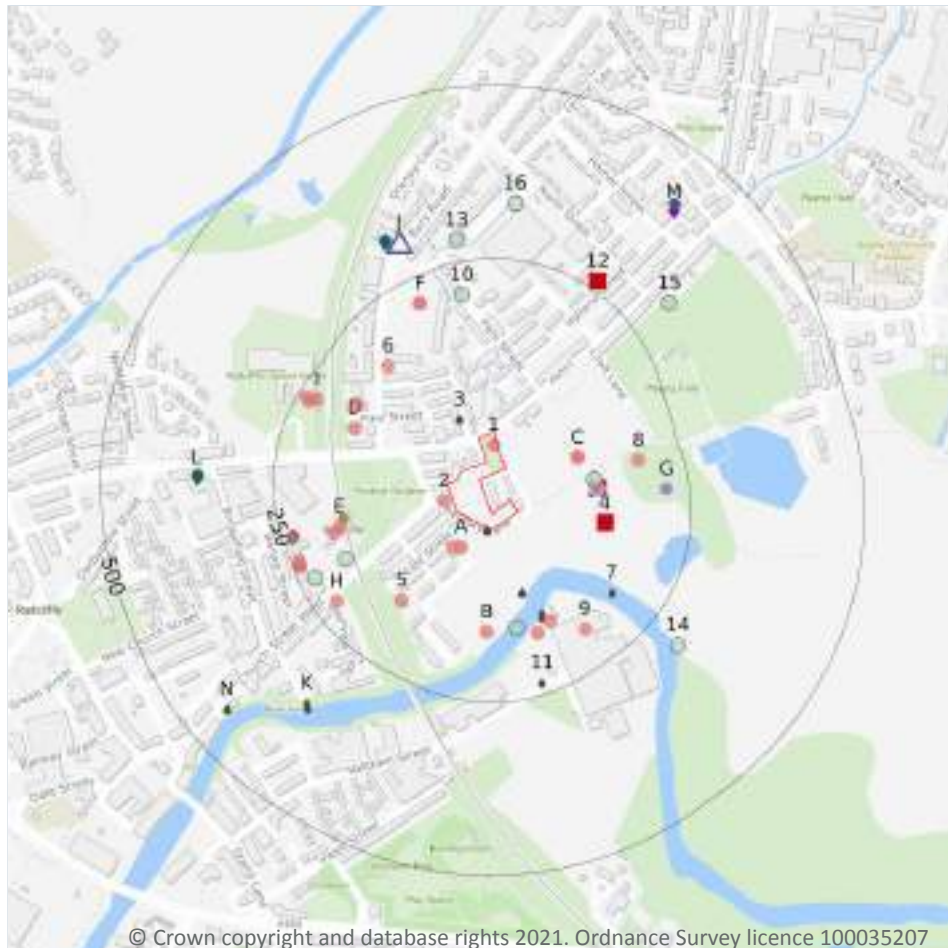


ID	Location	Site	Reference	Category	Sub-Category	Description
F	479m SW	8 Milltown Street MANCHESTER M26 1WD	EPR/YF0009BB /A001	Storing waste exemption	Non- Agricultural Waste Only	Storage of waste in secure containers
F	479m SW	8 Milltown Street MANCHESTER M26 1WD	EPR/YF0009BB /A001	Storing waste exemption	Non- Agricultural Waste Only	Storage of waste in a secure place
F	479m SW	8 Milltown Street MANCHESTER M26 1WD	EPR/YF0009BB /A001	Using waste exemption	Non- Agricultural Waste Only	Use of depolluted end-of-life vehicles for vehicle parts

This data is sourced from the Environment Agency and Natural Resources Wales.



4 Current industrial land use



- Site Outline
- Search buffers in metres (m)
- Recent industrial land uses
- △ Current or recent petrol stations
- Historical licensed industrial activities
- ▽ Part A(1) industrial activities
- Licensed pollutant release (Part A(2)/B)
- Licensed Discharges to controlled waters
- List 1 Dangerous Substances
- Pollution Incidents (EA/NRW)
- Pollution inventory substances
- Pollution inventory waste transfers

4.1 Recent industrial land uses

Records within 250m

28

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 56**

ID	Location	Company	Address	Activity	Category
1	On site	Electricity Sub Station	Greater Manchester, M26	Electrical Features	Infrastructure and Facilities
2	12m W	Works	Greater Manchester, M26	Unspecified Works Or Factories	Industrial Features

ID	Location	Company	Address	Activity	Category
A	42m SW	Water Street Motors	20, Rectory Lane, Radcliffe, Manchester, Greater Manchester, M26 2QU	Vehicle Repair, Testing and Servicing	Repair and Servicing
A	48m SW	Works	Greater Manchester, M26	Unspecified Works Or Factories	Industrial Features
C	105m E	Tank	Greater Manchester, M26	Tanks (Generic)	Industrial Features
C	105m E	Tanks	Greater Manchester, M26	Tanks (Generic)	Industrial Features
B	149m S	Electricity Sub Station	Greater Manchester, M26	Electrical Features	Infrastructure and Facilities
5	151m SW	Works	Greater Manchester, M26	Unspecified Works Or Factories	Industrial Features
D	155m NW	Dean Smith Car Sales	Pine Street Garage 6, Pine Street, Radcliffe, Manchester, Greater Manchester, M26 2UW	Secondhand Vehicles	Motoring
B	156m SE	Works	Greater Manchester, M26	Unspecified Works Or Factories	Industrial Features
B	163m S	Depot	Greater Manchester, M26	Container and Storage	Transport, Storage and Delivery
E	167m W	Radcliffe (Manchester Metrolink)	Greater Manchester, M26	Tram, Metro and Light Railway Stations and Stops	Public Transport, Stations and Infrastructure
6	167m NW	Electricity Sub Station	Greater Manchester, M26	Electrical Features	Infrastructure and Facilities
D	171m NW	Kwik-Fit (GB) Limited	Bury Road, Radcliffe, Manchester, Greater Manchester, M26 2UG	Vehicle Repair, Testing and Servicing	Repair and Servicing
E	178m W	Electricity Sub Station	Greater Manchester, M26	Electrical Features	Infrastructure and Facilities
8	188m NE	Tank	Greater Manchester, M26	Tanks (Generic)	Industrial Features
9	194m SE	Trend Mania Ltd	Unit 36 Pioneer Mill, Milltown Street, Radcliffe, Manchester, Greater Manchester, M26 1WN	Wood Products Including Charcoal, Paper, Card and Board	Industrial Products
F	213m NW	N B S Ltd	Wilton House 2, Bury Road, Radcliffe, Manchester, Greater Manchester, M26 2UA	Industrial Engineers	Engineering Services
F	213m NW	Ferrari Electroplating	Station Works, Bury Road, Radcliffe, Manchester, Greater Manchester, M26 2UA	Industrial Coatings and Finishings	Industrial Products
H	217m SW	Electricity Sub Station	Greater Manchester, M26	Electrical Features	Infrastructure and Facilities



ID	Location	Company	Address	Activity	Category
I	222m NW	Electricity Sub Station	Greater Manchester, M26	Electrical Features	Infrastructure and Facilities
I	231m NW	Electricity Sub Station	Greater Manchester, M26	Electrical Features	Infrastructure and Facilities
H	235m W	K C Motors	Barlow Street, Radcliffe, Manchester, Greater Manchester, M26 2SU	Vehicle Repair, Testing and Servicing	Repair and Servicing
I	239m NW	Chimney	Greater Manchester, M26	Chimneys	Industrial Features
H	239m W	M B M Garage Services	Church Street West, Radcliffe, Manchester, Greater Manchester, M26 2SX	Vehicle Repair, Testing and Servicing	Repair and Servicing
H	241m W	Cold Roll Rings	101, Church Street West, Radcliffe, Manchester, Greater Manchester, M26 2SX	Cooling and Refrigeration	Industrial Products
H	241m W	B & G M O T Centre Ltd	101, Church Street West, Radcliffe, Manchester, Greater Manchester, M26 2SX	Vehicle Repair, Testing and Servicing	Repair and Servicing
H	241m W	Radcliffe Enginnering Services	101, Church Street West, Radcliffe, Manchester, Greater Manchester, M26 2SX	Mechanical Engineers	Engineering Services

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m

1

Open, closed, under development and obsolete petrol stations.

Features are displayed on the Current industrial land use map on **page 56**

ID	Location	Company	Address	LPG	Status
J	305m NW	TEXACO	55, Bury Road, Radcliffe, Manchester, Greater Manchester, M26 2UT	No	Open

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m

0

High voltage underground electricity transmission cables.

This data is sourced from National Grid.



4.4 Gas pipelines

Records within 500m

0

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m

0

Contaminated Land Register of sites designated under Part 2a of the Environmental Protection Act 1990.

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m

0

Control of Major Accident Hazards (COMAH) sites. This data includes upper and lower tier sites, and includes a historical archive of COMAH sites and Notification of Installations Handling Hazardous Substances (NIHHS) records.

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m

0

Sites registered and licensed by the Health and Safety Executive under the Manufacture and Storage of Explosives Regulations 2005 (MSER). The last update to this data was in April 2011.

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m

0

Consents granted for a site to hold certain quantities of hazardous substances at or above defined limits in accordance with the Planning (Hazardous Substances) Regulations 2015.

This data is sourced from Local Authority records.



4.9 Historical licensed industrial activities (IPC)

Records within 500m

8

Integrated Pollution Control (IPC) records of substance releases to air, land and water. This data represents a historical archive as the IPC regime has been superseded.

Features are displayed on the Current industrial land use map on **page 56**

ID	Location	Details	
C	118m E	Operator: East Lancashire Paper Mill Co Ltd Address: Church Street East, Radcliffe, Manchester, M26 2EL Process: Combustion Processes Permit Number: AA2933	Original Permit Number: IPCAPP Date Approved: 10-6-1992 Effective Date: 10-6-1992 Status: Superseded By Variation
C	118m E	Operator: East Lancashire Paper Mill Co Ltd Address: Church Street East, Radcliffe, Manchester, M26 2EL Process: Combustion Processes Permit Number: AH7763	Original Permit Number: IPCMINVAR Date Approved: 9-3-1993 Effective Date: 9-3-1993 Status: Revoked
C	118m E	Operator: East Lancashire Paper Mill Co Ltd Address: Church Street East, Radcliffe, Manchester, M26 2PG Process: Paper And Pulp Manufacturing Processes Permit Number: AU7702	Original Permit Number: IPCAPP Date Approved: 6-10-1997 Effective Date: 17-10-1997 Status: Superseded By Variation
C	118m E	Operator: East Lancashire Paper Mill Co Ltd Address: Church Street East, Radcliffe, Manchester, M26 2PG Process: Paper And Pulp Manufacturing Processes Permit Number: BD4651	Original Permit Number: IPCMINVAR Date Approved: 24-11-1998 Effective Date: 30-11-1998 Status: Superseded By Variation
C	118m E	Operator: East Lancashire Paper Mill Co Ltd Address: Church Street East, Radcliffe, Manchester, M26 2PG Process: Paper And Pulp Manufacturing Processes Permit Number: BH9701	Original Permit Number: IPCMINVAR Date Approved: 8-5-2000 Effective Date: 8-5-2000 Status: Revoked
G	216m E	Operator: Scottish and Southern Energy Plc Address: East Lancashire Paper Mill Co Ltd, Ratcliffe, Manchester, M26 2EL Process: Combustion Processes Permit Number: AO5018	Original Permit Number: IPCAPP Date Approved: 18-11-1994 Effective Date: 18-11-1994 Status: Superseded By Variation
G	216m E	Operator: Scottish and Southern Energy Plc Address: East Lancashire Paper Mill Co Ltd, Ratcliffe, Manchester, M26 2EL Process: Combustion Processes Permit Number: AW6766	Original Permit Number: IPCMINVAR Date Approved: 16-1-1997 Effective Date: 20-1-1997 Status: Superseded By Variation



ID	Location	Details	
G	216m E	Operator: Scottish and Southern Energy Plc Address: East Lancashire Paper Mill Co Ltd, Ratcliffe, Manchester, M26 2EL Process: Combustion Processes Permit Number: BD6921	Original Permit Number: IPCMINVAR Date Approved: 24-11-1998 Effective Date: 30-11-1998 Status: Revoked

This data is sourced from the Environment Agency and Natural Resources Wales.

4.10 Licensed industrial activities (Part A(1))

Records within 500m

6

Records of Part A(1) installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

Features are displayed on the Current industrial land use map on **page 56**

ID	Location	Details	
M	409m NE	Operator: COLOUR ANODISING LTD Installation Name: COLOUR ANODISING RADCLIFFE Process: SURFACE TREATING METALS AND PLASTICS; ELECTROLYTIC/CHEMICAL >30 CU M Permit Number: BN5386IN Original Permit Number: BN5386IN	EPR Reference: - Issue Date: 23/11/2004 Effective Date: 23/11/2004 Last date noted as effective: 26/10/2020 Status: SUPERCEDED
M	409m NE	Operator: COLOUR ANODISING LTD Installation Name: COLOUR ANODISING RADCLIFFE Process: SOLVENT EMISSIONS DIRECTVE; ACTIVITIES EXCEEDING SOLVENT THRESHOLD Permit Number: QP3634AD Original Permit Number: BN5386IN	EPR Reference: - Issue Date: 02/11/2015 Effective Date: 02/11/2015 Last date noted as effective: 26/10/2020 Status: SUPERCEDED
M	409m NE	Operator: COLOUR ANODISING LTD Installation Name: COLOUR ANODISING RADCLIFFE Process: SURFACE TREATING METALS AND PLASTICS; ELECTROLYTIC/CHEMICAL >30 CU M Permit Number: QP3634AD Original Permit Number: BN5386IN	EPR Reference: - Issue Date: 02/11/2015 Effective Date: 02/11/2015 Last date noted as effective: 26/10/2020 Status: SUPERCEDED
M	409m NE	Operator: COLOUR ANODISING LTD Installation Name: COLOUR ANODISING RADCLIFFE Process: SOLVENT EMISSIONS DIRECTVE; ACTIVITIES EXCEEDING SOLVENT THRESHOLD Permit Number: BN5386IN Original Permit Number: BN5386IN	EPR Reference: - Issue Date: 23/11/2004 Effective Date: 23/11/2004 Last date noted as effective: 26/10/2020 Status: SUPERCEDED



ID	Location	Details	
M	409m NE	Operator: COLOUR ANODISING LTD Installation Name: ANOTEC WORKS EPR/BN5386IN Process: SURFACE TREATING METALS AND PLASTICS; ELECTROLYTIC/CHEMICAL >30 CU M Permit Number: WP3234YA Original Permit Number: BN5386IN	EPR Reference: - Issue Date: 15/06/2017 Effective Date: 15/06/2017 Last date noted as effective: 26/10/2020 Status: EFFECTIVE
M	409m NE	Operator: COLOUR ANODISING LTD Installation Name: ANOTEC WORKS EPR/BN5386IN Process: SOLVENT EMISSIONS DIRECTVE; ACTIVITIES EXCEEDING SOLVENT THRESHOLD Permit Number: WP3234YA Original Permit Number: BN5386IN	EPR Reference: - Issue Date: 15/06/2017 Effective Date: 15/06/2017 Last date noted as effective: 28/09/2020 Status: EFFECTIVE

This data is sourced from the Environment Agency and Natural Resources Wales.

4.11 Licensed pollutant release (Part A(2)/B)

Records within 500m	5
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Records of Part A(2) and Part B installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

Features are displayed on the Current industrial land use map on **page 56**

ID	Location	Address	Details	
H	235m W	K.C. Motors, Back Barlow Street, Radcliffe, M26 2SU	Process: Waste Oil Burner 0.4 MW Status: New Legislation Applies Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified
J	313m NW	Radcliffe Service Station (Formerly Central Service Station), Bury Road, Radcliffe, M26 2UG	Process: Unloading of Petrol into Storage at Service Stations Status: Current Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified
L	360m W	Radcliffe Auto Centre, Unit 9, Spring Lane, Radcliffe, M26 2TA	Process: Waste Oil Burner 0.4 MW Status: New Legislation Applies Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified
L	360m W	Radcliffe Auto Centre, Unit 9, Spring Lane, Radcliffe, M26 2TA	Process: Waste Oil Burner 0.4 MW Status: New Legislation Applies Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified



ID	Location	Address	Details	
M	416m NE	Anodising & Plating Ltd, Holland St, M26 2RH	Process: Coating Processes Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m	0
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Records of the storage, use, accumulation and disposal of radioactive substances regulated under the Radioactive Substances Act 1993.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.13 Licensed Discharges to controlled waters

Records within 500m	16
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Discharges of treated or untreated effluent to controlled waters under the Water Resources Act 1991.

Features are displayed on the Current industrial land use map on **page 56**

ID	Location	Address	Details	
A	3m SW	CHURCH STREET EAST 09003, SIDE OF 13 BAYBUTT STREET, RADCLIFFE, MANCHESTER, M26 2PR	Effluent Type: SEWAGE DISCHARGES - STW STORM OVERFLOW/STORM TANK - WATER COMPANY Permit Number: 016993586 Permit Version: 1 Receiving Water: UNNAMED TRIB OF RIVER IRWELL	Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 31/05/2006 Effective Date: 31/05/2006 Revocation Date: 17/06/2018
A	3m SW	CHURCH STREET EAST 09003, SIDE OF 13 BAYBUTT STREET, RADCLIFFE, MANCHESTER, M26 2PR	Effluent Type: SEWAGE DISCHARGES - STW STORM OVERFLOW/STORM TANK - WATER COMPANY Permit Number: 016993586 Permit Version: 2 Receiving Water: UNNAMED TRIB OF RIVER IRWELL	Status: VARIED UNDER EPR 2010 Issue date: 18/06/2018 Effective Date: 18/06/2018 Revocation Date: -
3	39m NW	IRWELL VALLEY HA DEVELOPMENT SWO, BUTTERWORTH STREET, RADCLIFFE	Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: 016991037 Permit Version: 1 Receiving Water: CROW TREES FARM BROOK	Status: REVOKED - UNSPECIFIED Issue date: - Effective Date: 30/09/1985 Revocation Date: 15/02/1991



ID	Location	Address	Details	
B	100m S	AINSWORTH RD, RADCLIFFE, BURY	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01BRY0129 Permit Version: 1 Receiving Water: -	Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: - Effective Date: 01/01/1995 Revocation Date: -
B	100m S	CHURCH STREET EAST 09003, SIDE OF 13 BAYBUTT STREET, RADCLIFFE, MANCHESTER, M26 2PR	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01BRY0031 Permit Version: 1 Receiving Water: RIVER IRWELL	Status: CONSENT REVOKED OR REVISED - NEW CONSENT ISSUED (37(1)) Issue date: 01/01/1995 Effective Date: 01/01/1995 Revocation Date: 30/05/2006
B	140m SE	MILLTOWN ST WW NTWK PS (09008), MILLTOWN STREET, RADCLIFFE, LANCASHIRE, M26 1WN	Effluent Type: MISCELLANEOUS DISCHARGES - EMERGENCY DISCHARGES Permit Number: 01BRY0061 Permit Version: 1 Receiving Water: RIVER IRWELL	Status: VARIED UNDER EPR 2010 Issue date: - Effective Date: 01/01/1995 Revocation Date: 02/09/2010
B	140m SE	MILLTOWN ST WW NTWK PS (09008), MILLTOWN STREET, RADCLIFFE, LANCASHIRE, M26 1WN	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01BRY0061 Permit Version: 2 Receiving Water: RIVER IRWELL	Status: VARIED UNDER EPR 2010 Issue date: 03/09/2010 Effective Date: 03/09/2010 Revocation Date: 09/06/2016
B	145m SE	MILLTOWN ST WW NTWK PS (09008), MILLTOWN STREET, RADCLIFFE, LANCASHIRE, M26 1WN	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01BRY0061 Permit Version: 3 Receiving Water: RIVER IRWELL	Status: VARIED UNDER EPR 2010 Issue date: 10/06/2016 Effective Date: 10/06/2016 Revocation Date: -
7	178m SE	CHURCH ST EAST, RADCLIFFE	Effluent Type: TRADE DISCHARGES - PROCESS EFFLUENT - NOT WATER COMPANY Permit Number: 016993109 Permit Version: 1 Receiving Water: RIVER IRWELL	Status: CONSENT REVOKED - DISCHARGE CEASED (SECTION 37(1)) Issue date: - Effective Date: 19/12/1995 Revocation Date: 01/01/2004
11	232m S	MILLTOWN ST WW NTWK PS (09008), MILLTOWN STREET, RADCLIFFE, LANCASHIRE, M26 1WN	Effluent Type: MISCELLANEOUS DISCHARGES - EMERGENCY DISCHARGES Permit Number: 016982126 Permit Version: 1 Receiving Water: RIVER IRWELL	Status: PRE NRA LEGISLATION WHERE ISSUE DATE 01-SEP-89 (HISTORIC ONLY) Issue date: - Effective Date: 01/01/1900 Revocation Date: 01/01/1900



ID	Location	Address	Details	
K	351m SW	CHURCH STREET WEST CSO 091KB, CHURCH STREET WEST, RADCLIFFE, MANCHESTER, M26 2SY	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01BRY0029 Permit Version: 1 Receiving Water: RIVER IRWELL	Status: VARIED UNDER EPR 2010 Issue date: - Effective Date: 01/01/1995 Revocation Date: 02/09/2010
K	351m SW	CHURCH STREET WEST CSO 091KB, CHURCH STREET WEST, RADCLIFFE, MANCHESTER, M26 2SY	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01BRY0029 Permit Version: 2 Receiving Water: RIVER IRWELL	Status: VARIED UNDER EPR 2010 Issue date: 03/09/2010 Effective Date: 03/09/2010 Revocation Date: 04/02/2016
K	351m SW	CHURCH STREET WEST CSO 091KB, CHURCH STREET WEST, RADCLIFFE, MANCHESTER, M26 2SY	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01BRY0029 Permit Version: 3 Receiving Water: RIVER IRWELL	Status: VARIED UNDER EPR 2010 Issue date: 05/02/2016 Effective Date: 05/02/2016 Revocation Date: 31/03/2018
K	356m SW	CHURCH STREET WEST CSO 091KB, CHURCH STREET WEST, RADCLIFFE, MANCHESTER, M26 2SY	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01BRY0029 Permit Version: 4 Receiving Water: RIVER IRWELL	Status: VARIED UNDER EPR 2010 Issue date: 21/03/2018 Effective Date: 01/04/2018 Revocation Date: -
N	438m SW	RADCLIFFE CENTRAL CSO, RIVER COURT, 2 BLACKBURN STREET, RADCLIFFE, MANCHESTER, M26 1WW	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 016982932 Permit Version: 4 Receiving Water: RIVER IRWELL	Status: VARIED UNDER EPR 2010 Issue date: 27/11/2014 Effective Date: 01/04/2015 Revocation Date: 05/08/2018
N	438m SW	RADCLIFFE CENTRAL CSO, RIVER COURT, 2 BLACKBURN STREET, RADCLIFFE, MANCHESTER, M26 1WW	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 016982932 Permit Version: 5 Receiving Water: RIVER IRWELL	Status: VARIED UNDER EPR 2010 Issue date: 06/08/2018 Effective Date: 06/08/2018 Revocation Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.



4.14 Pollutant release to surface waters (Red List)

Records within 500m

0

Discharges of specified substances under the Environmental Protection (Prescribed Processes and Substances) Regulations 1991.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.15 Pollutant release to public sewer

Records within 500m

0

Discharges of Special Category Effluents to the public sewer.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.16 List 1 Dangerous Substances

Records within 500m

4

Discharges of substances identified on List I of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

Features are displayed on the Current industrial land use map on **page 56**

ID	Location	Name	Status	Receiving Water	Authorised Substances
C	119m E	East Lancashire Paper Mill Co Ltd, Radcliffe	Not Active	-	-
C	119m E	East Lancashire Paper Mill Co Ltd, Radcliffe	Active	-	-
4	126m E	East Lancashire Paper Mill Co Ltd, Radcliffe	Active	-	Mercury (other), Cadmium, Pentachlorophenol
12	264m NE	Colour Anodising Ltd	Active	-	Mercury (other)

This data is sourced from the Environment Agency and Natural Resources Wales.

4.17 List 2 Dangerous Substances

Records within 500m

0

Discharges of substances identified on List II of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.18 Pollution Incidents (EA/NRW)

Records within 500m

9

Records of substantiated pollution incidents. Since 2006 this data has only included category 1 (major) and 2 (significant) pollution incidents.

Features are displayed on the Current industrial land use map on **page 56**

ID	Location	Details	
C	118m NE	Incident Date: 09/03/2002 Incident Identification: 62912 Pollutant: Specific Waste Materials Pollutant Description: Household Waste	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
B	145m S	Incident Date: 03/08/2020 Incident Identification: 1833130 Pollutant: Pollutant Not Identified Pollutant Description: Not Identified	Water Impact: Category 2 (Significant) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
E	175m SW	Incident Date: 14/03/2003 Incident Identification: 143009 Pollutant: Inert Materials and Wastes Pollutant Description: Other Inert Material or Waste	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
10	202m N	Incident Date: 22/10/2002 Incident Identification: 116132 Pollutant: Other Pollutant Pollutant Description: Other	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
H	225m SW	Incident Date: 13/05/2002 Incident Identification: 78273 Pollutant: Inert Materials and Wastes Pollutant Description: Construction and Demolition Materials and Wastes	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
13	282m N	Incident Date: 22/06/2003 Incident Identification: 167804 Pollutant: Oils and Fuel Pollutant Description: Unidentified Oil	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
14	300m SE	Incident Date: 29/04/2001 Incident Identification: 4105 Pollutant: Contaminated Water Pollutant Description: Landfill Leachate	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
15	313m NE	Incident Date: 16/10/2002 Incident Identification: 115048 Pollutant: Specific Waste Materials Pollutant Description: Metal Wastes	Water Impact: Category 3 (Minor) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)



ID	Location	Details	
16	330m N	Incident Date: 19/06/2002 Incident Identification: 86018 Pollutant: Oils and Fuel Pollutant Description: Other Oil or Fuel	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

This data is sourced from the Environment Agency and Natural Resources Wales.

4.19 Pollution inventory substances

Records within 500m	2
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The pollution inventory (substances) includes reporting on annual emissions of certain regulated substances to air, controlled waters and land. A reporting threshold for each substance is also included. Where emissions fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

Features are displayed on the Current industrial land use map on **page 56**

ID: M, Location: 410m NE, Permit: BN5386IN
 Operator: COLOUR ANODISING LTD
 Activity: SURFACE TREATING METALS AND PLASTICS; ELECTROLYTIC/CHEMICAL >30 CU M
 Address: COLOUR ANODISING RADCLIFFE Anotec Works Holland Street Radcliffe Lancashire M26 2RH
 Sector: Metals, Sub-sector: Surface treatment
 Releases:

Route	Substance	Reporting threshold (kg)	Quantity (kg)
Wastewater	Nickel	20kg	43.6kg

ID: M, Location: 410m NE, Permit: BN5386IN
 Operator: COLOUR ANODISING LTD
 Activity: SURFACE TREATING METALS AND PLASTICS; ELECTROLYTIC/CHEMICAL >30 CU M
 Address: COLOUR ANODISING RADCLIFFE Anotec Works Holland Street Radcliffe Lancashire M26 2RH
 Sector: Metals, Sub-sector: Surface treatment
 Releases:

Route	Substance	Reporting threshold (kg)	Quantity (kg)
Air	Nitrous oxide	10000kg	Below Reporting Threshold
Air	Nitrogen oxides (NO and NO2) as NO2	100000kg	Below Reporting Threshold
Wastewater	Chromium	20kg	Below Reporting Threshold
Wastewater	Copper	20kg	Below Reporting Threshold



Route	Substance	Reporting threshold (kg)	Quantity (kg)
Wastewater	Lead	20kg	Below Reporting Threshold
Wastewater	Zinc	100kg	Below Reporting Threshold
Air	Sulphur oxides (SO2 and SO3) as SO2	100000kg	Below Reporting Threshold
Air	Carbon dioxide	10000000kg	Below Reporting Threshold

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.20 Pollution inventory waste transfers

Records within 500m	1
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The pollution inventory (waste transfers) includes reporting on annual transfers and recovery/disposal of controlled wastes from a site. A reporting threshold for each waste type is also included. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

Features are displayed on the Current industrial land use map on **page 56**

ID: M, Location: 410m NE, Permit: BN5386IN
 Operator: COLOUR ANODISING LTD
 Activity: SURFACE TREATING METALS AND PLASTICS; ELECTROLYTIC/CHEMICAL >30 CU M
 Address: COLOUR ANODISING RADCLIFFE Anotec Works Holland Street Radcliffe Lancashire M26 2RH
 Sector: Metals, Sub-sector: Surface treatment
 Releases:

Route	Route description	Quantity (tonnes)	Release level	EWC code	EWC description	Hazardous waste
D5	Specially engineered landfill (eg placement into lined discrete cells which are capped and isolated from one another and the environment, etc)	61.74	Absolute Value	11 01 09	sludges and filter cakes containing dangerous substances	Yes
D15	Storage pending any of the operations numbered D1 to D14 (excluding temporary storage pending collection, on the site where it is produced)	0.25	Absolute Value	11 01 05	pickling acids	Yes
D9	Physio-chemical treatment not specified elsewhere in this Table which results in final compounds or mixtures which are discarded by means of any of the operations numbered D1 to D12 (eg evaporation, drying, calcination, etc.)	6.764	Absolute Value	16 10 01	aqueous liquid wastes containing dangerous substances	Yes



Route	Route description	Quantity (tonnes)	Release level	EWC code	EWC description	Hazardous waste
D9	Physio-chemical treatment not specified elsewhere in this Table which results in final compounds or mixtures which are discarded by means of any of the operations numbers D1 to D12 (eg evaporation, drying, calcination, etc.)	26.85	Absolute Value	11 01 07	pickling bases	Yes
D9	Physio-chemical treatment not specified elsewhere in this Table which results in final compounds or mixtures which are discarded by means of any of the operations numbers D1 to D12 (eg evaporation, drying, calcination, etc.)	94.86	Absolute Value	11 01 06	acids not otherwise specified	Yes
D1	Deposit into or onto land (eg landfill, etc.)	Below Reporting Threshold	Below Reporting Threshold	20 03 01	mixed municipal waste	No
R5	Recycling/reclamation of other inorganic materials	6.375	Absolute Value	20 03 01	mixed municipal waste	No
R5	Recycling/reclamation of other inorganic materials	10.3	Absolute Value	15 01 06	mixed packaging	No
R4	Recycling/reclamation of metals and metal compounds	Below Reporting Threshold	Below Reporting Threshold	17 04 02	aluminium	No
R4	Recycling/reclamation of metals and metal compounds	Below Reporting Threshold	Below Reporting Threshold	19 12 03	non-ferrous metal	No

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.21 Pollution inventory radioactive waste

Records within 500m

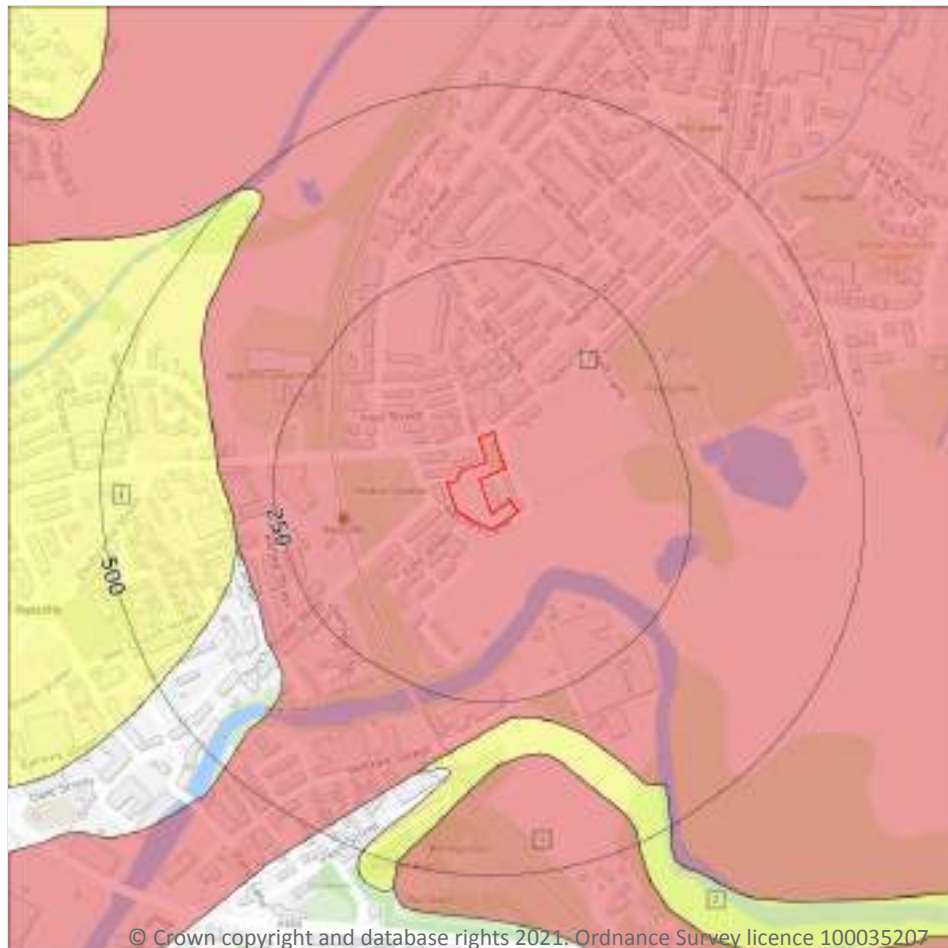
0

The pollution inventory (radioactive wastes) includes reporting on annual releases of radioactive substances from a site, including the means of release. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.



5 Hydrogeology - Superficial aquifer



- Site Outline
- Search buffers in metres (m)
- Principal
 - Secondary A
 - Secondary B
 - Secondary Undifferentiated
 - Unproductive
 - Unknown

5.1 Superficial aquifer

Records within 500m

4

Aquifer status of groundwater held within superficial geology.

Features are displayed on the Hydrogeology map on **page 71**

ID	Location	Designation	Description
1	On site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
2	275m S	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type

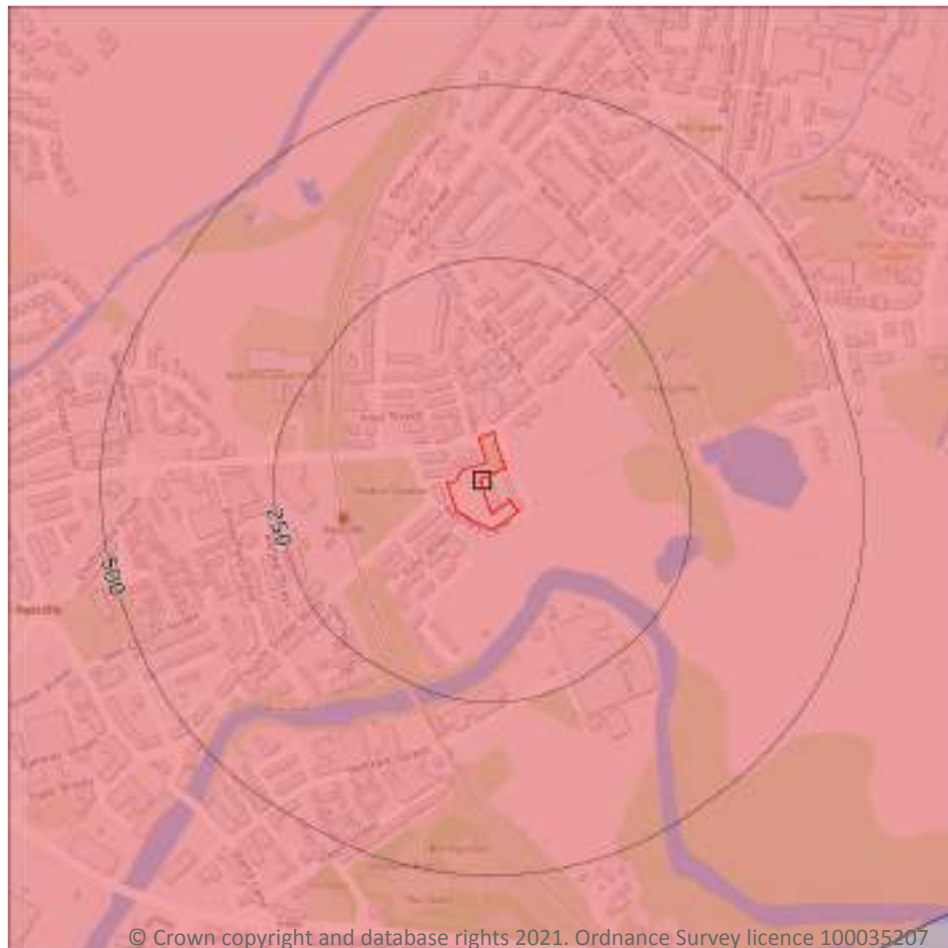


ID	Location	Designation	Description
3	312m W	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
4	330m S	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.



Bedrock aquifer



- Site Outline
- Search buffers in metres (m)
- Principal
 - Secondary A
 - Secondary B
 - Secondary Undifferentiated
 - Unproductive

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5.2 Bedrock aquifer

Records within 500m

1

Aquifer status of groundwater held within bedrock geology.

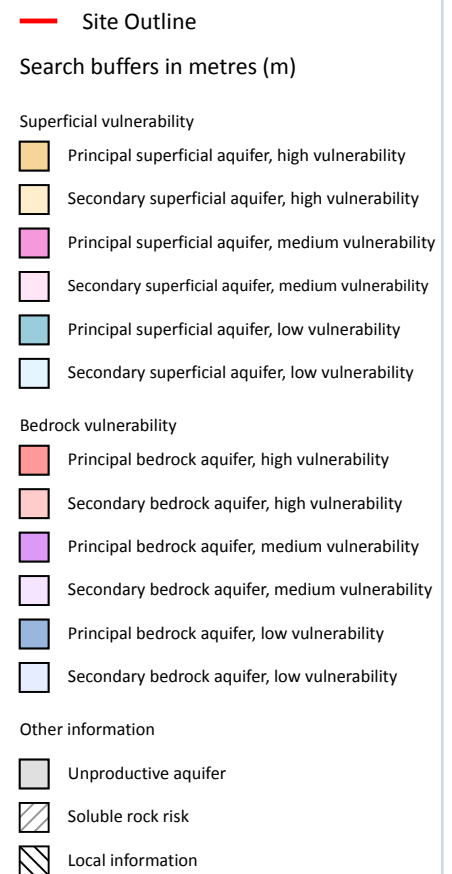
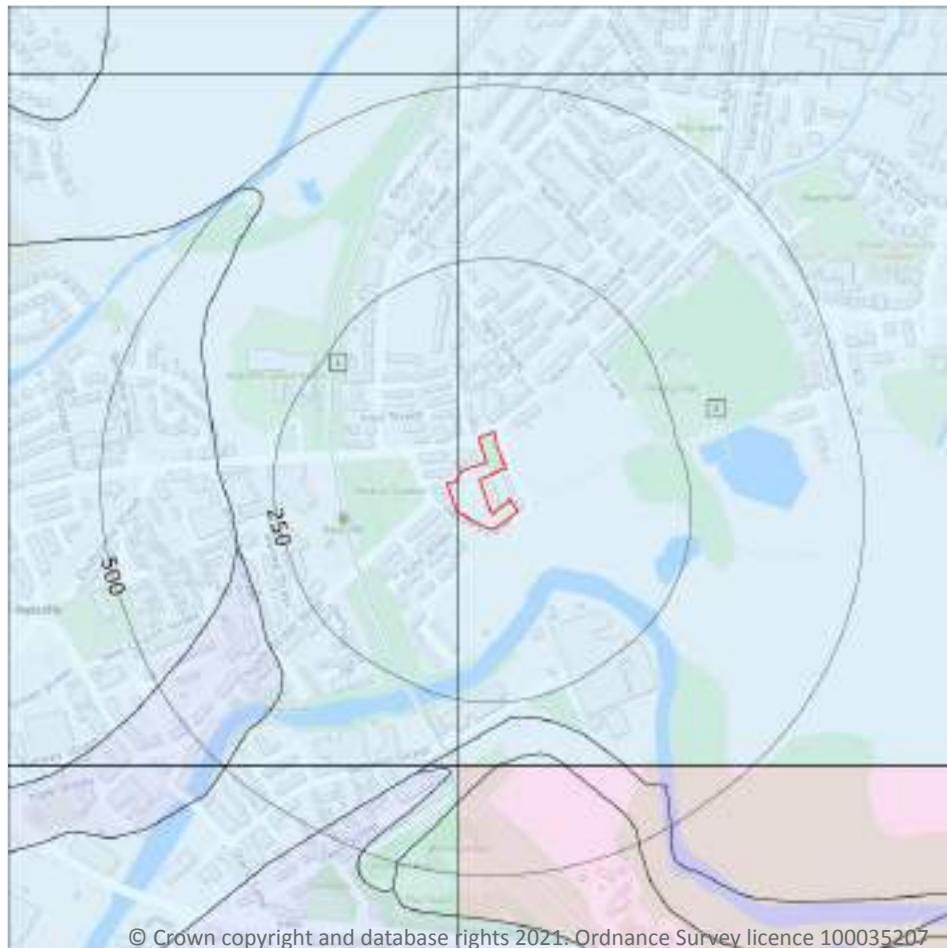
Features are displayed on the Bedrock aquifer map on **page 73**

ID	Location	Designation	Description
1	On site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.



Groundwater vulnerability



5.3 Groundwater vulnerability

Records within 50m

2

An assessment of the vulnerability of groundwater to a pollutant discharged at ground level based on the hydrological, geological, hydrogeological and soil properties within a one kilometre square grid. Groundwater vulnerability is described as High, Medium or Low as follows:

- High - Areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits.
- Medium - Intermediate between high and low vulnerability.
- Low - Areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability.

Features are displayed on the Groundwater vulnerability map on **page 74**



ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: >550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: 3-10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
2	On site	Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: >550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: 3-10m Patchiness value: >90% Recharge potential: Medium	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

5.4 Groundwater vulnerability- soluble rock risk

Records on site

0

This dataset identifies areas where solution features that enable rapid movement of a pollutant may be present within a 1km grid square.

This data is sourced from the British Geological Survey and the Environment Agency.

5.5 Groundwater vulnerability- local information

Records on site

0

This dataset identifies areas where additional local information affecting vulnerability is held by the Environment Agency. Further information can be obtained by contacting the Environment Agency local Area groundwater team through the Environment Agency National Customer Call Centre on 03798 506 506 or by email on enquiries@environment-agency.gov.uk.

This data is sourced from the British Geological Survey and the Environment Agency.



Abstractions and Source Protection Zones



- Site Outline
- Search buffers in metres (m)
- Source Protection Zone 1
Inner catchment
- Source Protection Zone 2
Outer catchment
- Source Protection Zone 3
Total catchment
- Source Protection Zone 4
Zone of Special Interest
- Source Protection Zone 1c
Inner catchment - confined aquifer
- Source Protection Zone 2c
Outer catchment - confined aquifer
- Source Protection Zone 3c
Total catchment - confined aquifer
- Drinking water abstraction licences
Polygon features
- Drinking water abstraction licences
Linear features
- Groundwater abstraction licence (point)
- Groundwater abstraction licence (area)
- Groundwater abstraction licence (linear)
- Surface Water Abstractions (point)
- Surface Water Abstractions (area)
- Surface Water Abstractions (linear)

5.6 Groundwater abstractions

Records within 2000m

17

Licensed groundwater abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, between two points (line data) or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 76**

ID	Location	Details	
-	1178m SE	Status: Historical Licence No: 2569004030 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Ground Water - North West Region Point: "WELLPOINT SYSTEM AT PREMISES, RADCLIFFE" Data Type: Point Name: JAMES HALSTEAD LTD Easting: 379600 Northing: 406300	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 18/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 24/01/1995 Version End Date: -
-	1178m SE	Status: Historical Licence No: 2569004030 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Ground Water - North West Region Point: WELLPOINT SYSTEM AT PREMISES, RADCLIFFE Data Type: Point Name: POLYFLOR LTD Easting: 379600 Northing: 406300	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 18/02/1966 Expiry Date: - Issue No: 101 Version Start Date: 01/03/2000 Version End Date: -
-	1178m SE	Status: Historical Licence No: 2569004030 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Ground Water - North West Region Point: WELL POINT SYSTEM AT PREMISES RADCLIFFE Data Type: Point Name: POLYFLOR LTD Easting: 379600 Northing: 406300	Annual Volume (m ³): 68200 Max Daily Volume (m ³): 382 Original Application No: - Original Start Date: 18/02/1966 Expiry Date: - Issue No: 101 Version Start Date: 01/03/2000 Version End Date: -
-	1642m SE	Status: Active Licence No: 2569004053 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: BOREHOLE AT STAND GOLF CLUB Data Type: Point Name: Stand Golf Club Limited Easting: 379754 Northing: 405858	Annual Volume (m ³): 9,000 Max Daily Volume (m ³): 55 Original Application No: - Original Start Date: 28/05/1997 Expiry Date: - Issue No: 102 Version Start Date: 12/05/2015 Version End Date: -



ID	Location	Details	
-	1643m SE	Status: Historical Licence No: 2569004053 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: "A BOREHOLE AT STAND GOLF CLUB, WHITEFIELD" Data Type: Point Name: STAND GOLF CLUB Easting: 379760 Northing: 405860	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 28/05/1997 Expiry Date: - Issue No: 100 Version Start Date: 28/05/1997 Version End Date: -
-	1643m SE	Status: Historical Licence No: 2569004053 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: A BOREHOLE AT STAND GOLF CLUB, WHITEFIELD Data Type: Point Name: STAND GOLF CLUB Easting: 379760 Northing: 405860	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 28/05/1997 Expiry Date: - Issue No: 100 Version Start Date: 28/05/1997 Version End Date: -
-	1643m SE	Status: Historical Licence No: 2569004053 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: BOREHOLE AT STAND GOLF CLUB WHITEFIELD Data Type: Point Name: THE TRUSTEES OF STAND GOLF CLUB Easting: 379760 Northing: 405860	Annual Volume (m ³): 9000 Max Daily Volume (m ³): 55 Original Application No: - Original Start Date: 28/05/1997 Expiry Date: - Issue No: 101 Version Start Date: 07/09/2005 Version End Date: -
-	1683m SE	Status: Historical Licence No: NW/069/0004/004 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Ground Water - North West Region Point: BOREHOLE AT WHITEFIELD, MANCHESTER Data Type: Point Name: Total Fitness Health Clubs Limited Easting: 380450 Northing: 406381	Annual Volume (m ³): 24,000 Max Daily Volume (m ³): 166 Original Application No: - Original Start Date: 29/01/2014 Expiry Date: 31/03/2020 Issue No: 1 Version Start Date: 29/01/2014 Version End Date: -



ID	Location	Details	
-	1684m SE	Status: Historical Licence No: 2569004056 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Ground Water - North West Region Point: LAND AT TOTAL FITNESS, BURY NEW ROAD, WHITEFIELD, BURY Data Type: Point Name: TOTAL FITNESS UK LTD Easting: 380450 Northing: 406380	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: - Expiry Date: 31/03/2011 Issue No: 1 Version Start Date: 17/02/2005 Version End Date: -
-	1684m SE	Status: Historical Licence No: 2569004056 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Ground Water - North West Region Point: LAND AT TOTAL FITNESS BURY NEW ROAD WHITEFIELD BURY Data Type: Point Name: TOTAL FITNESS UK LTD Easting: 380450 Northing: 406380	Annual Volume (m ³): 24000 Max Daily Volume (m ³): 166 Original Application No: - Original Start Date: 17/02/2005 Expiry Date: 31/03/2011 Issue No: 1 Version Start Date: 17/02/2005 Version End Date: -
-	1902m E	Status: Historical Licence No: 2569002264R1 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: A BOREHOLE AT BURY GOLF CLUB, BLACKFORD BRIDGE, BURY Data Type: Point Name: RAYMOND ADAMS Easting: 380963 Northing: 407673	Annual Volume (m ³): 7000 Max Daily Volume (m ³): 50 Original Application No: - Original Start Date: 01/06/2007 Expiry Date: 31/03/2015 Issue No: 1 Version Start Date: 01/04/2008 Version End Date: -
-	1902m E	Status: Active Licence No: 2569002264R02 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: A BOREHOLE AT BURY GOLF CLUB, BLACKFORD BRIDGE, BURY Data Type: Point Name: Bury Golf Club Limited Easting: 380963 Northing: 407673	Annual Volume (m ³): 7,000 Max Daily Volume (m ³): 50 Original Application No: - Original Start Date: 01/04/2015 Expiry Date: 31/03/2027 Issue No: 1 Version Start Date: 01/04/2015 Version End Date: -



ID	Location	Details	
-	1908m E	Status: Historical Licence No: 2569002264 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: "A BOREHOLE AT BURY GOLF CLUB, BLACKFORD BRIDGE, BURY" Data Type: Point Name: BURY GOLF CLUB Easting: 380970 Northing: 407670	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 17/04/1997 Expiry Date: 16-Apr-07 Issue No: 100 Version Start Date: 17/04/1997 Version End Date: -
-	1908m E	Status: Historical Licence No: 2569002264 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: A BOREHOLE AT BURY GOLF CLUB, BLACKFORD BRIDGE, BURY Data Type: Point Name: RAYMOND ADAMS Easting: 380970 Northing: 407670	Annual Volume (m ³): 9000 Max Daily Volume (m ³): 55 Original Application No: - Original Start Date: 17/04/1997 Expiry Date: 16/04/2007 Issue No: 101 Version Start Date: 27/01/2004 Version End Date: 16/04/2007
-	1908m E	Status: Historical Licence No: 2569002264R1 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: A BOREHOLE AT BURY GOLF CLUB, BLACKFORD BRIDGE, BURY Data Type: Point Name: RAYMOND ADAMS Easting: 380970 Northing: 407670	Annual Volume (m ³): 7000 Max Daily Volume (m ³): 50 Original Application No: - Original Start Date: 01/06/2007 Expiry Date: 31/03/2015 Issue No: 1 Version Start Date: 01/04/2008 Version End Date: -
-	1956m NE	Status: Historical Licence No: 2569001258 Details: Pollution Remediation Direct Source: Ground Water - North West Region Point: "WELL POINT SYSTEM AT MANCHESTER ROAD, BURY" Data Type: Point Name: TOTALFINAELF UK LTD Easting: 380450 Northing: 408850	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 12/06/2002 Expiry Date: - Issue No: 1 Version Start Date: 12/06/2002 Version End Date: -



ID	Location	Details	
-	1956m NE	Status: Historical Licence No: 2569001258 Details: Pollution Remediation Direct Source: Ground Water - North West Region Point: WELL POINT SYSTEM AT MANCHESTER ROAD, BURY Data Type: Point Name: TOTALFINAELF UK LTD Easting: 380450 Northing: 408850	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 12/06/2002 Expiry Date: - Issue No: 1 Version Start Date: 12/06/2002 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

5.7 Surface water abstractions

Records within 2000m

20

Licensed surface water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 76**

ID	Location	Details	
1	399m NW	Status: Historical Licence No: 2569004004 Details: Process water Direct Source: Surface, Non-Tidal - North West Region Point: RESERVOIR FED BY SURFACE DRAINAGE ATRADCLIFFE Data Type: Point Name: ST REGIS PAPER COMPANY U K LTD Easting: 378800 Northing: 407800	Annual Volume (m ³): 40004.8 Max Daily Volume (m ³): 109.104 Original Application No: - Original Start Date: 28/01/1966 Expiry Date: - Issue No: 101 Version Start Date: 05/05/2001 Version End Date: -
-	1297m N	Status: Historical Licence No: 2569004019 Details: Boiler Feed Direct Source: "Surface, Non-Tidal - North West Region" Point: "WITHINS RESERVOIR, FED BY & O/FLOW TO UNNAMED TRIB OF R IRW" Data Type: Point Name: ST REGIS PAPER COMPANY U K LTD Easting: 378600 Northing: 408700	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 20/01/1966 Expiry Date: - Issue No: 102 Version Start Date: 05/05/2001 Version End Date: -



ID	Location	Details	
-	1297m N	Status: Historical Licence No: 2569004019 Details: Process water Direct Source: "Surface, Non-Tidal - North West Region" Point: "WITHINS RESERVOIR, FED BY & O/FLOW TO UNNAMED TRIB OF R IRW" Data Type: Point Name: ST REGIS PAPER COMPANY U K LTD Easting: 378600 Northing: 408700	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 20/01/1966 Expiry Date: - Issue No: 102 Version Start Date: 05/05/2001 Version End Date: -
-	1297m N	Status: Historical Licence No: 2569004019 Details: Boiler Feed Direct Source: Surface, Non-Tidal - North West Region Point: WITHINS RESERVOIR, FED BY & O/FLOW TO UNNAMED TRIB OF R IRW Data Type: Point Name: ST REGIS PAPER COMPANY U K LTD Easting: 378600 Northing: 408700	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 20/01/1966 Expiry Date: - Issue No: 102 Version Start Date: 05/05/2001 Version End Date: -
-	1297m N	Status: Historical Licence No: 2569004019 Details: Process water Direct Source: Surface, Non-Tidal - North West Region Point: WITHINS RESERVOIR, FED BY & O/FLOW TO UNNAMED TRIB OF R IRW Data Type: Point Name: ST REGIS PAPER COMPANY U K LTD Easting: 378600 Northing: 408700	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 20/01/1966 Expiry Date: - Issue No: 102 Version Start Date: 05/05/2001 Version End Date: -
-	1297m N	Status: Historical Licence No: 2569004019 Details: Boiler Feed Direct Source: Surface, Non-Tidal - North West Region Point: WITHINS RESERVOR FED BY UNNAMED TRIBUTARY OF RIVER IRWELL Data Type: Point Name: ST REGIS PAPER COMPANY U K LTD Easting: 378600 Northing: 408700	Annual Volume (m ³): 270000 Max Daily Volume (m ³): 8728.32 Original Application No: - Original Start Date: 20/01/1966 Expiry Date: - Issue No: 102 Version Start Date: 05/05/2001 Version End Date: -



ID	Location	Details	
-	1297m N	Status: Historical Licence No: 2569004019 Details: Process water Direct Source: Surface, Non-Tidal - North West Region Point: WITHINS RESERVOR FED BY UNNAMED TRIBUTARY OF RIVER IRWELL Data Type: Point Name: ST REGIS PAPER COMPANY U K LTD Easting: 378600 Northing: 408700	Annual Volume (m ³): 270000 Max Daily Volume (m ³): 8728.32 Original Application No: - Original Start Date: 20/01/1966 Expiry Date: - Issue No: 102 Version Start Date: 05/05/2001 Version End Date: -
-	1315m N	Status: Historical Licence No: 2569004054 Details: Process water Direct Source: "Surface, Non-Tidal - North West Region" Point: "THE MANCHESTER, BOLTON AND BURY CANAL AT BANK TOP, BURY" Data Type: Point Name: BRITISH WATERWAYS Easting: 379200 Northing: 408790	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 01/04/1969 Expiry Date: - Issue No: 100 Version Start Date: 04/12/1998 Version End Date: -
-	1315m N	Status: Historical Licence No: 2569004054 Details: Process water Direct Source: Surface, Non-Tidal - North West Region Point: THE MANCHESTER, BOLTON AND BURY CANAL AT BANK TOP, BURY Data Type: Point Name: BRITISH WATERWAYS BOARD Easting: 379200 Northing: 408790	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 01/04/1969 Expiry Date: - Issue No: 100 Version Start Date: 04/12/1998 Version End Date: -
-	1543m NE	Status: Historical Licence No: 2569001245 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: "Surface, Non-Tidal - North West Region" Point: "RIVER IRWELL AT RADCLIFFE, MANCHESTER" Data Type: Point Name: UNIFI DYED YARNS LTD Easting: 380000 Northing: 408700	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 23/11/1993 Expiry Date: - Issue No: 101 Version Start Date: 01/03/2000 Version End Date: -



ID	Location	Details	
-	1543m NE	Status: Historical Licence No: 2569001245 Details: Process water Direct Source: "Surface, Non-Tidal - North West Region" Point: "RIVER IRWELL AT RADCLIFFE, MANCHESTER" Data Type: Point Name: UNIFI DYED YARNS LTD Easting: 380000 Northing: 408700	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 23/11/1993 Expiry Date: - Issue No: 101 Version Start Date: 01/03/2000 Version End Date: -
-	1543m NE	Status: Historical Licence No: 2569001245 Details: Boiler Feed Direct Source: "Surface, Non-Tidal - North West Region" Point: "RIVER IRWELL AT RADCLIFFE, MANCHESTER" Data Type: Point Name: UNIFI DYED YARNS LTD Easting: 380000 Northing: 408700	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 23/11/1993 Expiry Date: - Issue No: 101 Version Start Date: 01/03/2000 Version End Date: -
-	1543m NE	Status: Historical Licence No: 2569001245 Details: Boiler Feed Direct Source: Surface, Non-Tidal - North West Region Point: RIVER IRWELL AT RADCLIFFE, MANCHESTER Data Type: Point Name: UNIFI DYED YARNS LTD Easting: 380000 Northing: 408700	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 23/11/1993 Expiry Date: - Issue No: 101 Version Start Date: 01/03/2000 Version End Date: -
-	1543m NE	Status: Historical Licence No: 2569001245 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Surface, Non-Tidal - North West Region Point: RIVER IRWELL AT RADCLIFFE, MANCHESTER Data Type: Point Name: UNIFI DYED YARNS LTD Easting: 380000 Northing: 408700	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 23/11/1993 Expiry Date: - Issue No: 101 Version Start Date: 01/03/2000 Version End Date: -
-	1543m NE	Status: Historical Licence No: 2569001245 Details: Process water Direct Source: Surface, Non-Tidal - North West Region Point: RIVER IRWELL AT RADCLIFFE, MANCHESTER Data Type: Point Name: UNIFI DYED YARNS LTD Easting: 380000 Northing: 408700	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 23/11/1993 Expiry Date: - Issue No: 101 Version Start Date: 01/03/2000 Version End Date: -



ID	Location	Details	
-	1630m N	Status: Active Licence No: NW/069/0001/004 Details: Hydroelectric Power Generation Direct Source: Surface, Non-Tidal - North West Region Point: RIVER IRWELL AT BEALEY'S WEIR Data Type: Point Name: Resolution Hydro Limited Easting: 379607 Northing: 409015	Annual Volume (m ³): 80,000,000 Max Daily Volume (m ³): 259,200 Original Application No: - Original Start Date: 20/12/2010 Expiry Date: 31/03/2027 Issue No: 1 Version Start Date: 01/04/2019 Version End Date: -
-	1654m N	Status: Historical Licence No: 2569001158 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: "Surface, Non-Tidal - North West Region" Point: "R IRWELL AT RADCLIFFE, MANCHESTER" Data Type: Point Name: ST REGIS PAPER COMPANY U K LTD Easting: 379400 Northing: 409100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 29/03/1966 Expiry Date: - Issue No: 101 Version Start Date: 05/05/2001 Version End Date: -
-	1654m N	Status: Historical Licence No: 2569001158 Details: Process water Direct Source: "Surface, Non-Tidal - North West Region" Point: "R IRWELL AT RADCLIFFE, MANCHESTER" Data Type: Point Name: ST REGIS PAPER COMPANY U K LTD Easting: 379400 Northing: 409100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 29/03/1966 Expiry Date: - Issue No: 101 Version Start Date: 05/05/2001 Version End Date: -
-	1654m N	Status: Historical Licence No: 2569001158 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Surface, Non-Tidal - North West Region Point: R IRWELL AT RADCLIFFE, MANCHESTER Data Type: Point Name: ST REGIS PAPER COMPANY U K LTD Easting: 379400 Northing: 409100	Annual Volume (m ³): 3636800 Max Daily Volume (m ³): 14183.52 Original Application No: - Original Start Date: 29/03/1966 Expiry Date: - Issue No: 101 Version Start Date: 05/05/2001 Version End Date: -



ID	Location	Details	
-	1654m N	Status: Historical Licence No: 2569001158 Details: Process water Direct Source: Surface, Non-Tidal - North West Region Point: R IRWELL AT RADCLIFFE, MANCHESTER Data Type: Point Name: ST REGIS PAPER COMPANY U K LTD Easting: 379400 Northing: 409100	Annual Volume (m ³): 3636800 Max Daily Volume (m ³): 14183.52 Original Application No: - Original Start Date: 29/03/1966 Expiry Date: - Issue No: 101 Version Start Date: 05/05/2001 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

5.8 Potable abstractions

Records within 2000m

3

Licensed potable water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 76**

ID	Location	Details	
-	1683m SE	Status: Historical Licence No: NW/069/0004/004 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Ground Water - North West Region Point: BOREHOLE AT WHITEFIELD, MANCHESTER Data Type: Point Name: Total Fitness Health Clubs Limited Easting: 380450 Northing: 406381	Annual Volume (m ³): 24,000 Max Daily Volume (m ³): 166 Original Application No: - Original Start Date: 29/01/2014 Expiry Date: 31/03/2020 Issue No: 1 Version Start Date: 29/01/2014 Version End Date: -
-	1684m SE	Status: Historical Licence No: 2569004056 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Ground Water - North West Region Point: LAND AT TOTAL FITNESS, BURY NEW ROAD, WHITEFIELD, BURY Data Type: Point Name: TOTAL FITNESS UK LTD Easting: 380450 Northing: 406380	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: - Expiry Date: 31/03/2011 Issue No: 1 Version Start Date: 17/02/2005 Version End Date: -



ID	Location	Details	
-	1684m SE	Status: Historical Licence No: 2569004056 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Ground Water - North West Region Point: LAND AT TOTAL FITNESS BURY NEW ROAD WHITEFIELD BURY Data Type: Point Name: TOTAL FITNESS UK LTD Easting: 380450 Northing: 406380	Annual Volume (m ³): 24000 Max Daily Volume (m ³): 166 Original Application No: - Original Start Date: 17/02/2005 Expiry Date: 31/03/2011 Issue No: 1 Version Start Date: 17/02/2005 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

5.9 Source Protection Zones

Records within 500m	0
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Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination.

This data is sourced from the Environment Agency and Natural Resources Wales.

5.10 Source Protection Zones (confined aquifer)

Records within 500m	0
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Source Protection Zones in the confined aquifer define the sensitivity around a deep groundwater abstraction to contamination. A confined aquifer would normally be protected from contamination by overlying geology and is only considered a sensitive resource if deep excavation/drilling is taking place.

This data is sourced from the Environment Agency and Natural Resources Wales.

6 Hydrology



- Site Outline
- Search buffers in metres (m)
- Water Network (OS MasterMap)
- Surface water features (wider than 5m)
- Surface water features (narrower than 5m)
- ⋯ WFD River, canal and surface water transfer water bodies
- WFD Lake water bodies
- WFD Transitional and coastal water bodies
- WFD Surface water body catchments boundaries
- WFD Groundwater body boundaries

6.1 Water Network (OS MasterMap)

Records within 250m

10

Detailed water network of Great Britain showing the flow and precise central course of every river, stream, lake and canal.

Features are displayed on the Hydrology map on **page 88**

ID	Location	Type of water feature	Ground level	Permanence	Name
1	On site	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
B	16m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
3	94m N	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
B	94m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
4	107m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	River Irwell
C	121m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	River Irwell
D	197m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
7	241m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	River Irwell
8	241m SE	Manmade watercourse for water transfer.	On ground surface	Watercourse contains water year round (in normal circumstances)	Bealey's Goit
D	247m N	Inland river not influenced by normal tidal action.	Not provided	Watercourse contains water year round (in normal circumstances)	-

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m

5

Covering rivers, streams and lakes (some overlap with OS MasterMap Water Network data in previous section) but additionally covers smaller features such as ponds. Rivers and streams narrower than 5m are represented as a single line. Lakes, ponds and rivers or streams wider than 5m are represented as polygons.

Features are displayed on the Hydrology map on **page 88**

This data is sourced from the Ordnance Survey.



6.3 WFD Surface water body catchments

Records on site

1

The Water Framework Directive is an EU-led framework for the protection of inland surface waters, estuaries, coastal waters and groundwater through river basin-level management planning. In terms of surface water, these basins are broken down into smaller units known as management, operational and water body catchments.

Features are displayed on the Hydrology map on **page 88**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
A	On site	River WB catchment	Irwell (Roch to Croal)	GB112069060840	Croal Irwell	Irwell

This data is sourced from the Environment Agency and Natural Resources Wales.

6.4 WFD Surface water bodies

Records identified

1

Surface water bodies under the Directive may be rivers, lakes, estuary or coastal. To achieve the purpose of the Directive, environmental objectives have been set and are reported on for each water body. The progress towards delivery of the objectives is then reported on by the relevant competent authorities at the end of each six-year cycle. The river water body directly associated with the catchment listed in the previous section is detailed below, along with any lake, canal, coastal or artificial water body within 250m of the site. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each water body listed.

Features are displayed on the Hydrology map on **page 88**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
5	110m SE	River	Irwell (Roch to Croal)	GB112069060840	Moderate	Good	Moderate	2016

This data is sourced from the Environment Agency and Natural Resources Wales.

6.5 WFD Groundwater bodies

Records on site

1

Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each groundwater body listed.

Features are displayed on the Hydrology map on **page 88**



ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
A	On site	Northern Manchester Carboniferous Aquifers	<u>GB41202G101800</u>	Poor	Poor	Good	2015

This data is sourced from the Environment Agency and Natural Resources Wales.



7 River and coastal flooding



- Site Outline
- Search buffers in metres (m)
- Environment Agency river and coastal flooding:
 - High
 - Medium
 - Low
 - Very Low
- Historical Flood Events
- Areas Used for Flood Storage
- Areas Benefiting from Flood Defences
- Flood Defences

7.1 Risk of Flooding from Rivers and Sea (RoFRaS)

Records within 50m

11

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 100 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 100 chance) or High (greater than or equal to 1 in 30 chance).

Features are displayed on the River and coastal flooding map on **page 92**

Distance	RoFRaS flood risk
On site	High
0 - 50m	High



This data is sourced from the Environment Agency and Natural Resources Wales.

7.2 Historical Flood Events

Records within 250m

3

Records of historic flooding from rivers, the sea, groundwater and surface water. Records began in 1946 when predecessor bodies started collecting detailed information about flooding incidents, although limited details may be included on flooding incidents prior to this date. Takes into account the presence of defences, structures, and other infrastructure where they existed at the time of flooding, and includes flood extents that may have been affected by overtopping, breaches or blockages.

Features are displayed on the River and coastal flooding map on **page 92**

ID	Location	Event name	Date of flood	Flood source	Flood cause	Type of flood
B	80m SW	Ea01313_21 January 2008_Crow Trees Farm Brook_Radc	2008-01-21 2008-01-22	Main river	Unknown	Fluvial
G	122m SE	Pioneer Mill	2015-12-26 2015-12-26	Main river	Channel capacity exceeded (no raised defences)	Fluvial
G	165m SE	Irwe	1998-10-23 1998-10-24	Main river	Obstruction/blockage - channel	Fluvial

This data is sourced from the Environment Agency and Natural Resources Wales.

7.3 Flood Defences

Records within 250m

0

Records of flood defences owned, managed or inspected by the Environment Agency and Natural Resources Wales. Flood defences can be structures, buildings or parts of buildings. Typically these are earth banks, stone and concrete walls, or sheet-piling that is used to prevent or control the extent of flooding.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.4 Areas Benefiting from Flood Defences

Records within 250m

0

Areas that would benefit from the presence of flood defences in a 1 in 100 (1%) chance of flooding each year from rivers or 1 in 200 (0.5%) chance of flooding each year from the sea.

This data is sourced from the Environment Agency and Natural Resources Wales.



7.5 Flood Storage Areas

Records within 250m

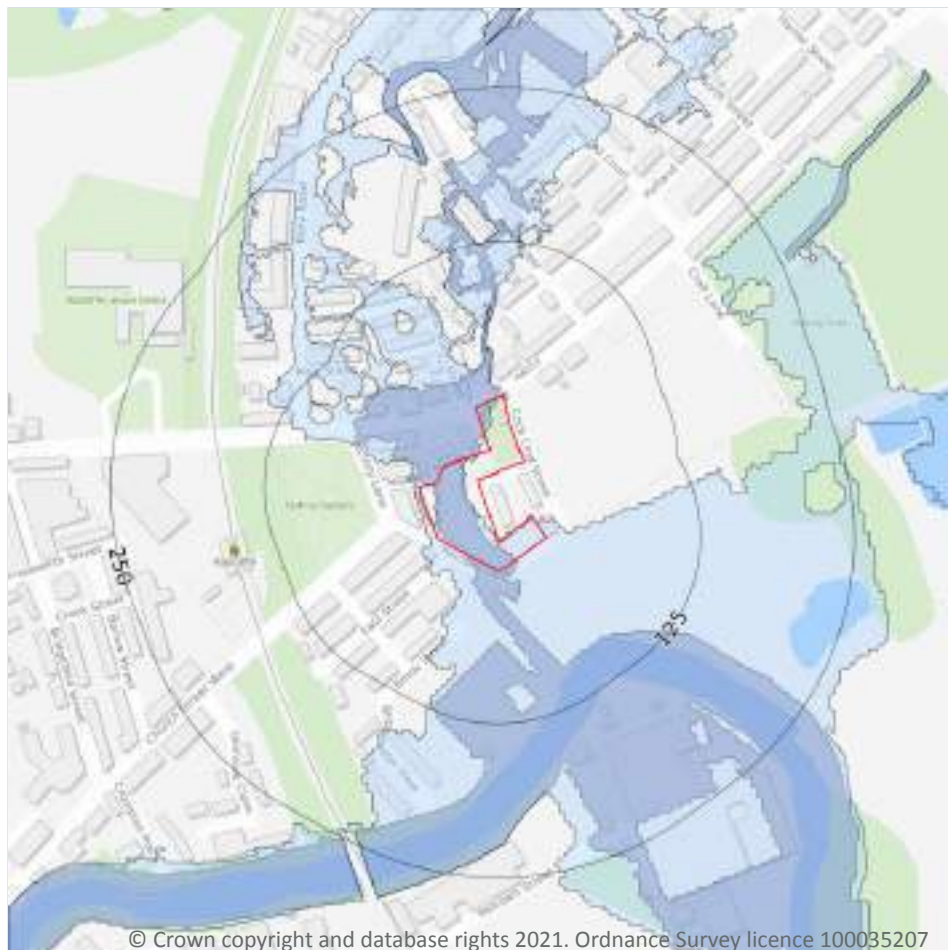
0

Areas that act as a balancing reservoir, storage basin or balancing pond to attenuate an incoming flood peak to a flow level that can be accepted by the downstream channel or to delay the timing of a flood peak so that its volume is discharged over a longer period.

This data is sourced from the Environment Agency and Natural Resources Wales.



River and coastal flooding - Flood Zones



- Site Outline
- Search buffers in metres (m)
- Flood zone 2
- Flood zone 3

7.6 Flood Zone 2

Records within 50m

1

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land between Flood Zone 3 (see next section) and the extent of the flooding from rivers or the sea with a 1 in 1000 (0.1%) chance of flooding each year.

Features are displayed on the River and coastal flooding map on **page 92**

Location	Type
On site	Zone 2 - (Fluvial /Tidal Models)

This data is sourced from the Environment Agency and Natural Resources Wales.

7.7 Flood Zone 3

Records within 50m

1

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land with a 1 in 100 (1%) or greater chance of flooding each year from rivers or a 1 in 200 (0.5%) or greater chance of flooding each year from the sea.

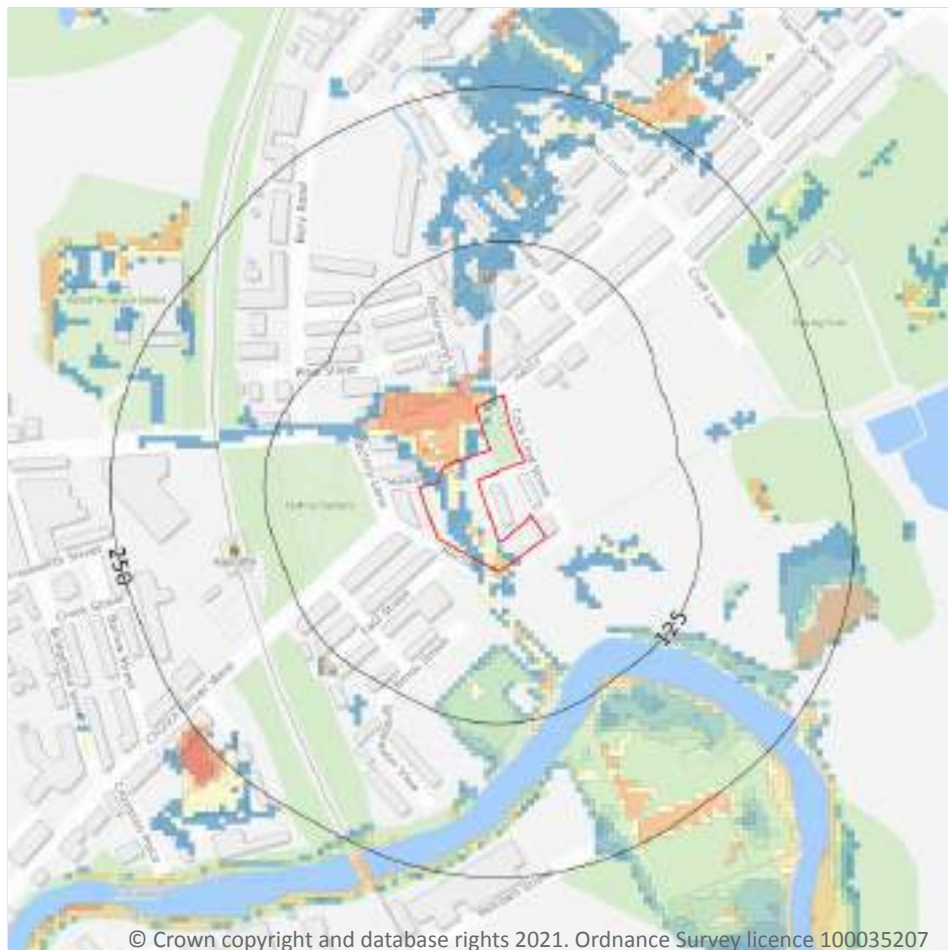
Features are displayed on the River and coastal flooding map on **page 92**

Location	Type
On site	Zone 3 - (Fluvial Models)

This data is sourced from the Environment Agency and Natural Resources Wales.



8 Surface water flooding



— Site Outline

Search buffers in metres (m)

1 in 1000 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 250 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 100 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 30 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

8.1 Surface water flooding

Highest risk on site

1 in 30 year, 0.3m - 1.0m

Highest risk within 50m

1 in 30 year, 0.3m - 1.0m

Ambiental Risk Analytics surface water (pluvial) FloodMap identifies areas likely to flood as a result of extreme rainfall events, i.e. land naturally vulnerable to surface water ponding or flooding. This data set was produced by simulating 1 in 30 year, 1 in 100 year, 1 in 250 year and 1 in 1,000 year rainfall events. Modern urban drainage systems are typically built to cope with rainfall events between 1 in 20 and 1 in 30 years, though some older ones may flood in a 1 in 5 year rainfall event.

Features are displayed on the Surface water flooding map on **page 97**

The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

The table below shows the maximum flood depths for a range of return periods for the site.

Return period	Maximum modelled depth
1 in 1000 year	Between 0.3m and 1.0m
1 in 250 year	Between 0.3m and 1.0m
1 in 100 year	Between 0.3m and 1.0m
1 in 30 year	Between 0.3m and 1.0m

This data is sourced from Ambiantal Risk Analytics.



9 Groundwater flooding



— Site Outline
Search buffers in metres (m)

- High
- Moderate - High
- Moderate
- Low
- Negligible

9.1 Groundwater flooding

Highest risk on site

Moderate

Highest risk within 50m

Moderate

Groundwater flooding is caused by unusually high groundwater levels. It occurs when the water table rises above the ground surface or within underground structures such as basements or cellars. Groundwater flooding tends to exhibit a longer duration than surface water flooding, possibly lasting for weeks or months, and as a result it can cause significant damage to property. This risk assessment is based on a 1 in 100 year return period and a 5m Digital Terrain Model (DTM).

Features are displayed on the Groundwater flooding map on **page 99**

This data is sourced from Ambiantal Risk Analytics.

10 Environmental designations



- Site Outline
- Search buffers in metres (m)
- + Local Nature Reserves (LNR)
- / Designated Ancient Woodland
- / Green Belt

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m

0

Sites providing statutory protection for the best examples of UK flora, fauna, or geological or physiographical features. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs were re-notified under the Wildlife and Countryside Act 1981. Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000 (in England and Wales) and (in Scotland) by the Nature Conservation (Scotland) Act 2004 and the Wildlife and Natural Environment (Scotland) Act 2010.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m**0**

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. They cover all aspects of wetland conservation and wise use, recognizing wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities. These sites cover a broad definition of wetland; marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, and even some marine areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.3 Special Areas of Conservation (SAC)

Records within 2000m**0**

Areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.4 Special Protection Areas (SPA)

Records within 2000m**0**

Sites classified by the UK Government under the EC Birds Directive, SPAs are areas of the most important habitat for rare (listed on Annex I to the Directive) and migratory birds within the European Union.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.5 National Nature Reserves (NNR)

Records within 2000m**0**

Sites containing examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in Great Britain. They are managed to conserve their habitats, provide special opportunities for scientific study or to provide public recreation compatible with natural heritage interests.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.6 Local Nature Reserves (LNR)

Records within 2000m

3

Sites managed for nature conservation, and to provide opportunities for research and education, or simply enjoying and having contact with nature. They are declared by local authorities under the National Parks and Access to the Countryside Act 1949 after consultation with the relevant statutory nature conservation agency.

Features are displayed on the Environmental designations map on **page 100**

ID	Location	Name	Data source
A	858m S	Chapelfield	Natural England
4	896m S	Chapelfield	Natural England
A	915m S	Chapelfield	Natural England

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.7 Designated Ancient Woodland

Records within 2000m

1

Ancient woodlands are classified as areas which have been wooded continuously since at least 1600 AD. This includes semi-natural woodland and plantations on ancient woodland sites. 'Wooded continuously' does not mean there is or has previously been continuous tree cover across the whole site, and not all trees within the woodland have to be old.

Features are displayed on the Environmental designations map on **page 100**

ID	Location	Name	Woodland Type
-	1888m SW	Nuttall Wood	Ancient & Semi-Natural Woodland

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.8 Biosphere Reserves

Records within 2000m

0

Biosphere Reserves are internationally recognised by UNESCO as sites of excellence to balance conservation and socioeconomic development between nature and people. They are recognised under the Man and the Biosphere (MAB) Programme with the aim of promoting sustainable development founded on the work of the local community.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.



10.9 Forest Parks

Records within 2000m**0**

These are areas managed by the Forestry Commission designated on the basis of recreational, conservation or scenic interest.

This data is sourced from the Forestry Commission.

10.10 Marine Conservation Zones

Records within 2000m**0**

A type of marine nature reserve in UK waters established under the Marine and Coastal Access Act (2009). They are designated with the aim to protect nationally important, rare or threatened habitats and species.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.11 Green Belt

Records within 2000m**4**

Areas designated to prevent urban sprawl by keeping land permanently open.

Features are displayed on the Environmental designations map on **page 100**

ID	Location	Name	Local Authority name
1	246m SE	Liverpool and Manchester	Bury
2	381m NW	Liverpool and Manchester	Bury
3	893m SW	Liverpool and Manchester	Bury
-	1734m E	Liverpool and Manchester	Bury

This data is sourced from the Ministry of Housing, Communities and Local Government.

10.12 Proposed Ramsar sites

Records within 2000m**0**

Ramsar sites are areas listed as a Wetland of International Importance under the Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention) 1971. The sites here supplied have a status of 'Proposed' having been identified for potential adoption under the framework.

This data is sourced from Natural England.



10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m

0

Special Areas of Conservation are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive. Those sites supplied here are those with a status of 'Possible' having been identified for potential adoption under the framework.

This data is sourced from Natural England and Natural Resources Wales.

10.14 Potential Special Protection Areas (pSPA)

Records within 2000m

0

Special Protection Areas (SPAs) are areas designated (or 'classified') under the European Union Wild Birds Directive for the protection of nationally and internationally important populations of wild birds. Those sites supplied here are those with a status of 'Potential' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m

0

Areas where nitrate concentrations in drinking water sources exceeded or was at risk of exceeding the limit of 50 mg/l set by the 1980 EC Drinking Water Directive. Voluntary agricultural measures as a means of reducing the levels of nitrate were introduced by DEFRA as MAFF, with payments being made to farmers who complied. The scheme was started as a pilot in 1990 in ten areas, later implemented within 32 areas. The scheme was closed to further new entrants in 1998, although existing agreements continued for their full term. All Nitrate Sensitive Areas fell within the areas designated as Nitrate Vulnerable Zones (NVZs) in 1996 under the EC Nitrate Directive (91/676/EEC).

This data is sourced from Natural England.

10.16 Nitrate Vulnerable Zones

Records within 2000m

1

Areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC). These are areas of land that drain into waters polluted by nitrates. Farmers operating within these areas have to follow mandatory rules to tackle nitrate loss from agriculture.

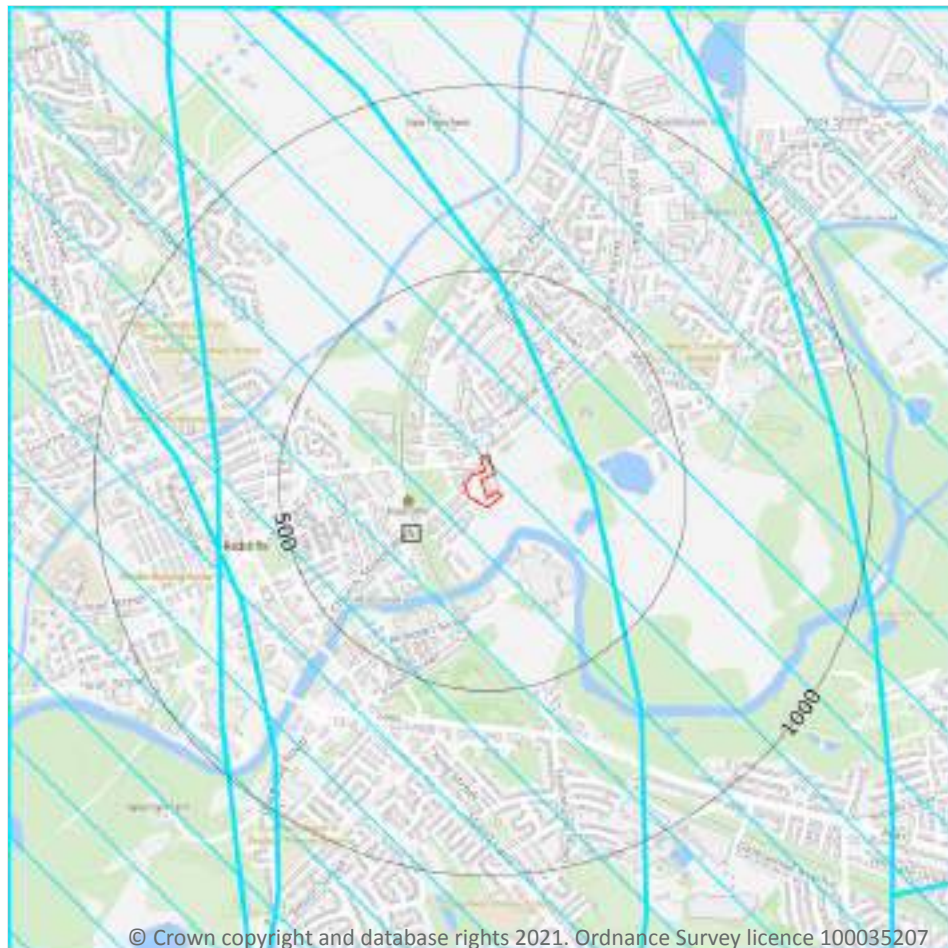
Location	Name	Type	NVZ ID	Status
1606m S	Irwell / Man. Ship Canal (Kearsley to Irlam Locks) NVZ	Surface Water	S643	Existing



This data is sourced from Natural England and Natural Resources Wales.



SSSI Impact Zones and Units



- Site Outline
- Search buffers in metres (m)
- SSSI Impact Risk Zones
- SSSI Units
- Not recorded
- Favourable
- Unfavourable - Recovering
- Unfavourable - No change
- Unfavourable - Declining
- Partially destroyed
- Destroyed

10.17 SSSI Impact Risk Zones

Records on site

1

Developed to allow rapid initial assessment of the potential risks to SSSIs posed by development proposals. They define zones around each SSSI which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts.

Features are displayed on the SSSI Impact Zones and Units map on **page 106**

ID	Location	Type of developments requiring consultation
1	On site	Infrastructure - Airports, helipads and other aviation proposals. Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction. Air pollution - Livestock & poultry units with floorspace > 500m², slurry lagoons > 750m² & manure stores > 3500t. Combustion - General combustion processes >50MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion

This data is sourced from Natural England.

10.18 SSSI Units

Records within 2000m	0
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Divisions of SSSIs used to record management and condition details. Units are the smallest areas for which Natural England gives a condition assessment, however, the size of units varies greatly depending on the types of management and the conservation interest.

This data is sourced from Natural England and Natural Resources Wales.

11 Visual and cultural designations

11.1 World Heritage Sites

Records within 250m

0

Sites designated for their globally important cultural or natural interest requiring appropriate management and protection measures. World Heritage Sites are designated to meet the UK's commitments under the World Heritage Convention.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.2 Area of Outstanding Natural Beauty

Records within 250m

0

Areas of Outstanding Natural Beauty (AONB) are conservation areas, chosen because they represent 18% of the finest countryside. Each AONB has been designated for special attention because of the quality of their flora, fauna, historical and cultural associations, and/or scenic views. The National Parks and Access to the Countryside Act of 1949 created AONBs and the Countryside and Rights of Way Act, 2000 added further regulation and protection. There are likely to be restrictions to some developments within these areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.3 National Parks

Records within 250m

0

In England and Wales, the purpose of National Parks is to conserve and enhance landscapes within the countryside whilst promoting public enjoyment of them and having regard for the social and economic well-being of those living within them. In Scotland National Parks have the additional purpose of promoting the sustainable use of the natural resources of the area and the sustainable social and economic development of its communities. The National Parks and Access to the Countryside Act 1949 established the National Park designation in England and Wales, and The National Parks (Scotland) Act 2000 in Scotland.

This data is sourced from Natural England, Natural Resources Wales and the Scottish Government.

11.4 Listed Buildings

Records within 250m

0

Buildings listed for their special architectural or historical interest. Building control in the form of 'listed building consent' is required in order to make any changes to that building which might affect its special interest. Listed buildings are graded to indicate their relative importance, however building controls apply to all buildings equally, irrespective of their grade, and apply to the interior and exterior of the building in its entirety, together with any curtilage structures.



This data is sourced from English Heritage, Cadw and Historic Environment Scotland.

11.5 Conservation Areas

Records within 250m

0

Local planning authorities are obliged to designate as conservation areas any parts of their own area that are of special architectural or historic interest, the character and appearance of which it is desirable to preserve or enhance. Designation of a conservation area gives broader protection than the listing of individual buildings. All the features within the area, listed or otherwise, are recognised as part of its character. Conservation area designation is the means of recognising the importance of all factors and of ensuring that planning decisions address the quality of the landscape in its broadest sense.

This data is sourced from English Heritage, Cadw and Historic Environment Scotland.

11.6 Scheduled Ancient Monuments

Records within 250m

0

A scheduled monument is an historic building or site that is included in the Schedule of Monuments kept by the Secretary of State for Digital, Culture, Media and Sport. The regime is set out in the Ancient Monuments and Archaeological Areas Act 1979. The Schedule of Monuments has c.20,000 entries and includes sites such as Roman remains, burial mounds, castles, bridges, earthworks, the remains of deserted villages and industrial sites. Monuments are not graded, but all are, by definition, considered to be of national importance.

This data is sourced from English Heritage, Cadw and Historic Environment Scotland.

11.7 Registered Parks and Gardens

Records within 250m

0

Parks and gardens assessed to be of particular interest and of special historic interest. The emphasis being on 'designed' landscapes, rather than on planting or botanical importance. Registration is a 'material consideration' in the planning process, meaning that planning authorities must consider the impact of any proposed development on the special character of the landscape.

This data is sourced from English Heritage, Cadw and Historic Environment Scotland.



12 Agricultural designations



- Site Outline
- Search buffers in metres (m)
- Grade 1 - excellent quality
- Grade 2 - very good quality
- Grade 3 - good to moderate quality
- Grade 3a - good quality
- Grade 3b - moderate quality
- Grade 4 - poor quality
- Grade 5 - very poor quality
- Non-agricultural land
- Urban land
- Exclusion land
- Tree felling licences
- Open Access land

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12.1 Agricultural Land Classification

Records within 250m

1

Classification of the quality of agricultural land taking into consideration multiple factors including climate, physical geography and soil properties. It should be noted that the categories for the grading of agricultural land are not consistent across England, Wales and Scotland.

Features are displayed on the Agricultural designations map on **page 110**

ID	Location	Classification	Description
1	On site	Urban	-

This data is sourced from Natural England.



12.2 Open Access Land

Records within 250m

0

The Countryside and Rights of Way Act 2000 (CROW Act) gives a public right of access to land without having to use paths. Access land includes mountains, moors, heaths and downs that are privately owned. It also includes common land registered with the local council and some land around the England Coast Path. Generally permitted activities on access land are walking, running, watching wildlife and climbing.

This data is sourced from Natural England and Natural Resources Wales.

12.3 Tree Felling Licences

Records within 250m

0

Felling Licence Application (FLA) areas approved by Forestry Commission England. Anyone wishing to fell trees must ensure that a licence or permission under a grant scheme has been issued by the Forestry Commission before any felling is carried out or that one of the exceptions apply.

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m

0

Environmental Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment.

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

Records within 250m

0

Countryside Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. Main objectives are to improve the farmed environment for wildlife and to reduce diffuse water pollution.

This data is sourced from Natural England.

13 Habitat designations



— Site Outline

Search buffers in metres (m)

Priority Habitat Inventory

Open Mosaic Habitat

Limestone Pavement Orders

Habitat Networks

Primary Habitat

Restorable Habitat

Associated Habitats

Habitat Restoration-Creation

Network Enhancement Zone 1

Network Enhancement Zone 2

13.1 Priority Habitat Inventory

Records within 250m

2

Habitats of principal importance as named under Natural Environment and Rural Communities Act (2006) Section 41.

Features are displayed on the Habitat designations map on **page 112**

ID	Location	Main Habitat	Other habitats
A	83m W	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
A	102m W	Deciduous woodland	Main habitat: DWOOD (INV > 50%)

This data is sourced from Natural England.



13.2 Habitat Networks

Records within 250m

1

Habitat networks for 18 priority habitat networks (based primarily, but not exclusively, on the priority habitat inventory) and areas suitable for the expansion of networks through restoration and habitat creation.

Features are displayed on the Habitat designations map on **page 112**

ID	Location	Type	Habitat
2	199m NW	Network Enhancement Zone 2	Not specified

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m

1

Sites verified as Open Mosaic Habitat. Mosaic habitats are brownfield sites that are identified under the UK Biodiversity Action Plan as a priority habitat due to the habitat variation within a single site, supporting an array of invertebrates.

Features are displayed on the Habitat designations map on **page 112**

ID	Location	Site reference	Identification confidence	Primary source	Secondary source	Tertiary source
1	8m E	NLUD Ref: 421000255	Low	National Land Use Database - Previously Developed Land	UK Perspectives Aerial Photography	-

This data is sourced from Natural England.

13.4 Limestone Pavement Orders

Records within 250m

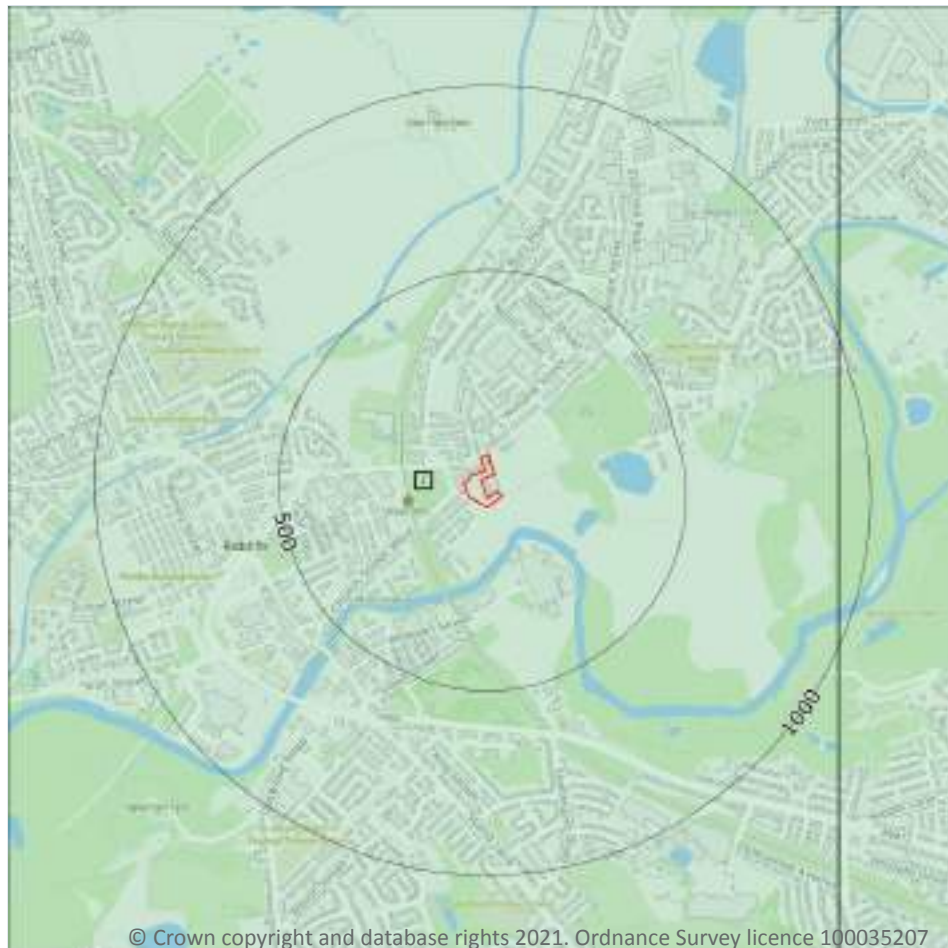
0

Limestone pavements are outcrops of limestone where the surface has been worn away by natural means over millennia. These rocks have the appearance of paving blocks, hence their name. Not only do they have geological interest, they also provide valuable habitats for wildlife. These habitats are threatened due to their removal for use in gardens and water features. Many limestone pavements have been designated as SSSIs which affords them some protection. In addition, Section 34 of the Wildlife and Countryside Act 1981 gave them additional protection via the creation of Limestone Pavement Orders, which made it a criminal offence to remove any part of the outcrop. The associated Limestone Pavement Priority Habitat is part of the UK Biodiversity Action Plan priority habitat in England.

This data is sourced from Natural England.



14 Geology 1:10,000 scale - Availability



- Site Outline
- Search buffers in metres (m)
- Full coverage
 - Partial coverage
 - No coverage

14.1 10k Availability

Records within 500m

1

An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 114**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	Full	Full	Full	Full	SD70NE

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Artificial and made ground



— Site Outline
Search buffers in metres (m)

- Reclaimed ground
- Made ground
- Worked ground
- Infilled ground
- Disturbed ground
- Landscaped ground

14.2 Artificial and made ground (10k)

Records within 500m

15

Details of made, worked, infilled, disturbed and landscaped ground at 1:10,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

Features are displayed on the Geology 1:10,000 scale - Artificial and made ground map on **page 115**

ID	Location	LEX Code	Description	Rock description
1	21m W	WMGR-ARTDP	Infilled Ground	Artificial Deposit
2	100m E	WGR-VOID	Worked Ground (Undivided)	Void
3	131m SW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
4	196m NE	WGR-VOID	Worked Ground (Undivided)	Void

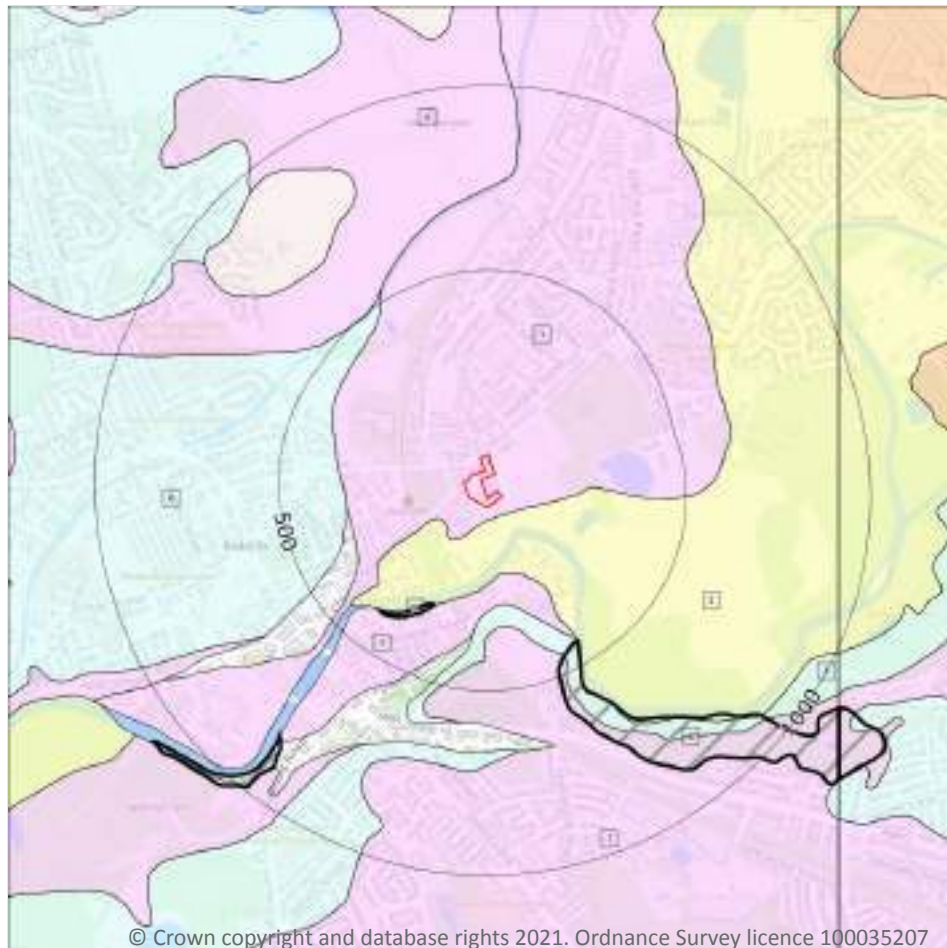


ID	Location	LEX Code	Description	Rock description
A	283m E	WGR-VOID	Worked Ground (Undivided)	Void
5	308m SW	WMGR-ARTDP	Infilled Ground	Artificial Deposit
A	310m E	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
B	345m S	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
6	346m NW	WGR-VOID	Worked Ground (Undivided)	Void
7	364m W	WMGR-ARTDP	Infilled Ground	Artificial Deposit
8	394m S	WGR-VOID	Worked Ground (Undivided)	Void
9	402m SE	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
B	421m S	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
B	441m S	WGR-VOID	Worked Ground (Undivided)	Void
C	484m NW	WGR-VOID	Worked Ground (Undivided)	Void

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Superficial



- Site Outline
- Search buffers in metres (m)
- Landslip (10k)
- Superficial geology (10k)
Please see table for more details.

14.3 Superficial geology (10k)

Records within 500m

7

Superficial geological deposits at 1:10,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:10,000 scale - Superficial map on **page 117**

ID	Location	LEX Code	Description	Rock description
1	On site	GFSDD-XSV	Glaciofluvial Sheet Deposits, Devensian - Sand And Gravel	Sand And Gravel
2	35m S	ALV-XCZSV	Alluvium - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel
3	187m S	GFSDD-XSV	Glaciofluvial Sheet Deposits, Devensian - Sand And Gravel	Sand And Gravel
4	267m S	TILLD-DMTN	Till, Devensian - Diamicton	Diamicton



ID	Location	LEX Code	Description	Rock description
6	323m W	TILLD-DMTN	Till, Devensian - Diamicton	Diamicton
7	328m S	GFDUD-XSV	Glaciofluvial Deposits, Devensian - Sand And Gravel	Sand And Gravel
9	495m NW	GFDUD-XSV	Glaciofluvial Deposits, Devensian - Sand And Gravel	Sand And Gravel

This data is sourced from the British Geological Survey.

14.4 Landslip (10k)

Records within 500m

2

Mass movement deposits on BGS geological maps at 1:10,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

Features are displayed on the Geology 1:10,000 scale - Superficial map on **page 117**

ID	Location	LEX Code	Description	Rock description
5	301m SW	SLIP-UNKNOWN	Landslide Deposits	Unknown/unclassified Entry
8	436m SE	SLIP-UNKNOWN	Landslide Deposits	Unknown/unclassified Entry

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Bedrock



— Site Outline

Search buffers in metres (m)

.... Bedrock faults and other linear features (10k)

Bedrock geology (10k)
Please see table for more details.

14.5 Bedrock geology (10k)

Records within 500m

9

Bedrock geology at 1:10,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 119**

ID	Location	LEX Code	Description	Rock age
1	On site	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovia Sub-age - Duckmantian Sub-age
2	39m SE	NR-SDST	Nob End Rock - Sandstone	Bolsovia Sub-age
4	139m NE	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovia Sub-age - Duckmantian Sub-age



ID	Location	LEX Code	Description	Rock age
7	266m NW	PR-SDST	Peel Hall Rock - Sandstone	Duckmantian Sub-age
8	284m SW	NR-SDST	Nob End Rock - Sandstone	Bolsovia Sub-age
10	290m SW	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovia Sub-age - Duckmantian Sub-age
11	303m SE	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovia Sub-age - Duckmantian Sub-age
14	351m NW	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovia Sub-age - Duckmantian Sub-age
18	458m E	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovia Sub-age - Duckmantian Sub-age

This data is sourced from the British Geological Survey.

14.6 Bedrock faults and other linear features (10k)

Records within 500m

12

Linear features at the ground or bedrock surface at 1:10,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 119**

ID	Location	Category	Description
3	139m NE	FAULT	Normal fault, inferred; crossmarks on downthrow side
5	142m N	ROCK	Coal seam, inferred
6	208m E	ROCK	Coal seam, inferred
9	284m SW	FAULT	Normal fault, inferred; crossmarks on downthrow side
12	315m S	FOSSIL_HORIZON	Fossil horizon, marine band
13	318m SW	FAULT	Normal fault, inferred; crossmarks on downthrow side
15	396m NW	ROCK	Coal seam, inferred
16	399m SE	FOSSIL_HORIZON	Fossil horizon, marine band
17	446m E	ROCK	Coal seam, inferred
19	458m E	FAULT	Normal fault, inferred; crossmarks on downthrow side
20	474m NW	ROCK	Coal seam, inferred

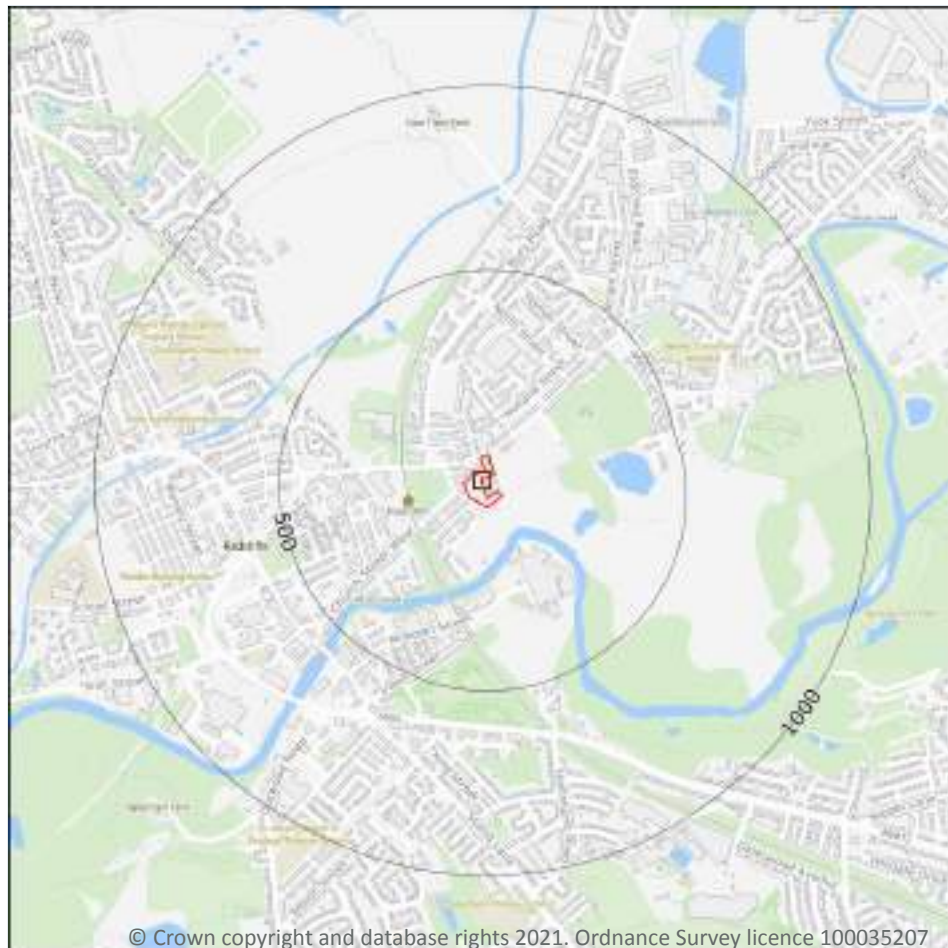


ID	Location	Category	Description
21	494m NW	ROCK	Coal seam, inferred

This data is sourced from the British Geological Survey.



15 Geology 1:50,000 scale - Availability



- Site Outline
- Search buffers in metres (m)
- ☐ Geological map tile

15.1 50k Availability

Records within 500m

1

An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme.

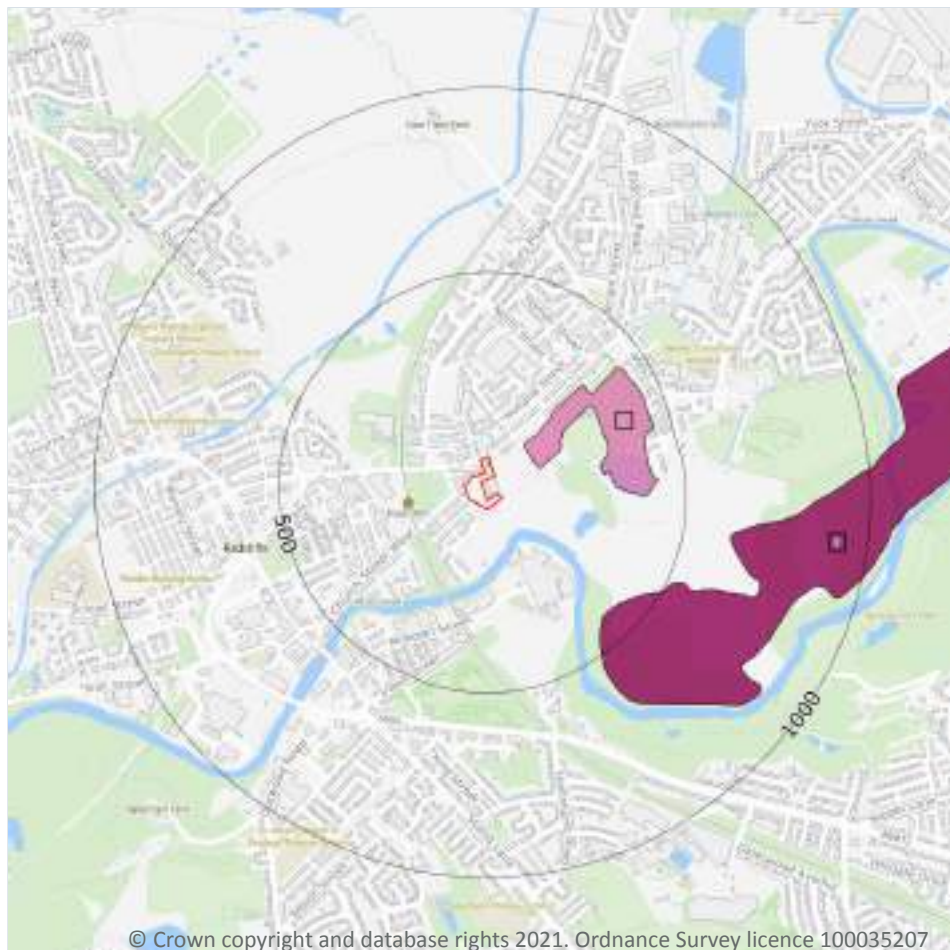
Features are displayed on the Geology 1:50,000 scale - Availability map on **page 122**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	No coverage	Full	Full	No coverage	EW085_manchester_v4

This data is sourced from the British Geological Survey.



Geology 1:50,000 scale - Artificial and made ground



- Site Outline
- Search buffers in metres (m)
- Made ground
 - Worked ground
 - Infilled ground
 - Disturbed ground
 - Landscaped ground

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15.2 Artificial and made ground (50k)

Records within 500m

2

Details of made, worked, infilled, disturbed and landscaped ground at 1:50,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

Features are displayed on the Geology 1:50,000 scale - Artificial and made ground map on **page 123**

ID	Location	LEX Code	Description	Rock description
1	100m E	WGR-VOID	WORKED GROUND (UNDIVIDED)	VOID
2	419m SE	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

This data is sourced from the British Geological Survey.



15.3 Artificial ground permeability (50k)

Records within 50m

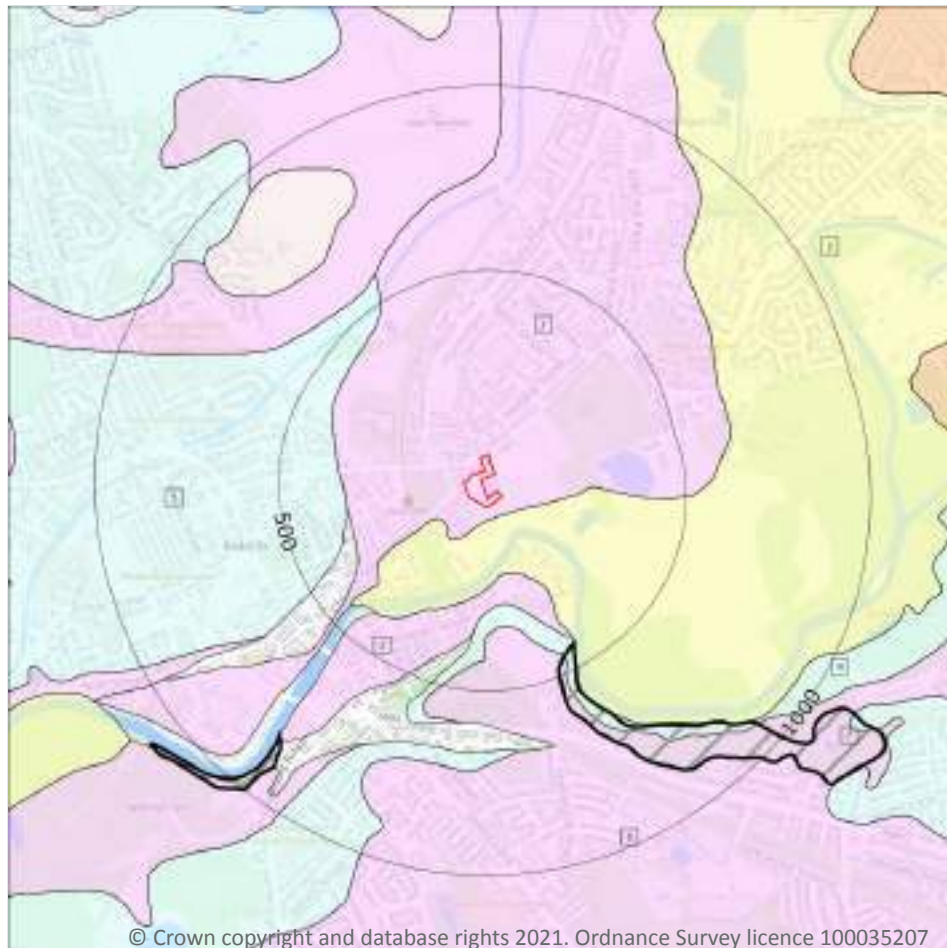
0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any artificial deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.



Geology 1:50,000 scale - Superficial



— Site Outline

Search buffers in metres (m)

Landslip (50k)

Superficial geology (50k)
Please see table for more details.

15.4 Superficial geology (50k)

Records within 500m

6

Superficial geological deposits at 1:50,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:50,000 scale - Superficial map on **page 125**

ID	Location	LEX Code	Description	Rock description
1	On site	GFSDD-XSV	GLACIOFLUVIAL SHEET DEPOSITS, DEVENSIAN	SAND AND GRAVEL
2	35m S	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
3	188m S	GFSDD-XSV	GLACIOFLUVIAL SHEET DEPOSITS, DEVENSIAN	SAND AND GRAVEL
4	267m S	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON

ID	Location	LEX Code	Description	Rock description
5	322m W	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
6	328m S	GFDUD-XSV	GLACIOFLUVIAL DEPOSITS, DEVENSIAN	SAND AND GRAVEL

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m

2

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any superficial deposits (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	Intergranular	Very High	High
35m NE	Intergranular	High	Very Low

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m

1

Mass movement deposits on BGS geological maps at 1:50,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

Features are displayed on the Geology 1:50,000 scale - Superficial map on **page 125**

ID	Location	LEX Code	Description	Rock description
7	437m SE	SLIP-UNKNOWN	LANDSLIDE DEPOSITS	UNKNOWN/UNCLASSIFIED ENTRY

This data is sourced from the British Geological Survey.

15.7 Landslip permeability (50k)

Records within 50m

0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any landslip deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.



Geology 1:50,000 scale - Bedrock



— Site Outline

Search buffers in metres (m)

.... Bedrock faults and other linear features (50k)

Bedrock geology (50k)
Please see table for more details.

15.8 Bedrock geology (50k)

Records within 500m

9

Bedrock geology at 1:50,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 127**

ID	Location	LEX Code	Description	Rock age
1	On site	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
2	39m SE	NR-SDST	NOB END ROCK - SANDSTONE	WESTPHALIAN
4	139m NE	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN



ID	Location	LEX Code	Description	Rock age
7	266m NW	PR-SDST	PEEL HALL ROCK - SANDSTONE	WESTPHALIAN
9	284m SW	NR-SDST	NOB END ROCK - SANDSTONE	WESTPHALIAN
10	290m SW	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
11	304m SE	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
13	351m NW	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
18	458m E	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m	2
---------------------------	----------

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of bedrock (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	Fracture	Moderate	Low
39m SE	Fracture	High	Moderate

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m	10
----------------------------	-----------

Linear features at the ground or bedrock surface at 1:50,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 127**

ID	Location	Category	Description
3	139m NE	FAULT	Fault, inferred
5	142m N	ROCK	Coal seam, inferred

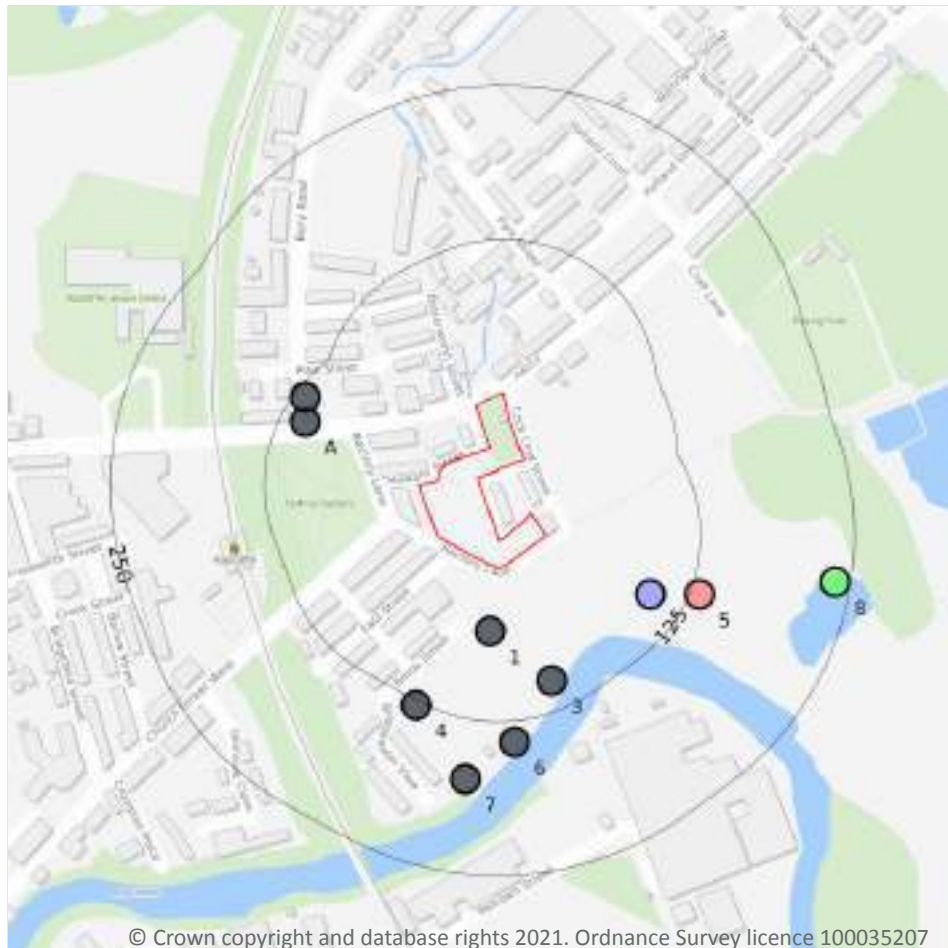


ID	Location	Category	Description
6	208m E	ROCK	Coal seam, inferred
8	284m SW	FAULT	Fault, inferred
12	315m S	FOSSIL_HORIZON	Marine band
14	396m NW	ROCK	Coal seam, inferred
15	399m SE	FOSSIL_HORIZON	Marine band
16	445m E	ROCK	Coal seam, inferred
17	458m E	FAULT	Fault, inferred
19	474m NW	ROCK	Coal seam, inferred

This data is sourced from the British Geological Survey.



16 Boreholes



— Site Outline
Search buffers in metres (m)

- Confidential
- 0 - 10m
- 10 - 30m
- 30m+
- Unknown

16.1 BGS Boreholes

Records within 250m

10

The Single Onshore Boreholes Index (SOBI); an index of over one million records of boreholes, shafts and wells from all forms of drilling and site investigation work held by the British Geological Survey. Covering onshore and nearshore boreholes dating back to at least 1790 and ranging from one to several thousand metres deep.

Features are displayed on the Boreholes map on **page 130**

ID	Location	Grid reference	Name	Length	Confidential	Web link
1	52m S	379040 407290	EAST LANCASHIRE PAPER MILL 18	-	Y	N/A
2	97m SE	379170 407320	RADCLIFFE	-2.0	N	18774
3	100m S	379090 407250	EAST LANCASHIRE PAPER MILL 19	-	Y	N/A

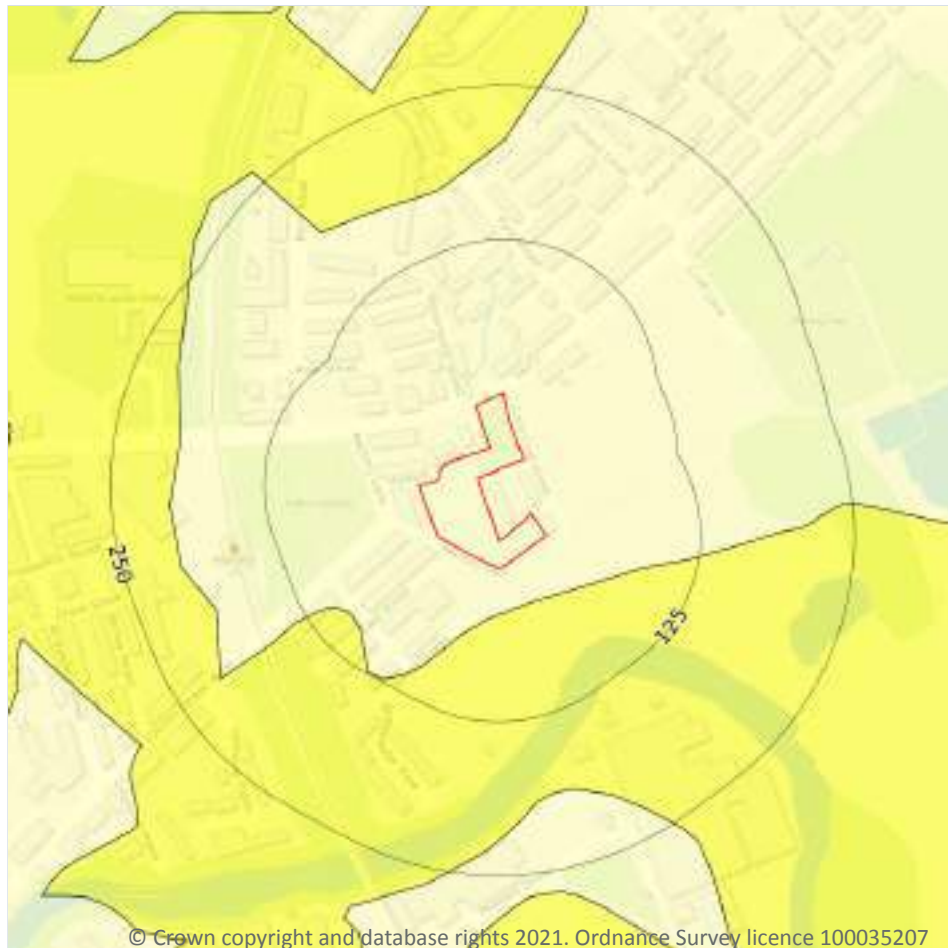


ID	Location	Grid reference	Name	Length	Confidential	Web link
A	105m NW	378890 407460	RADCLIFFE AREA SEWER SCHEME 2	-	Y	N/A
A	116m NW	378890 407480	RADCLIFFE AREA SEWER SCHEME 1	-	Y	N/A
4	129m SW	378980 407230	EAST LANCASHIRE PAPER MILL 21	-	Y	N/A
5	133m E	379210 407320	J. WILD & SONS	124.36	N	18406
6	142m S	379060 407200	EAST LANCASHIRE PAPER MILL 17	-	Y	N/A
7	173m S	379020 407170	EAST LANCASHIRE PAPER MILL 20	-	Y	N/A
8	237m E	379320 407330	RADCLIFFE NO.1	13.5	N	18490

This data is sourced from the British Geological Survey.



17 Natural ground subsidence - Shrink swell clays



- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☐ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.1 Shrink swell clays

Records within 50m

2

The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and local drainage).

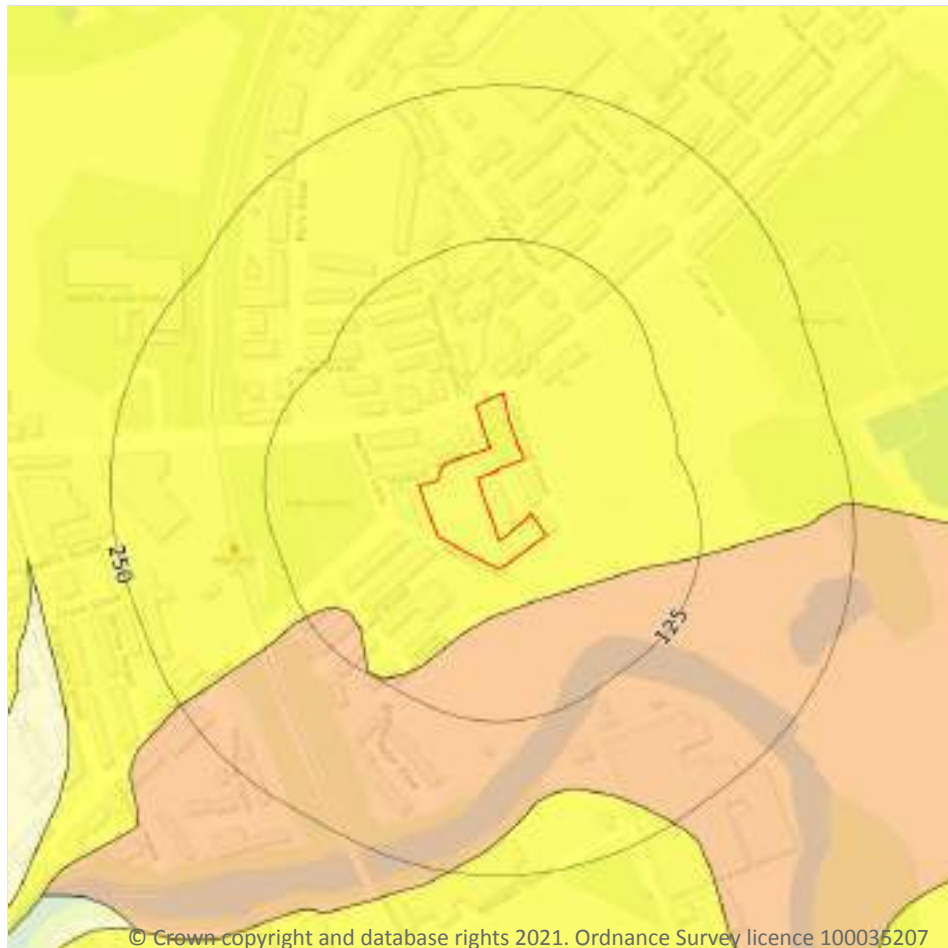
Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 132**

Location	Hazard rating	Details
On site	Negligible	Ground conditions predominantly non-plastic.
35m S	Very low	Ground conditions predominantly low plasticity.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Running sands



— Site Outline
Search buffers in metres (m)

- ☐ No data
- ☐ Negligible
- ☐ Very low
- ☐ Low
- ☐ Moderate
- ☐ High

17.2 Running sands

Records within 50m

2

The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

Features are displayed on the Natural ground subsidence - Running sands map on **page 133**

Location	Hazard rating	Details
On site	Very low	Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.



Location	Hazard rating	Details
35m S	Low	Running sand conditions may be present. Constraints may apply to land uses involving excavation or the addition or removal of water.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Compressible deposits



- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☐ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

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17.3 Compressible deposits

Records within 50m

2

The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 135**

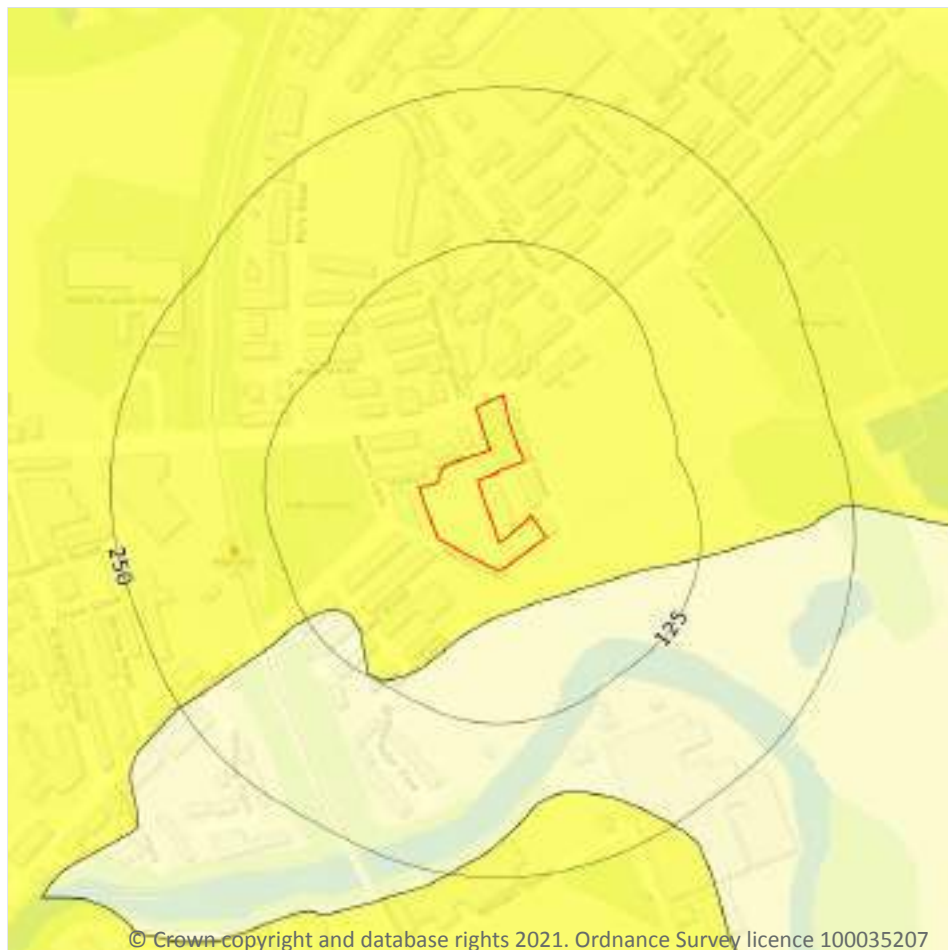
Location	Hazard rating	Details
On site	Negligible	Compressible strata are not thought to occur.
35m S	Moderate	Compressibility and uneven settlement hazards are probably present. Land use should consider specifically the compressibility and variability of the site.



This data is sourced from the British Geological Survey.



Natural ground subsidence - Collapsible deposits



- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☐ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.4 Collapsible deposits

Records within 50m

2

The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 137**

Location	Hazard rating	Details
On site	Very low	Deposits with potential to collapse when loaded and saturated are unlikely to be present.
35m S	Negligible	Deposits with potential to collapse when loaded and saturated are believed not to be present.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Landslides



— Site Outline
Search buffers in metres (m)

- ☐ No data
- ☐ Negligible
- ☐ Very low
- ☐ Low
- ☐ Moderate
- ☐ High

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17.5 Landslides

Records within 50m

1

The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

Features are displayed on the Natural ground subsidence - Landslides map on **page 138**

Location	Hazard rating	Details
On site	Very low	Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Ground dissolution of soluble rocks



- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☐ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.6 Ground dissolution of soluble rocks

Records within 50m

1

The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 139**

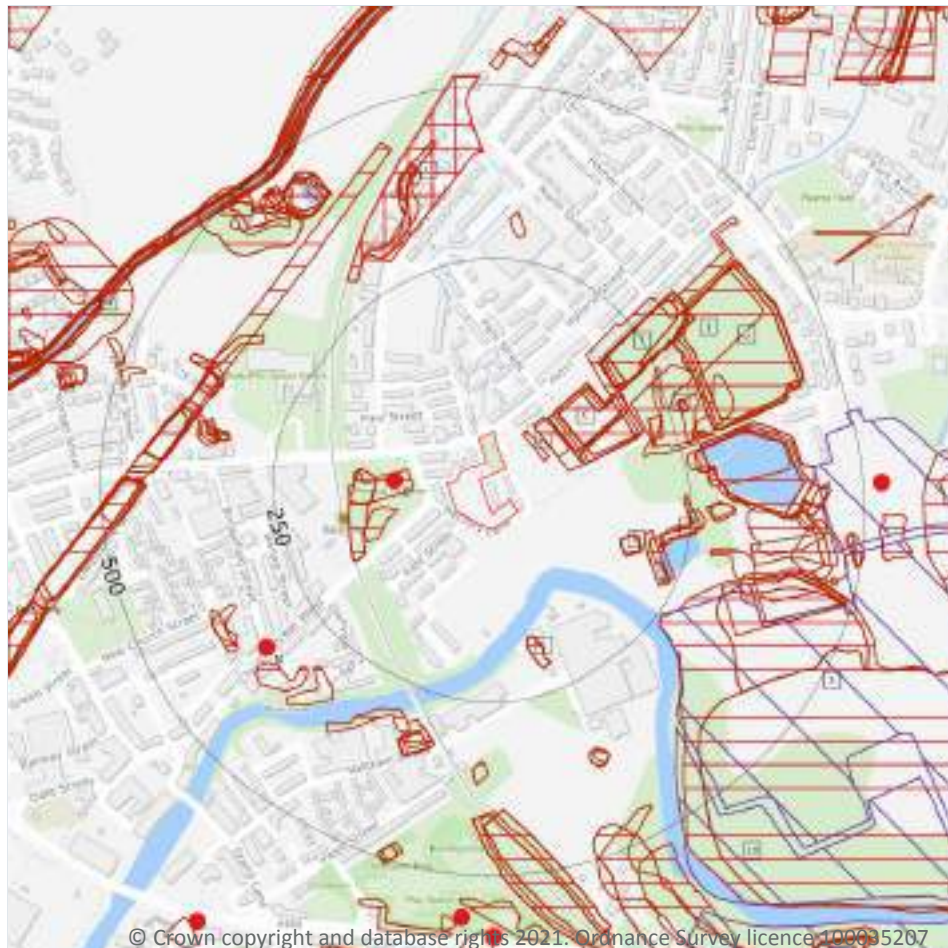
Location	Hazard rating	Details
On site	Negligible	Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.



This data is sourced from the British Geological Survey.



18 Mining, ground workings and natural cavities



- Site Outline
- Search buffers in metres (m)
- ▢ Natural cavities (Area)
- Natural cavities (Point)
- BritPits
- ▢ Surface ground workings
- ▢ Underground workings
- ▢ Historical Mineral Planning Areas
- Mining Cavities
- Non Coal Mining
- ▢ Sporadic underground mining of restricted extent possible
- ▢ Localised small scale underground mining possible
- ▢ Small scale mining possible
- ▢ Underground mining known or likely within or in close proximity
- ▢ Underground mining known within or in very close proximity

18.1 Natural cavities

Records within 500m

0

Industry recognised national database of natural cavities. Sinkholes and caves are formed by the dissolution of soluble rock, such as chalk and limestone, gulls and fissures by cambering. Ground instability can result from movement of loose material contained within these cavities, often triggered by water.

This data is sourced from Peter Brett Associates (PBA).

18.2 BritPits

Records within 500m

2

BritPits (an abbreviation of British Pits) is a database maintained by the British Geological Survey of currently active and closed surface and underground mineral workings. Details of major mineral handling sites, such as wharfs and rail depots are also held in the database.

Features are displayed on the Mining, ground workings and natural cavities map on **page 141**

ID	Location	Details	Description
B	74m W	Name: Radcliffe Gravel Pit Address: RADCLIFFE, Lancashire Commodity: Sand & Gravel Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
N	337m SW	Name: Scar Top Address: RADCLIFFE, Lancashire Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority

This data is sourced from the British Geological Survey.

18.3 Surface ground workings

Records within 250m

47

Historical land uses identified from Ordnance Survey mapping that involved ground excavation at the surface. These features may or may not have been subsequently backfilled.

Features are displayed on the Mining, ground workings and natural cavities map on **page 141**

ID	Location	Land Use	Year of mapping	Mapping scale
A	39m E	Reservoirs	1891	1:10560
B	48m W	Gravel Pit	1851	1:10560
A	57m E	Reservoirs	1891	1:10560
A	59m E	Reservoirs	1908	1:10560
B	80m W	Refuse Heap	1908	1:10560
C	81m E	Reservoir	1938	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
C	81m E	Reservoir	1927	1:10560
C	81m E	Reservoir	1908	1:10560
C	81m E	Reservoir	1891	1:10560
C	88m E	Reservoir	1955	1:10560
C	94m E	Ponds	1977	1:10000
C	94m E	Ponds	1965	1:10560
C	95m E	Pond	1991	1:10000
C	95m E	Pond	1988	1:10000
B	102m W	Refuse Heap	1938	1:10560
B	102m W	Refuse Heap	1927	1:10560
C	108m E	Reservoir	1938	1:10560
C	108m E	Reservoir	1927	1:10560
C	108m E	Reservoir	1908	1:10560
C	108m E	Reservoir	1891	1:10560
C	115m E	Reservoir	1955	1:10560
D	154m E	Ponds	1891	1:10560
D	154m E	Filter Beds	1938	1:10560
D	154m E	Filter Beds	1927	1:10560
E	162m S	Unspecified Ground Workings	1991	1:10000
E	162m S	Unspecified Ground Workings	1977	1:10000
E	162m S	Unspecified Ground Workings	1965	1:10560
E	162m S	Unspecified Ground Workings	1988	1:10000
1	170m NE	Ponds	1851	1:10560
F	181m NE	Reservoirs	1938	1:10560
F	181m NE	Reservoirs	1927	1:10560
F	181m NE	Reservoir	1908	1:10560
F	184m NE	Reservoirs	1891	1:10560
D	186m E	Filter Beds	1938	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
D	186m E	Filter Beds	1927	1:10560
F	190m NE	Reservoirs	1955	1:10560
D	194m E	Filter Beds	1955	1:10560
G	196m NE	Reservoirs	1991	1:10000
G	196m NE	Reservoirs	1977	1:10000
G	196m NE	Ponds	1965	1:10560
G	196m NE	Reservoirs	1988	1:10000
H	202m E	Filter Beds	1955	1:10560
I	207m E	Unspecified Ground Workings	1938	1:10560
I	207m E	Unspecified Ground Workings	1927	1:10560
I	210m E	Unspecified Ground Workings	1955	1:10560
H	217m E	Filter Beds	1938	1:10560
H	217m E	Filter Beds	1927	1:10560

This data is sourced from Ordnance Survey/Groundsure.

18.4 Underground workings

Records within 1000m

9

Historical land uses identified from Ordnance Survey mapping that indicate the presence of underground workings e.g. mine shafts.

Features are displayed on the Mining, ground workings and natural cavities map on **page 141**

ID	Location	Land Use	Year of mapping	Mapping scale
L	285m NW	Colliery	1891	1:10560
AF	557m NW	Air Shaft	1950	1:10560
AF	593m NW	Air Shaft	1938	1:10560
AF	593m NW	Air Shaft	1927	1:10560
AF	593m NW	Air Shaft	1908	1:10560
-	844m W	Unspecified Shaft	1891	1:10560
-	866m S	Unspecified Old Shaft	1950	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
-	871m S	Unspecified Old Shaft	1938	1:10560
-	871m S	Unspecified Old Shaft	1927	1:10560

This data is sourced from Ordnance Survey/Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m

3

Boundaries of mineral planning permissions for England and Wales. This data was collated between the 1940s (and retrospectively to the 1930s) and the mid 1980s. The data includes permitted, withdrawn and refused permissions.

Features are displayed on the Mining, ground workings and natural cavities map on **page 141**

ID	Location	Site Name	Mineral	Type	Planning Status	Planning Status Date
3	258m SE	Dumers Lane	Sand and gravel	Surface mineral working	Valid	23/1/51
10	388m SE	Dumers Lane	Sand and gravel	Surface mineral working	Valid	23/1/51
Z	432m E	Close Park	Sand and gravel	Surface mineral working	Valid	23/1/51

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m

0

The potential for historical non-coal mining to have affected an area. The assessment is drawn from expert knowledge and literature in addition to the digital geological map of Britain. Mineral commodities may be divided into seven general categories - vein minerals, chalk, oil shale, building stone, bedded ores, evaporites and 'other' commodities (including ball clay, jet, black marble, graphite and chert).

This data is sourced from the British Geological Survey.



18.7 Mining cavities

Records within 1000m

0

Industry recognised national database of mining cavities. Degraded mines may result in hazardous subsidence (crown holes). Climatic conditions and water escape can also trigger subsidence over mine entrances and workings.

This data is sourced from Peter Brett Associates (PBA).

18.8 JPB mining areas

Records on site

1

Areas which could be affected by former coal mining. This data includes some mine plans unavailable to the Coal Authority.

Location	Details
On site	In addition to being located inside 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 which may supplement this information. Further details and a quote for services can be obtained by emailing this report to enquiries.gs@jpb.co.uk .

This data is sourced from Johnson Poole and Bloomer.

18.9 Coal mining

Records on site

1

Areas which could be affected by past, current or future coal mining.

Location	Details
On site	The site is located within a coal mining area as defined by the Coal Authority. A Consultants Coal Mining Report is recommended to further assess coal mining issues at the site. This can be ordered directly through Groundsure or your preferred search provider.

This data is sourced from the Coal Authority.

18.10 Brine areas

Records on site

0

The Cheshire Brine Compensation District indicates areas that may be affected by salt and brine extraction in Cheshire and where compensation would be available where damage from this mining has occurred. Damage from salt and brine mining can still occur outside this district, but no compensation will be available.

This data is sourced from the Cheshire Brine Subsidence Compensation Board.



18.11 Gypsum areas

Records on site	0
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Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.12 Tin mining

Records on site	0
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Generalised areas that may be affected by historical tin mining.

This data is sourced from Mining Searches UK.

18.13 Clay mining

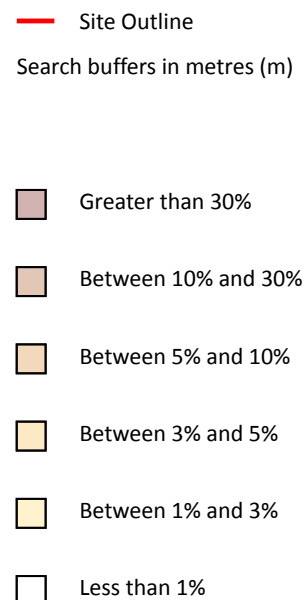
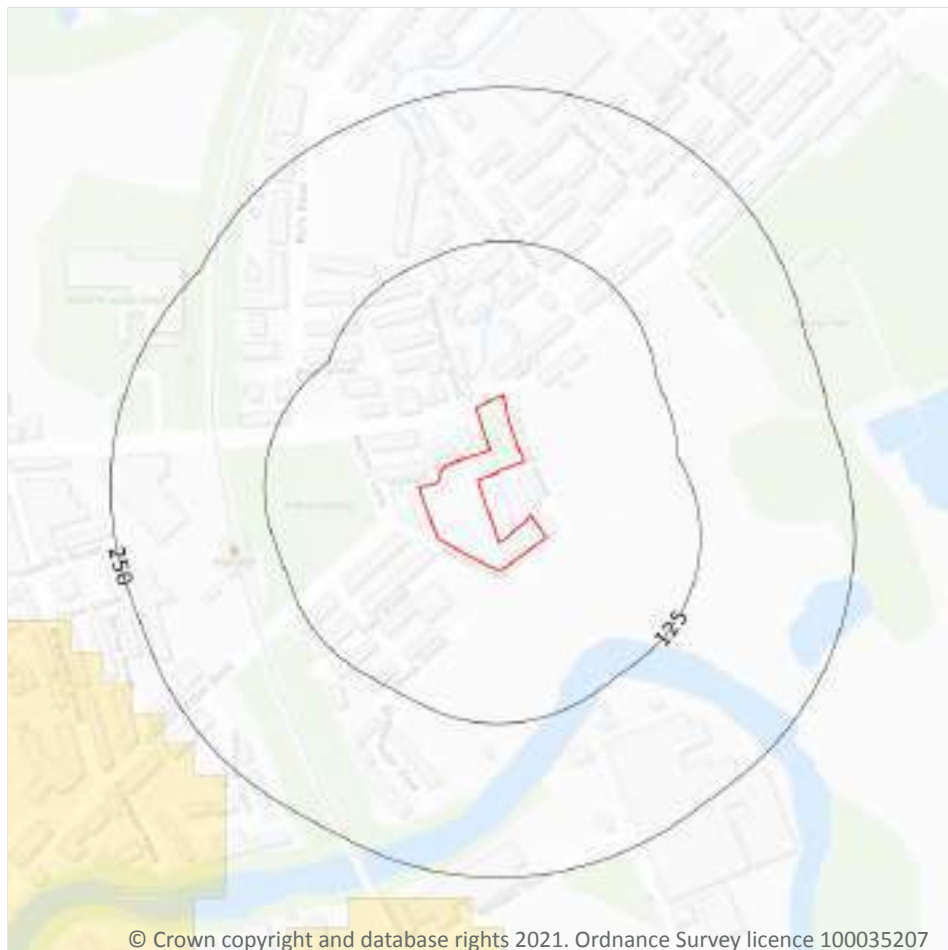
Records on site	0
-----------------	---

Generalised areas that may be affected by kaolin and ball clay extraction.

This data is sourced from the Kaolin and Ball Clay Association (UK).



19 Radon



19.1 Radon

Records on site

1

Estimated percentage of dwellings exceeding the Radon Action Level. This data is the highest resolution radon dataset available for the UK and is produced to a 75m level of accuracy to allow for geological data accuracy and a 'residential property' buffer. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain. The data was derived from both geological assessments and long term measurements of radon in more than 479,000 households.

Features are displayed on the Radon map on **page 148**

Location	Estimated properties affected	Radon Protection Measures required
On site	Less than 1%	None**

This data is sourced from the British Geological Survey and Public Health England.



20 Soil chemistry

20.1 BGS Estimated Background Soil Chemistry

Records within 50m

7

The estimated values provide the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. The values are estimated primarily from rural topsoil data collected at a sample density of approximately 1 per 2 km². In areas where rural soil samples are not available, estimation is based on stream sediment data collected from small streams at a sampling density of 1 per 2.5 km²; this is the case for most of Scotland, Wales and southern England. The stream sediment data are converted to soil-equivalent concentrations prior to the estimation.

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg
17m N	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg
20m S	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	40 - 60 mg/kg	15 - 30 mg/kg
31m E	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	40 - 60 mg/kg	15 - 30 mg/kg
35m SE	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	40 - 60 mg/kg	15 - 30 mg/kg
39m NW	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg

This data is sourced from the British Geological Survey.

20.2 BGS Estimated Urban Soil Chemistry

Records within 50m

0

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km²).

This data is sourced from the British Geological Survey.



20.3 BGS Measured Urban Soil Chemistry

Records within 50m

0

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km².

This data is sourced from the British Geological Survey.



21 Railway infrastructure and projects



- Site Outline
- Search buffers in metres (m)
- C1 Crossrail 1 Stations
- Crossrail 1 Route
- Crossrail 1 Worksites
- C2 Crossrail 2 Stations
- Crossrail 2 Route
- Crossrail 2 Worksites
- Crossrail 2 Safeguarding
- Crossrail 2 Headhouses
- Railway stations
- Active railways
- Active tunnels
- Abandoned railways
- Historic railways
- Historic tunnels
- Underground stations
- Underground Lines
- Royal Mail tunnels
- HS2 optimised route
- HS2 Stations
- HS2 Depots
- HS2 Surface Safeguarding
- HS2 Subsurface Safeguarding

21.1 Underground railways (London)

Records within 250m

0

Details of all active London Underground lines, including approximate tunnel roof depth and operational hours.

This data is sourced from publicly available information by Groundsure.

21.2 Underground railways (Non-London)

Records within 250m

0

Details of the Merseyrail system, the Tyne and Wear Metro and the Glasgow Subway. Not all parts of all systems are located underground. The data contains location information only and does not include a depth assessment.



This data is sourced from publicly available information by Groundsure.

21.3 Railway tunnels

Records within 250m

0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

21.4 Historical railway and tunnel features

Records within 250m

26

Railways and tunnels digitised from historical Ordnance Survey mapping as scales of 1:1,250, 1:2,500, 1:10,000 and 1:10,560.

Features are displayed on the Railway infrastructure and projects map on **page 151**

Location	Land Use	Year of mapping	Mapping scale
133m SE	Railway Sidings	1938	10560
133m SE	Railway Sidings	1927	10560
153m W	Railway Sidings	1955	10560
154m NW	Railway Sidings	1965	10560
157m W	Railway Sidings	1938	10560
157m W	Railway Sidings	1927	10560
157m W	Railway Sidings	1908	10560
157m W	Railway Sidings	1891	10560
160m E	Railway Sidings	1955	10560
172m SE	Tramway Sidings	1929	2500
172m SE	Tramway Sidings	1937	2500
178m SW	Railway Sidings	1956	1250
181m SW	Railway Sidings	1956	2500
186m SW	Railway Sidings	1909	2500
186m SW	Railway Sidings	1893	2500
186m SW	Railway Sidings	1929	2500
186m SW	Railway Sidings	1937	2500



Location	Land Use	Year of mapping	Mapping scale
207m NW	Railway Sidings	1956	2500
208m NW	Railway Sidings	1956	1250
210m NW	Railway Sidings	1929	2500
210m NW	Railway Sidings	1937	2500
215m W	Railway Sidings	1909	2500
219m NW	Railway Sidings	1893	2500
220m W	Railway Sidings	1956	1250
233m W	Railway Sidings	1956	1250
234m W	Railway Sidings	1956	1250

This data is sourced from Ordnance Survey/Groundsure.

21.5 Royal Mail tunnels

Records within 250m

0

The Post Office Railway, otherwise known as the Mail Rail, is an underground railway running through Central London from Paddington Head District Sorting Office to Whitechapel Eastern Head Sorting Office. The line is 10.5km long. The data includes details of the full extent of the tunnels, the depth of the tunnel, and the depth to track level.

This data is sourced from Groundsure/the Postal Museum.

21.6 Historical railways

Records within 250m

4

Former railway lines, including dismantled lines, abandoned lines, disused lines, historic railways and razed lines.

Features are displayed on the Railway infrastructure and projects map on **page 151**

Location	Description
176m SW	Abandoned
179m SW	Abandoned
179m SW	Abandoned
180m SW	Razed

This data is sourced from OpenStreetMap.



21.7 Railways

Records within 250m

23

Currently existing railway lines, including standard railways, narrow gauge, funicular, trams and light railways. Features are displayed on the Railway infrastructure and projects map on **page 151**

Location	Name	Type
155m W	-	light_rail
156m W	Not given	Multi Track
158m W	Not given	Multi Track
158m W	-	light_rail
159m W	Not given	Multi Track
160m W	Not given	Multi Track
161m W	Not given	Multi Track
162m SW	-	light_rail
165m SW	Not given	Multi Track
165m SW	-	light_rail
166m W	-	light_rail
166m SW	-	light_rail
168m W	-	light_rail
169m SW	-	light_rail
169m W	Not given	Multi Track
171m W	-	light_rail
172m W	Not given	Multi Track
174m W	Metrolink	light_rail
180m W	Not given	Multi Track
225m SW	-	light_rail
228m SW	-	light_rail
231m SW	Not given	Multi Track
249m NW	Not given	Multi Track

This data is sourced from Ordnance Survey and OpenStreetMap.



21.8 Crossrail 1

Records within 500m**0**

The Crossrail railway project links 41 stations over 100 kilometres from Reading and Heathrow in the west, through underground sections in central London, to Shenfield and Abbey Wood in the east.

This data is sourced from publicly available information by Groundsure.

21.9 Crossrail 2

Records within 500m**0**

Crossrail 2 is a proposed railway linking the national rail networks in Surrey and Hertfordshire via an underground tunnel through London.

This data is sourced from publicly available information by Groundsure.

21.10 HS2

Records within 500m**0**

HS2 is a proposed high speed rail network running from London to Manchester and Leeds via Birmingham. Main civils construction on Phase 1 (London to Birmingham) of the project began in 2019, and it is currently anticipated that this phase will be fully operational by 2026. Construction on Phase 2a (Birmingham to Crewe) is anticipated to commence in 2021, with the service fully operational by 2027. Construction on Phase 2b (Crewe to Manchester and Birmingham to Leeds) is scheduled to begin in 2023 and be operational by 2033.

This data is sourced from HS2 Ltd.



Data providers

Groundsure works with respected data providers to bring you the most relevant and accurate information. To find out who they are and their areas of expertise see <https://www.groundsure.com/sources-reference>.

Terms and conditions

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The Coal
Authority

CON29M

coal mining report

RECTORY LANE, RADCLIFFE, GREATER MANCHESTER, M26 2QU

Known or potential coal mining risks

Past underground coal mining	Page 4
Future underground coal mining	Page 4



Further action

No further reports from the Coal Authority are required. Further information on any next steps can be found in our Professional opinion.

For more information on our reports please visit
www.groundstability.com



Professional opinion

According to the official mining information records held by the Coal Authority at the time of this search, evidence of, or the potential for, coal mining related features have been identified. It is unlikely that these features will impact on the stability of the enquiry boundary.

Your reference: **GS-7611304**
Our reference: **51002394719001**
Date: **26 February 2021**

Client name:
GROUNDSURE LIMITED

If you require any further assistance please
contact our experts on:
0345 762 6848
groundstability@coal.gov.uk



The Law
Society

Enquiry boundary

Key

Approximate position of enquiry boundary shown



We can confirm that the location is
on the coalfield



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Accessibility

If you would like this information in an alternative format, please contact our communications team on 0345 762 6848 or email communications@coal.gov.uk.



Site investigations

The following site investigation(s) took place in the location area:

A site investigation was carried out in April 2017 by Geocore Site Investigations, on behalf of WYG Environmental Ltd, Quaywest, Trafford Wharf Road, Trafford Park, Manchester M17 1HH on behalf of the Homes and Communities Agency.

Additional information regarding these investigations may be available from the company or companies listed above.

Detailed findings

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1 Past underground coal mining

The property is in a surface area that could be affected by underground mining in 5 seams of coal at 150m to 350m depth, and last worked in 1893.

Any movement in the ground due to coal mining activity associated with these workings should have stopped by now.

2 Present underground coal mining

The property is not within a surface area that could be affected by present underground mining.

3 Future underground coal mining

The property is not in an area where the Coal Authority has received an application for, and is currently considering whether to grant a licence to remove or work coal by underground methods.

The property is not in an area where a licence has been granted to remove or otherwise work coal using underground methods.

The property is not in an area likely to be affected from any planned future underground coal mining.

However, reserves of coal exist in the local area which could be worked at some time in the future.

No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

Mine entries

There are no recorded coal mine entries known to the Coal Authority within, or within 20 metres, of the boundary of the property.

5 Coal mining geology

The Coal Authority is not aware of any damage due to geological faults or other lines of weakness that have been affected by coal mining.

6 Past opencast coal mining

The property is not within the boundary of an opencast site from which coal has been removed by opencast methods.

7 Present opencast coal mining

The property does not lie within 200 metres of the boundary of an opencast site from which coal is being removed by opencast methods.

8 Future opencast coal mining

There are no licence requests outstanding to remove coal by opencast methods within 800 metres of the boundary.

The property is not within 800 metres of the boundary of an opencast site for which a licence to remove coal by opencast methods has been granted.

9 Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres of the enquiry boundary, since 31 October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

10 Mine gas

The Coal Authority has no record of a mine gas emission requiring action.

11 Hazards related to coal mining

The property has not been subject to remedial works, by or on behalf of the Coal Authority, under its Emergency Surface Hazard Call Out procedures.

12 Withdrawal of support

The property is not in an area where a notice to withdraw support has been given.

The property is not in an area where a notice has been given under section 41 of the Coal Industry Act 1994, cancelling the entitlement to withdraw support.

13 Working facilities order

The property is not in an area where an order has been made, under the provisions of the Mines (Working Facilities and Support) Acts 1923 and 1966 or any statutory modification or amendment thereof.

14 Payments to owners of former copyhold land

The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Statutory cover



Coal mining subsidence

In the unlikely event of any coal mining related subsidence damage, the Coal Authority or the mine operator has a duty to take remedial action in respect of subsidence caused by the withdrawal of support from land or property in connection with lawful coal mining operations.

When the works are the responsibility of the Coal Authority, our dedicated public safety and subsidence team will manage the claim. The house or land owner ("the owner") is covered for these works under the terms of the Coal Mining Subsidence Act 1991 (as amended by the Coal Industry Act 1994). Please note, this Act does not apply where coal was worked or gotten by virtue of the grant of a gale in the Forest of Dean, or any other part of the Hundred of St. Briavels in the county of Gloucester.

If you believe your land or property is suffering from coal mining subsidence damage and you need more information on what to do next, please use the following link to our website which sets out what your rights are and what you need to consider before making a claim.

www.gov.uk/government/publications/coal-mining-subsidence-damage-notice-form



Coal mining hazards

Our public safety and subsidence team provide a 24 hour a day, 7 days a week hazard reporting service, to help protect the public from hazards caused by past coal workings, such as a mine shaft or shallow working collapse. To report any hazards please call **01623 646 333**. Further information can be found on our website: www.gov.uk/coalauthority.

Glossary



Key terms

adit - horizontal or sloped entrance to a mine

coal mining subsidence - ground movement caused by the removal of coal by underground mining

Coal Mining Subsidence Act 1991 - the Act setting out the duties of the Coal Authority to repair damage caused by coal mining subsidence

coal mining subsidence damage - damage to land, buildings or structures caused by the removal of coal by underground mining

coal seams - bed of coal of varying thickness

future opencast coal mining - a licence granted, or licence application received, by the Coal Authority to excavate coal from the surface

future underground coal mining - a licence granted, or licence application received, by the Coal Authority to excavate coal underground. Although it is unlikely, remaining coal reserves could create a possibility for future mining, which would be licensed by the Coal Authority

mine entries - collective name for shafts and adits

payments to owners of former copyhold land - historically, copyhold land gave rights to coal to the copyholder. Legislation was set up to allow others to work this coal, but they had to issue a notice and pay compensation if a copyholder came forward

shaft - vertical entry into a mine

site investigation - investigations of coal mining risks carried out with the Coal Authority's permission

stop notice - a delay to repairs because further coal mining subsidence damage may occur and it would be unwise to carry out permanent repairs

subsidence claim - a formal notice of subsidence damage to the Coal Authority since it was established on 31 October 1994

withdrawal of support - a historic notice informing landowners that the coal beneath their property was going to be worked

working facilities orders - a court order which gave permission, restricted or prevented coal mine workings

Appendix C – Historical Mapping

Site Details:

RECTORY LANE, RADCLIFFE,
M26 2QU

Client Ref: NX418
Report Ref: GS-7611303
Grid Ref: 379034, 407412

Map Name: County Series

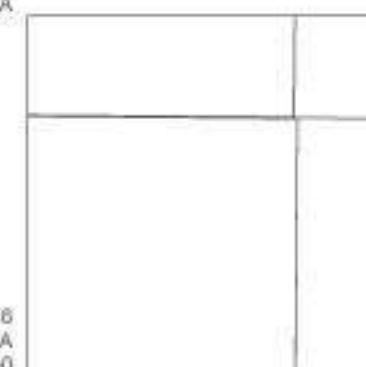
Map date: 1848-1850

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1847
Revised N/A
Edition 1850
Copyright N/A
Levelled N/A



Surveyed 1846
Revised N/A
Edition 1850
Copyright N/A
Levelled N/A

Surveyed 1845
Revised N/A
Edition 1848
Copyright N/A
Levelled N/A

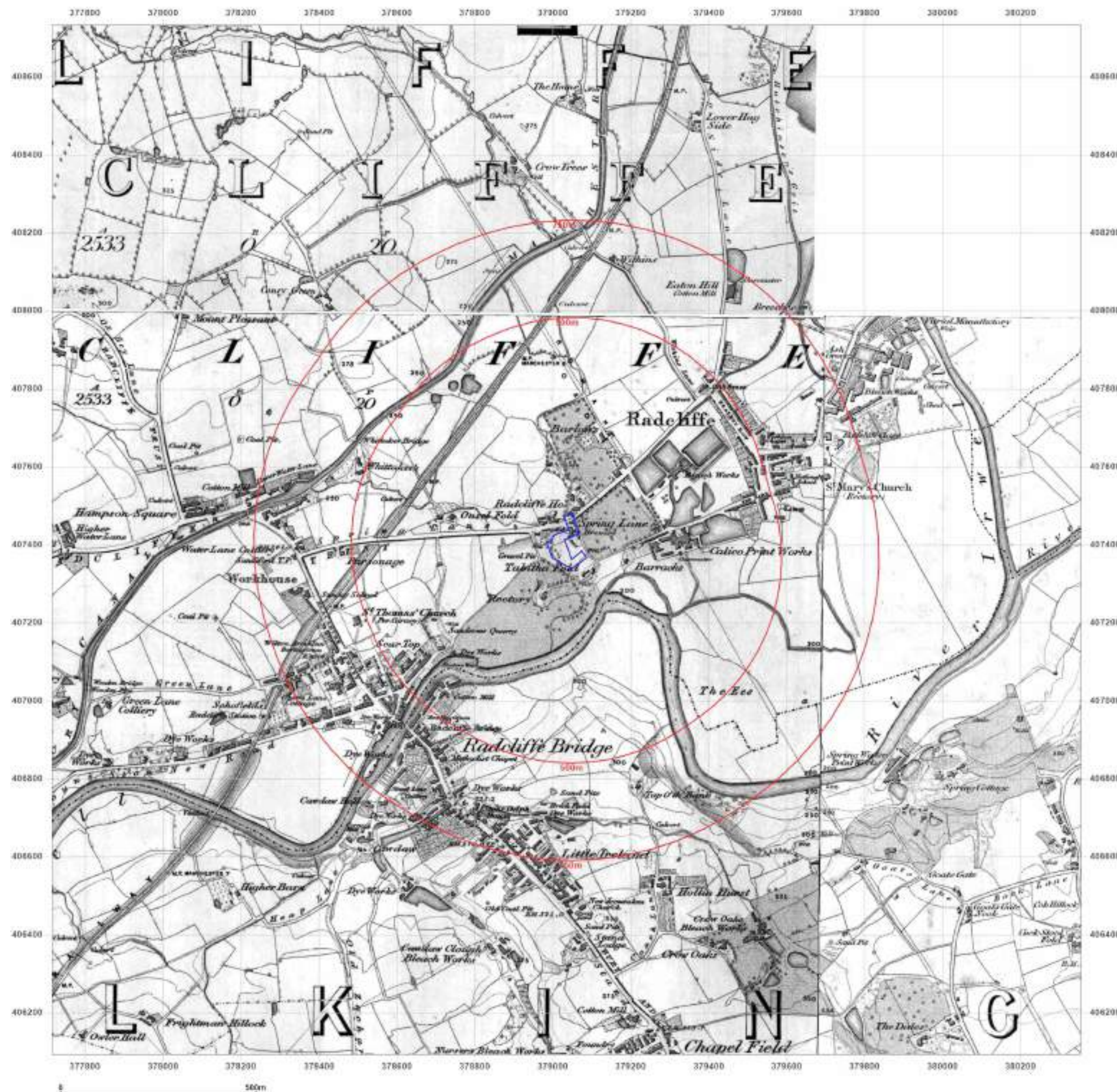


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Site Details:

RECTORY LANE, RADCLIFFE,
M26 2QU

Client Ref: NX418
Report Ref: GS-7611303
Grid Ref: 379034, 407412

Map Name: County Series

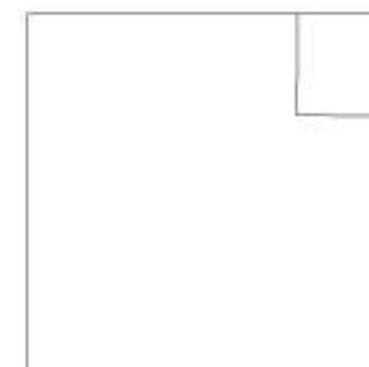
Map date: 1851

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1847
Revised N/A
Edition 1851
Copyright N/A
Levelled N/A

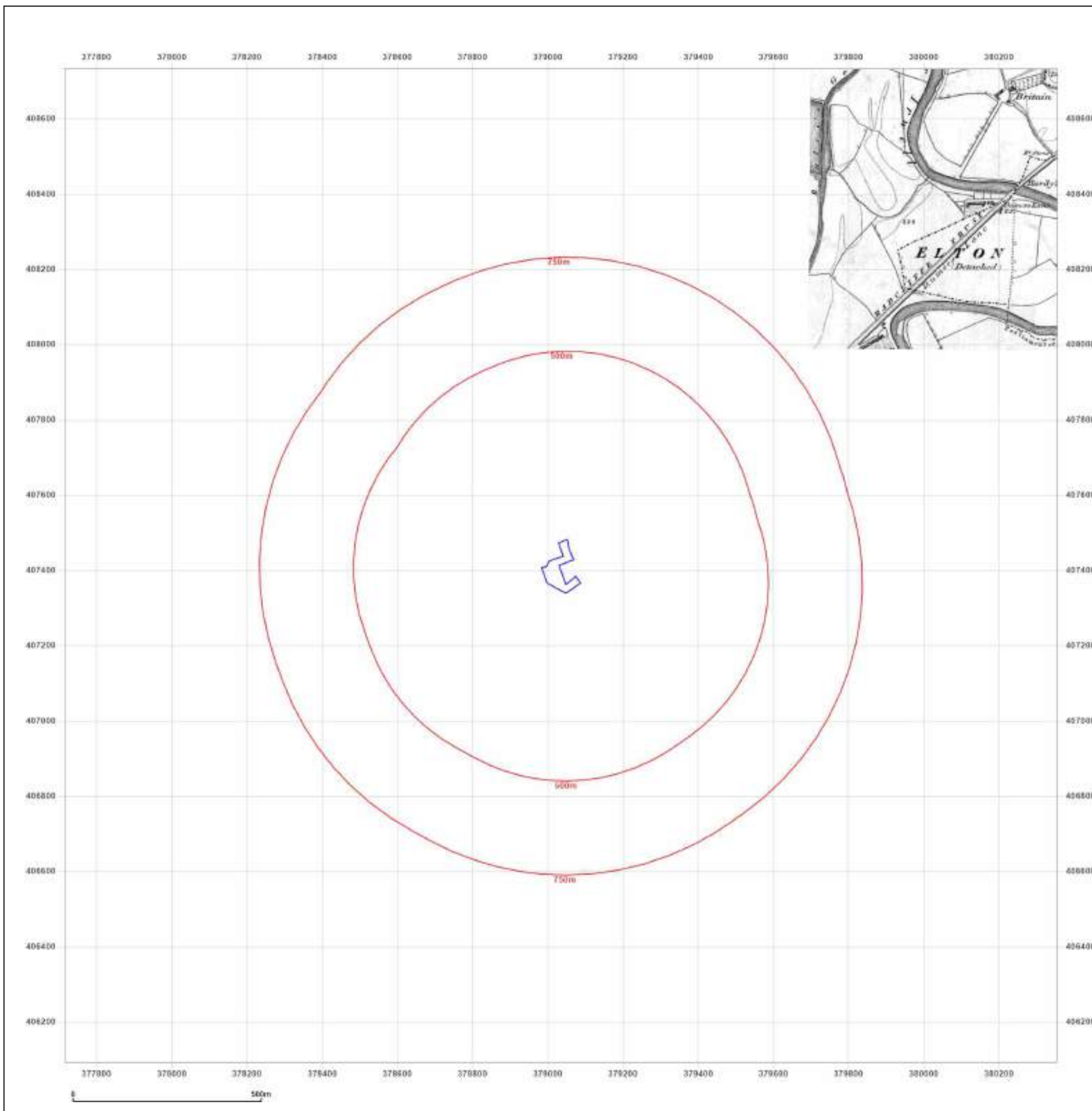


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Site Details:

RECTORY LANE, RADCLIFFE,
M26 2QU

Client Ref: NX418
Report Ref: GS-7611303
Grid Ref: 379034, 407412

Map Name: County Series

Map date: 1890-1891

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1890
Revised 1890
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1891
Revised 1891
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1891
Revised 1891
Edition N/A
Copyright N/A
Levelled N/A

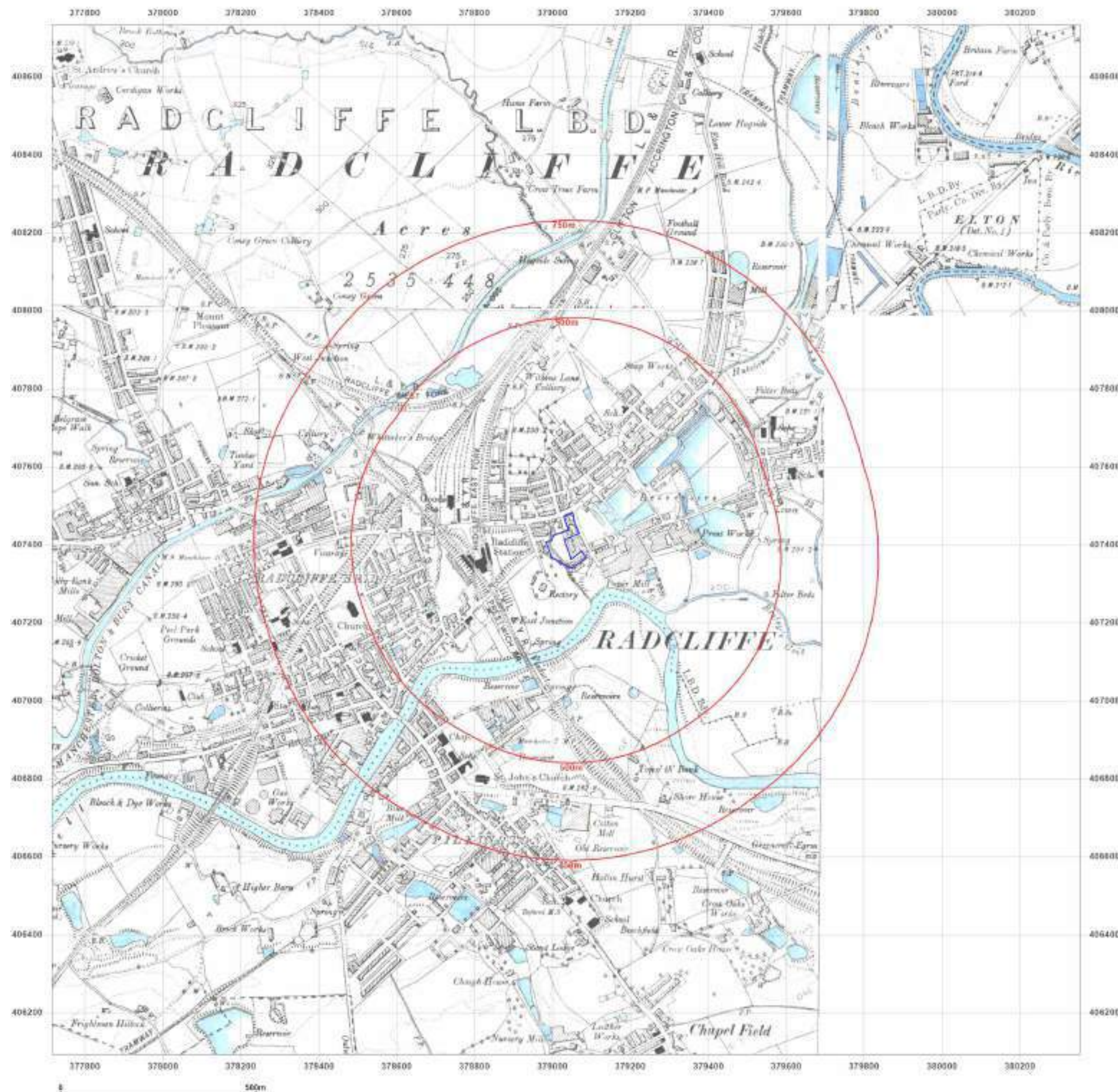


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M26 2QU

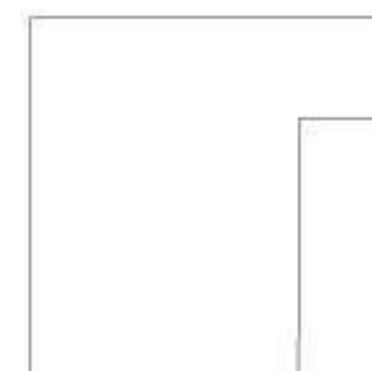
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Report Ref: GS-7611303
Grid Ref: 379034, 407412

Map Name: County Series

Map date: 1891

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1891
Revised 1891
Edition N/A
Copyright N/A
Levelled N/A

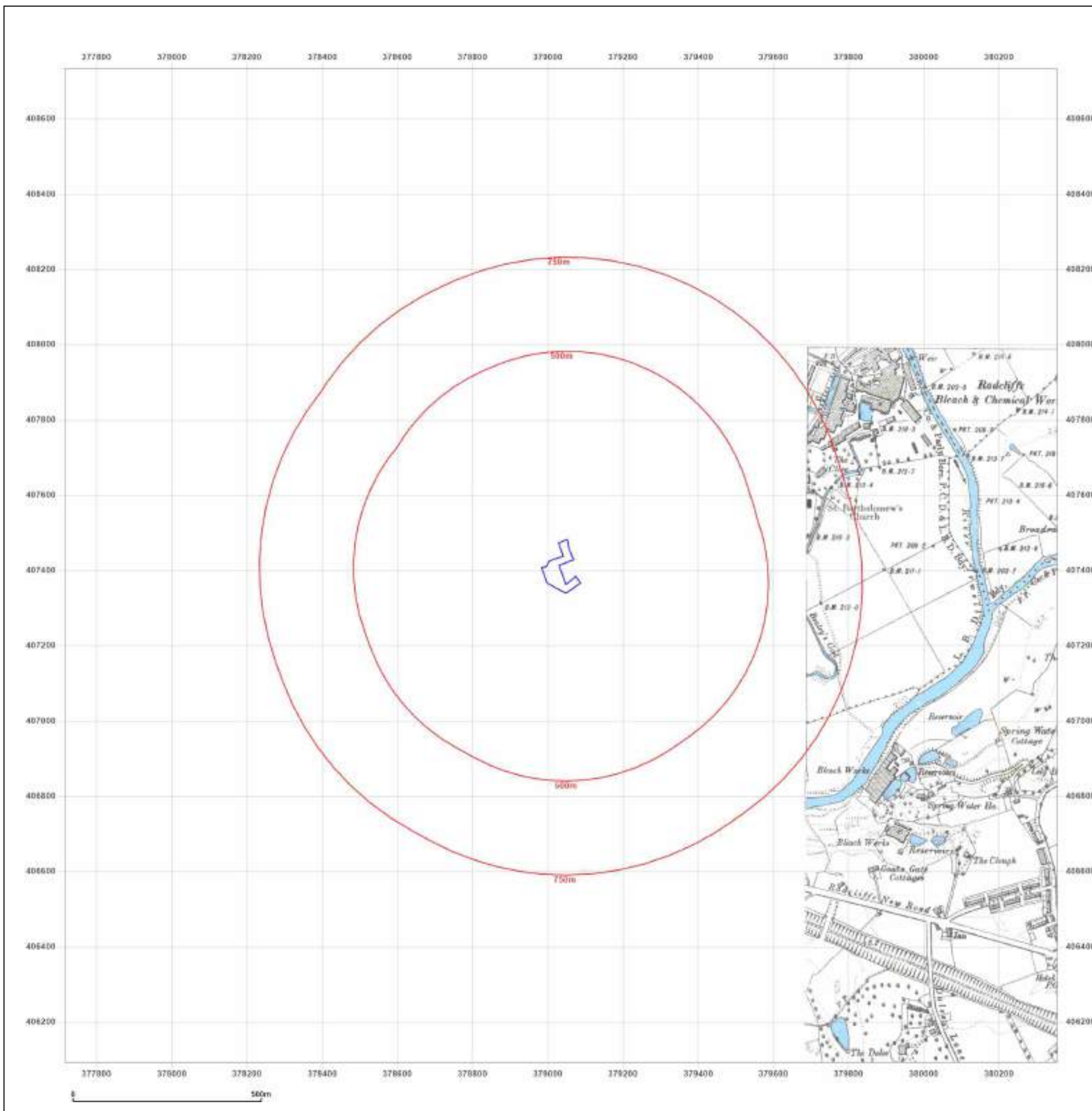


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M26 2QU

Client Ref: NX418
Report Ref: GS-7611303
Grid Ref: 379034, 407412

Map Name: County Series

Map date: 1907-1908

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1844
Revised 1908
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1844
Revised 1908
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1844
Revised 1908
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1844
Revised 1907
Edition N/A
Copyright N/A
Levelled N/A

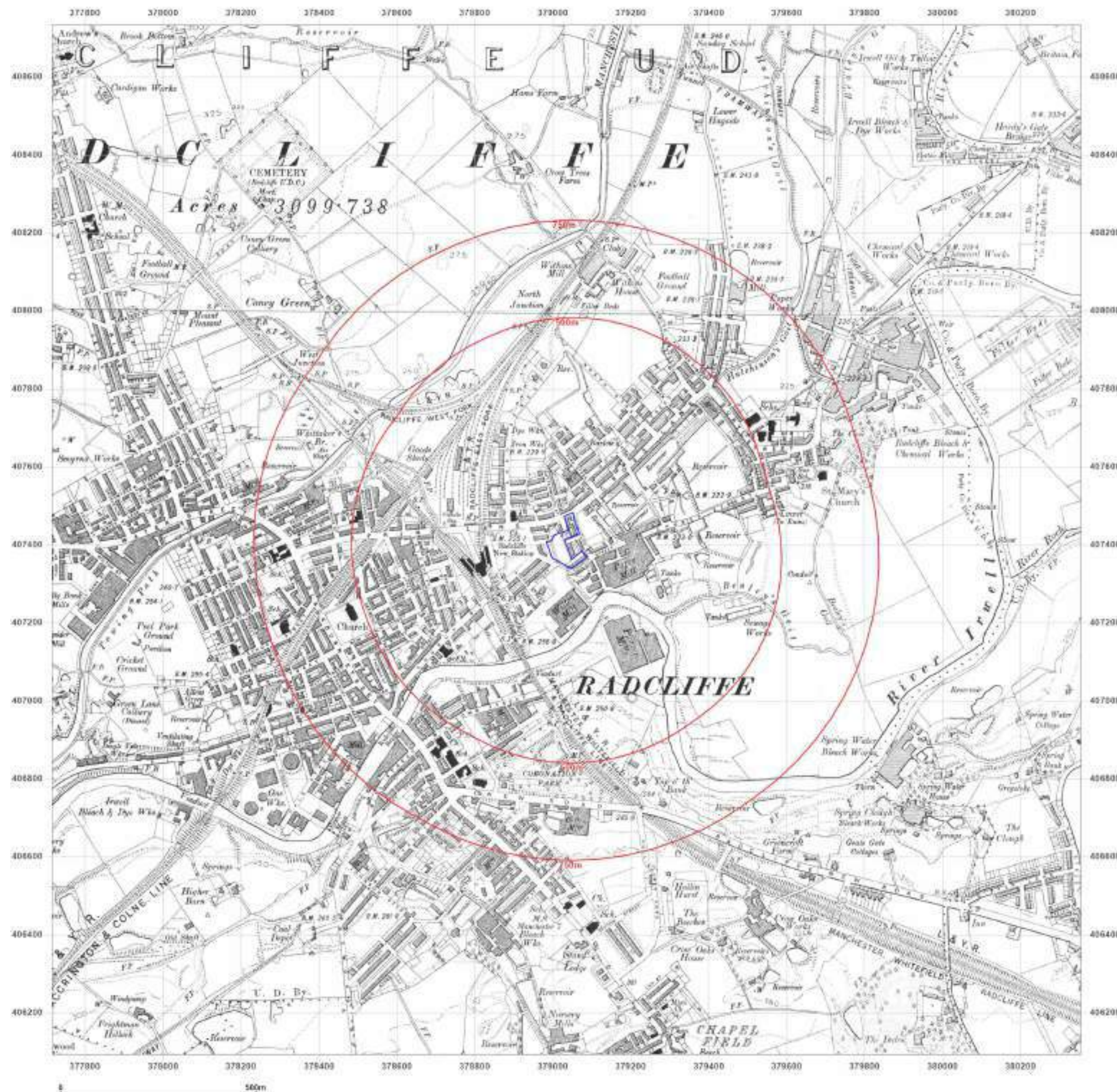


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M26 2QU

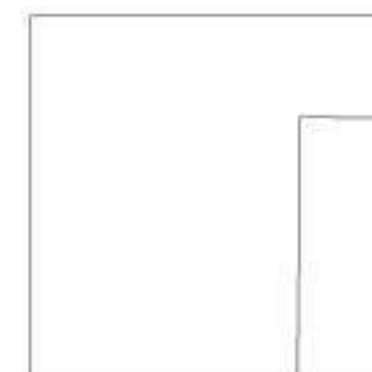
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Grid Ref: 379034, 407412

Map Name: County Series

Map date: 1915

Scale: 1:10,560

Printed at: 1:10,560



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

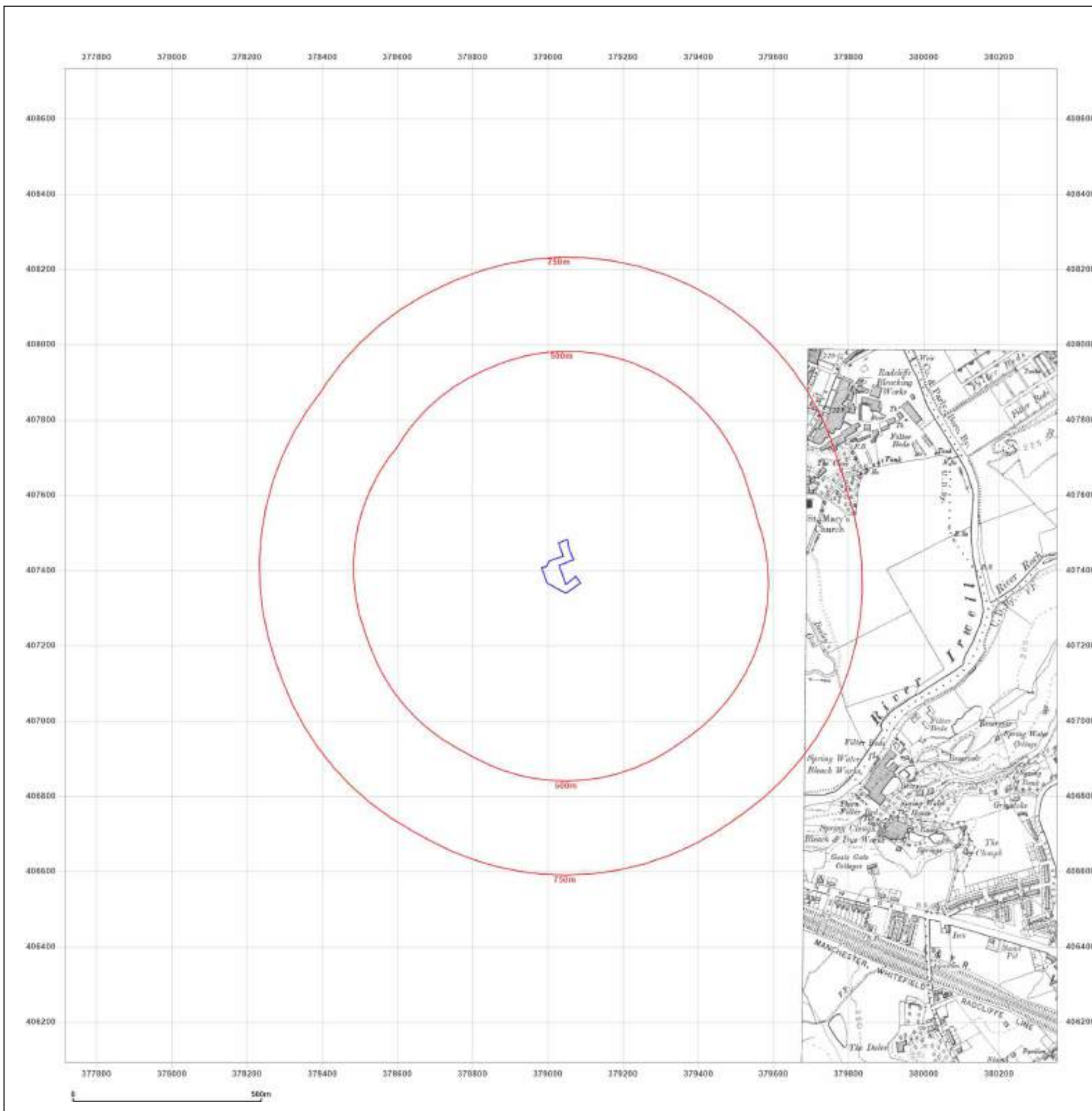


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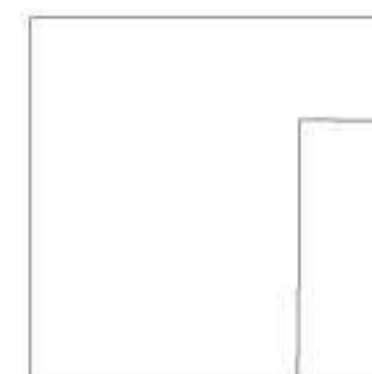
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Report Ref: GS-7611303
Grid Ref: 379034, 407412

Map Name: County Series

Map date: 1923

Scale: 1:10,560

Printed at: 1:10,560



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

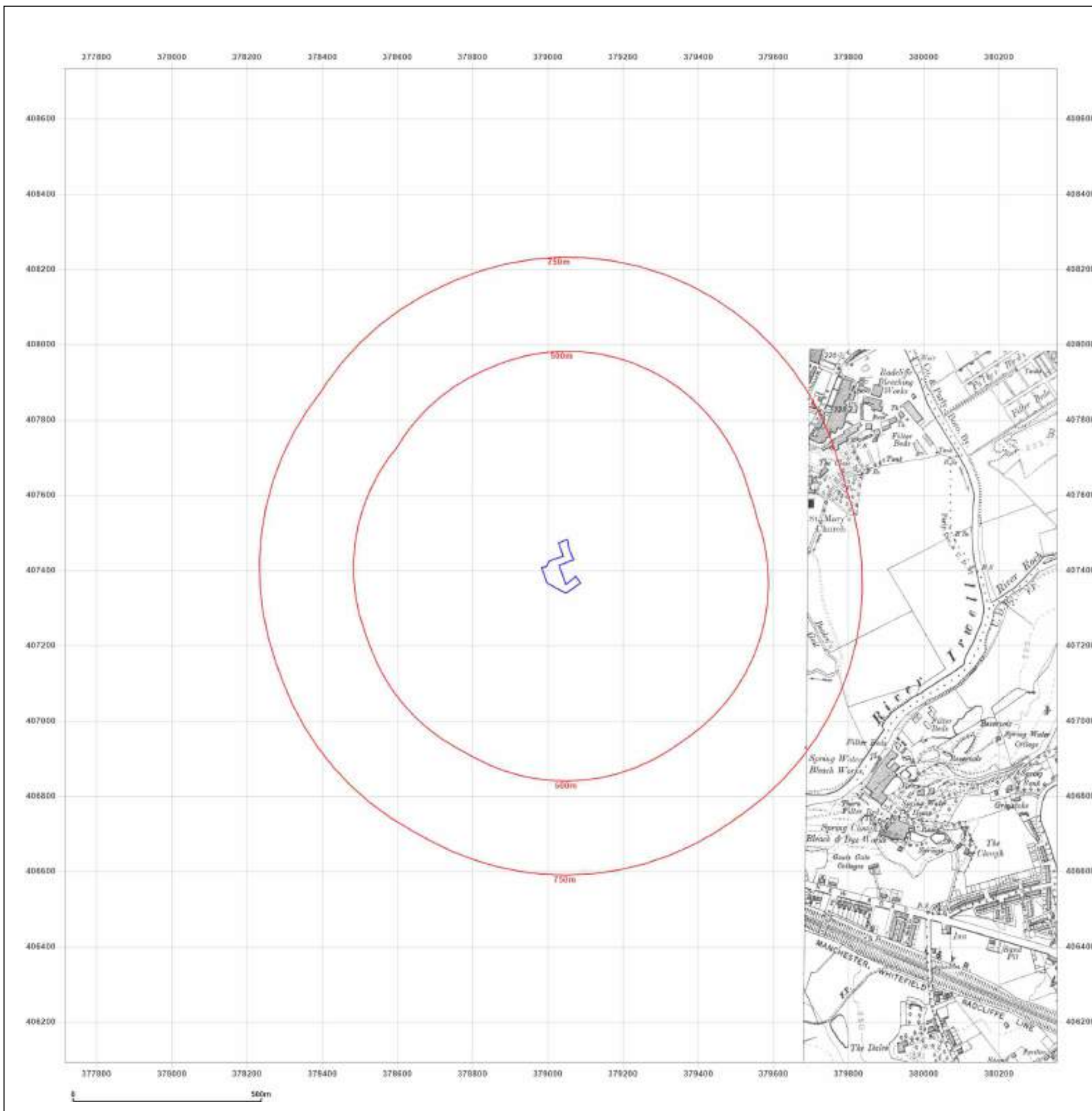


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M26 2QU

Client Ref: NX418
Report Ref: GS-7611303
Grid Ref: 379034, 407412

Map Name: County Series

Map date: 1927-1932

Scale: 1:10,560

Printed at: 1:10,560



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

Surveyed 1844
Revised 1928
Edition N/A
Copyright N/A
Levelled N/A

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

Surveyed 1844
Revised 1932
Edition N/A
Copyright N/A
Levelled N/A

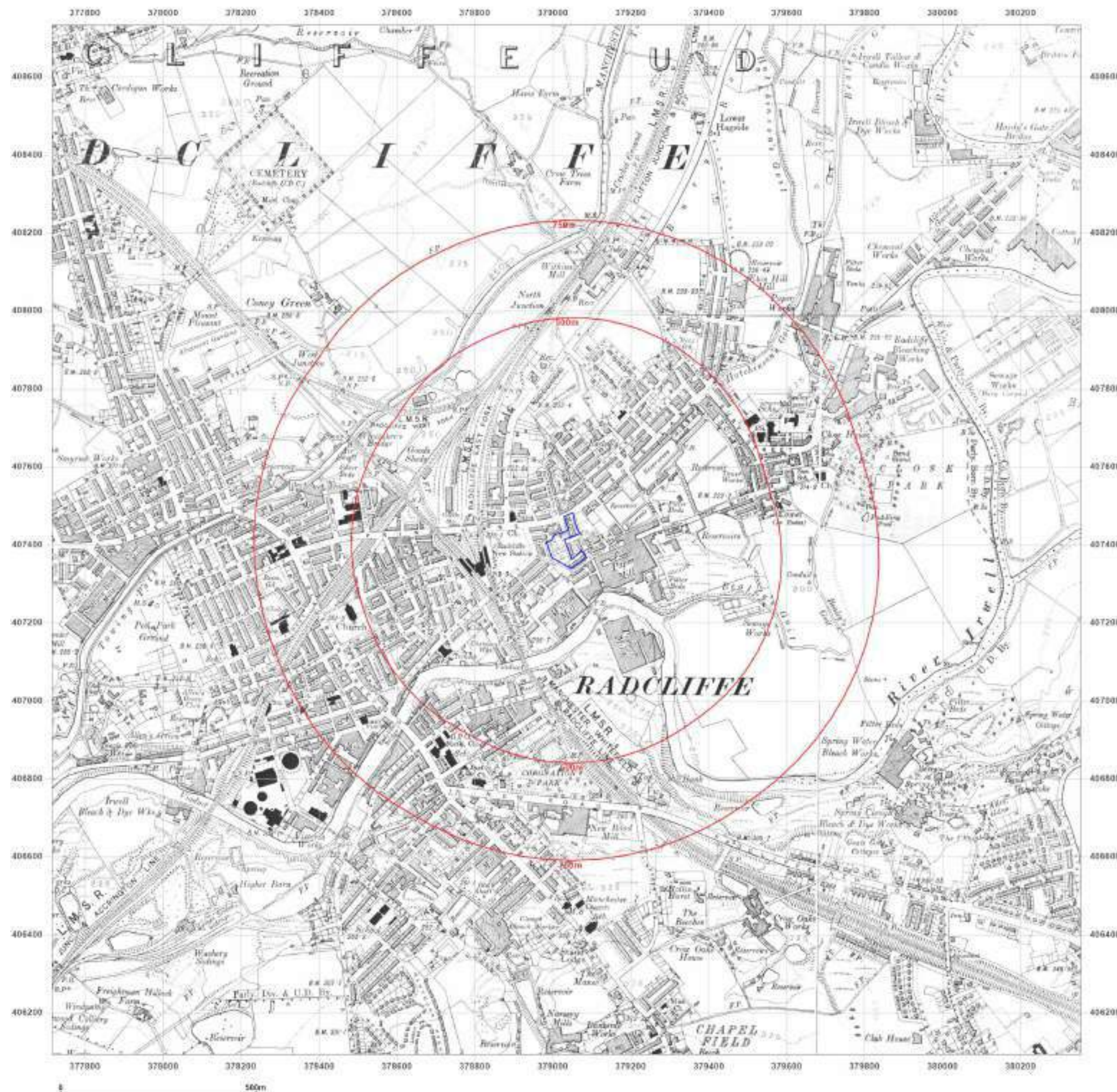


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M26 2QU

Client Ref: NX418
Report Ref: GS-7611303
Grid Ref: 379034, 407412

Map Name: County Series

Map date: 1938

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1844
Revised 1938
Edition N/A
Copyright N/A
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Surveyed 1844
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1844
Revised 1938
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Copyright N/A
Levelled N/A

Surveyed 1844
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A

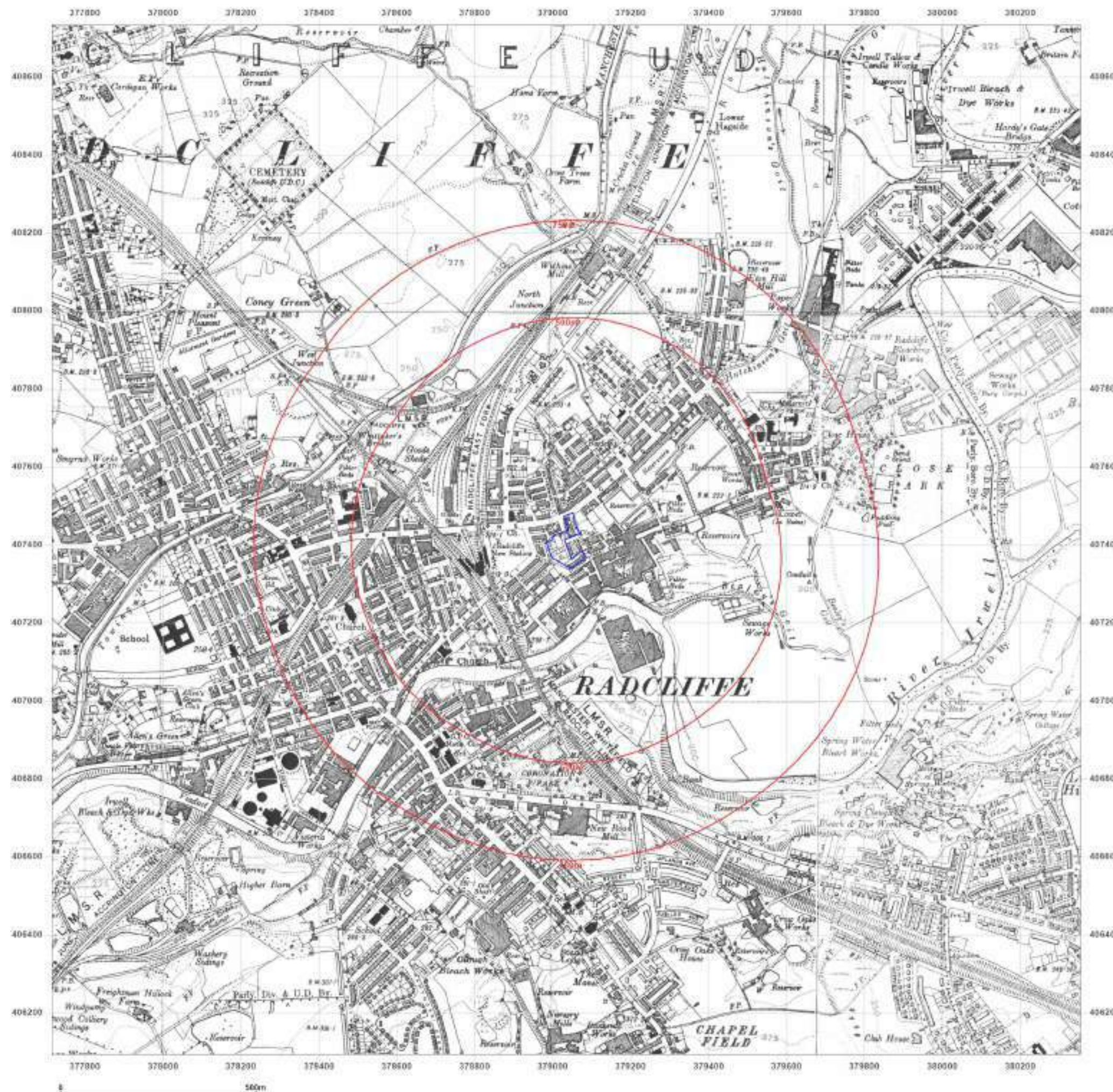


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Client Ref: NX418
Report Ref: GS-7611303
Grid Ref: 379034, 407412

Map Name: Provisional

Map date: 1955

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1950
Revised 1955
Edition 1955
Copyright N/A
Levelled N/A

Surveyed 1949
Revised 1955
Edition 1955
Copyright N/A
Levelled N/A

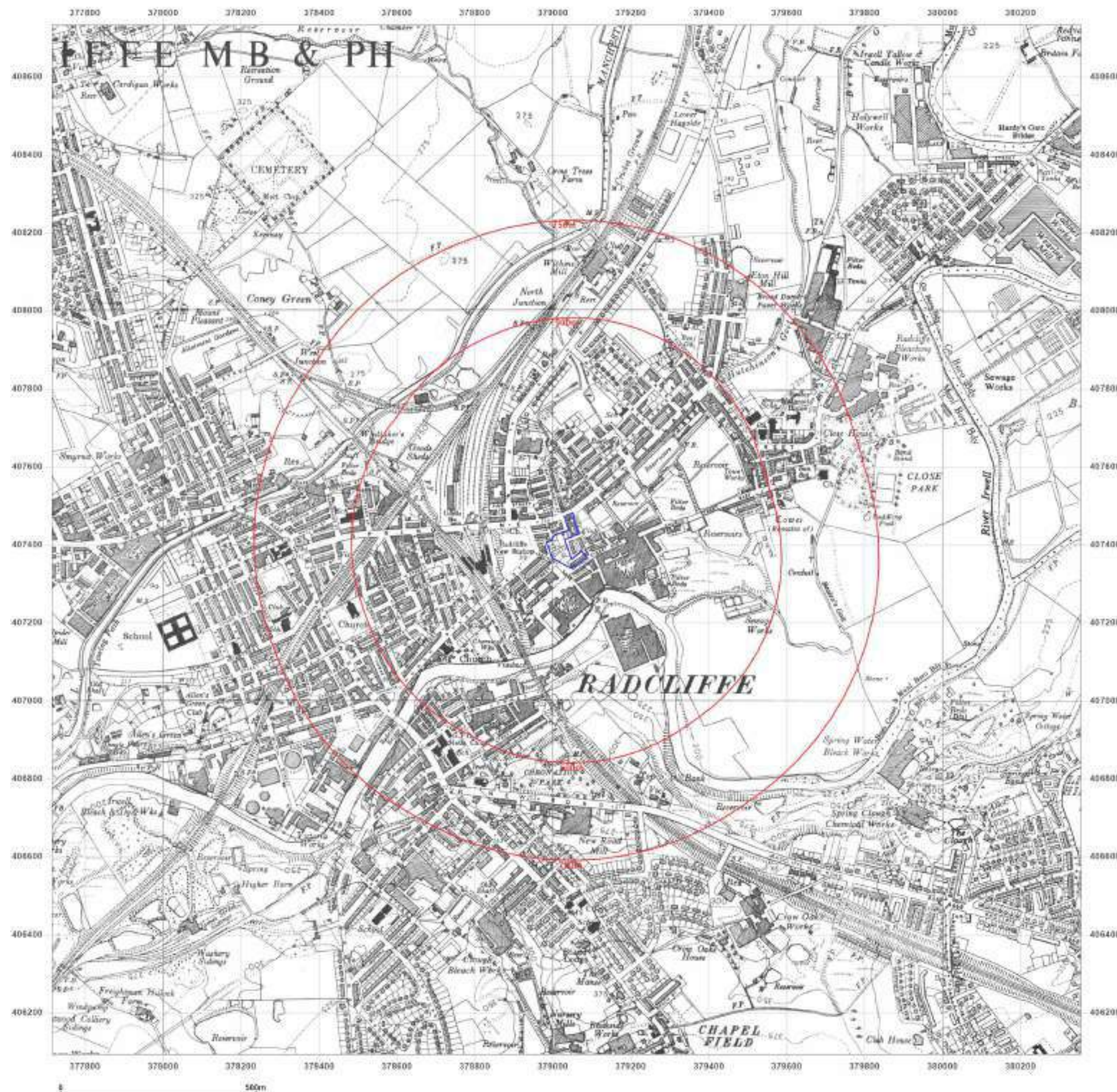


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M26 2QU

Client Ref: NX418
Report Ref: GS-7611303
Grid Ref: 379034, 407412

Map Name: Provisional

Map date: 1965

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1965
Revised 1985
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1965
Revised 1985
Edition N/A
Copyright N/A
Levelled N/A

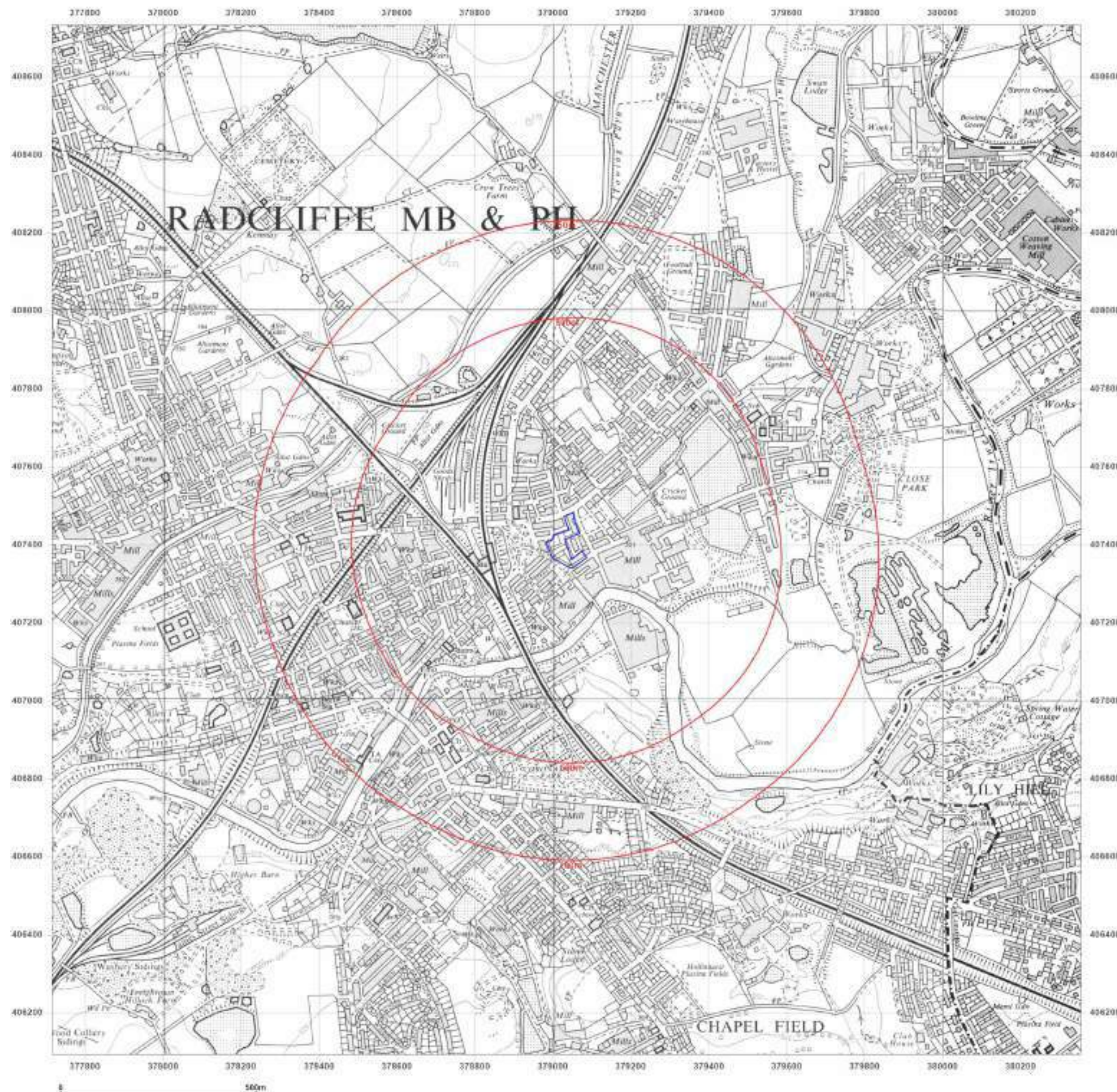


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Site Details:

RECTORY LANE, RADCLIFFE,
M26 2QU

Client Ref: NX418
Report Ref: GS-7611303
Grid Ref: 379034, 407412

Map Name: National Grid

Map date: 1974-1977

Scale: 1:10,000

Printed at: 1:10,000



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

Surveyed 1974
Revised 1974
Edition N/A
Copyright N/A
Levelled N/A

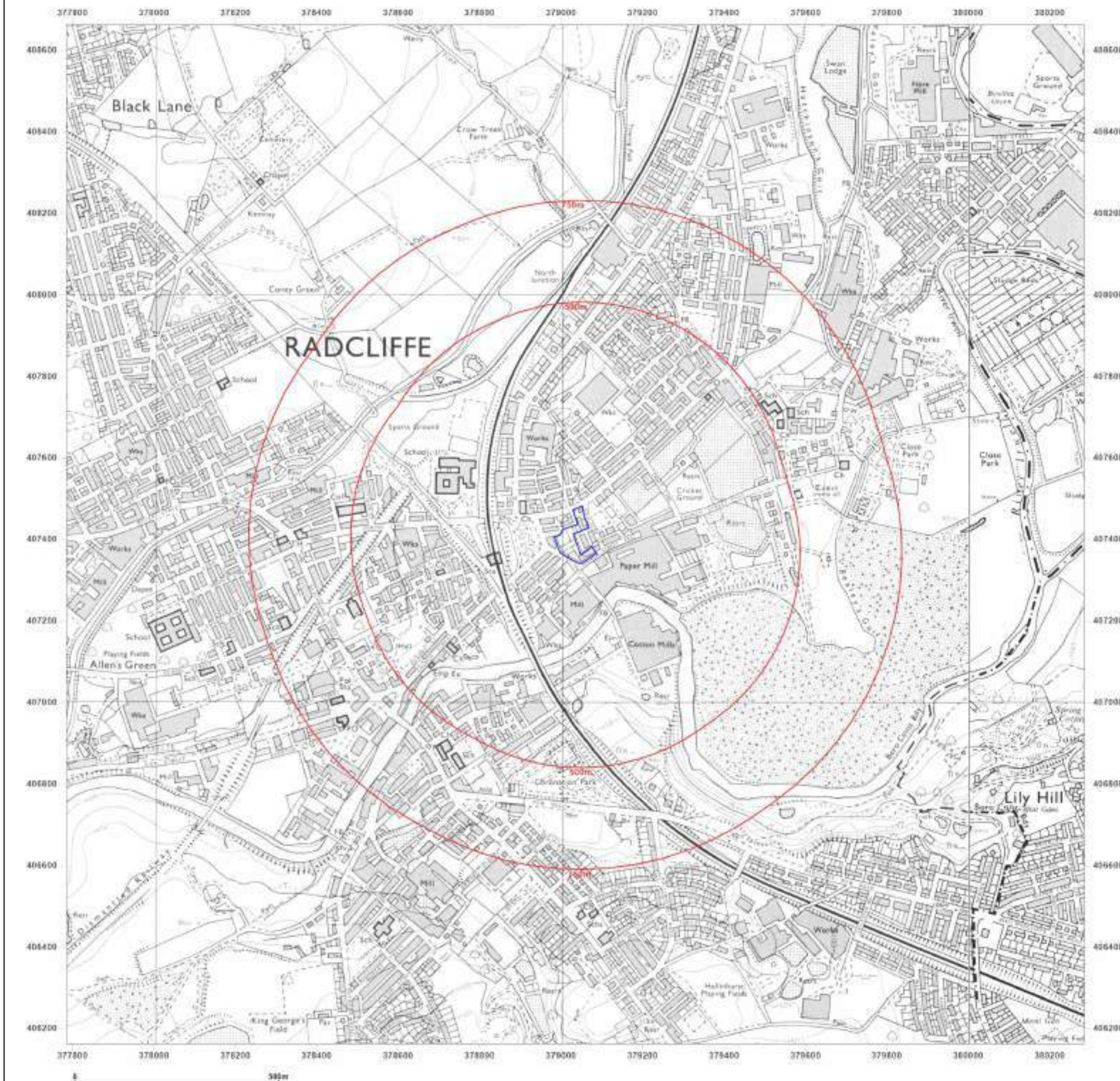


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RECTORY LANE, RADCLIFFE,
M26 2QU

Client Ref: NX418
Report Ref: GS-7611303
Grid Ref: 379034, 407412

Map Name: National Grid

Map date: 1988

Scale: 1:10,000

Printed at: 1:10,000



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

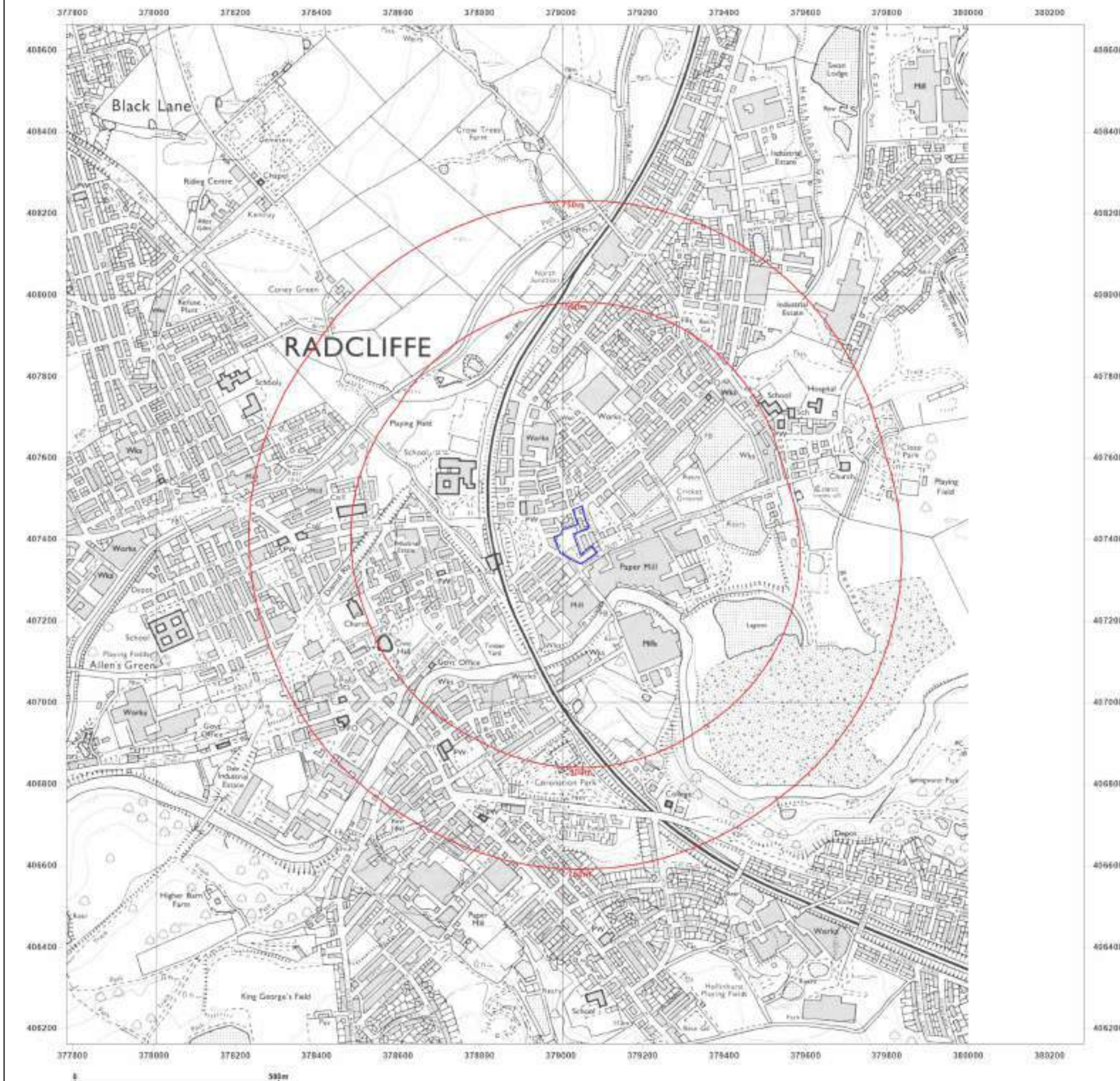


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RECTORY LANE, RADCLIFFE,
M26 2QU

Client Ref: NX418
Report Ref: GS-7611303
Grid Ref: 379034, 407412

Map Name: National Grid

Map date: 1991

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1987
Revised 1991
Edition N/A
Copyright N/A
Levelled N/A

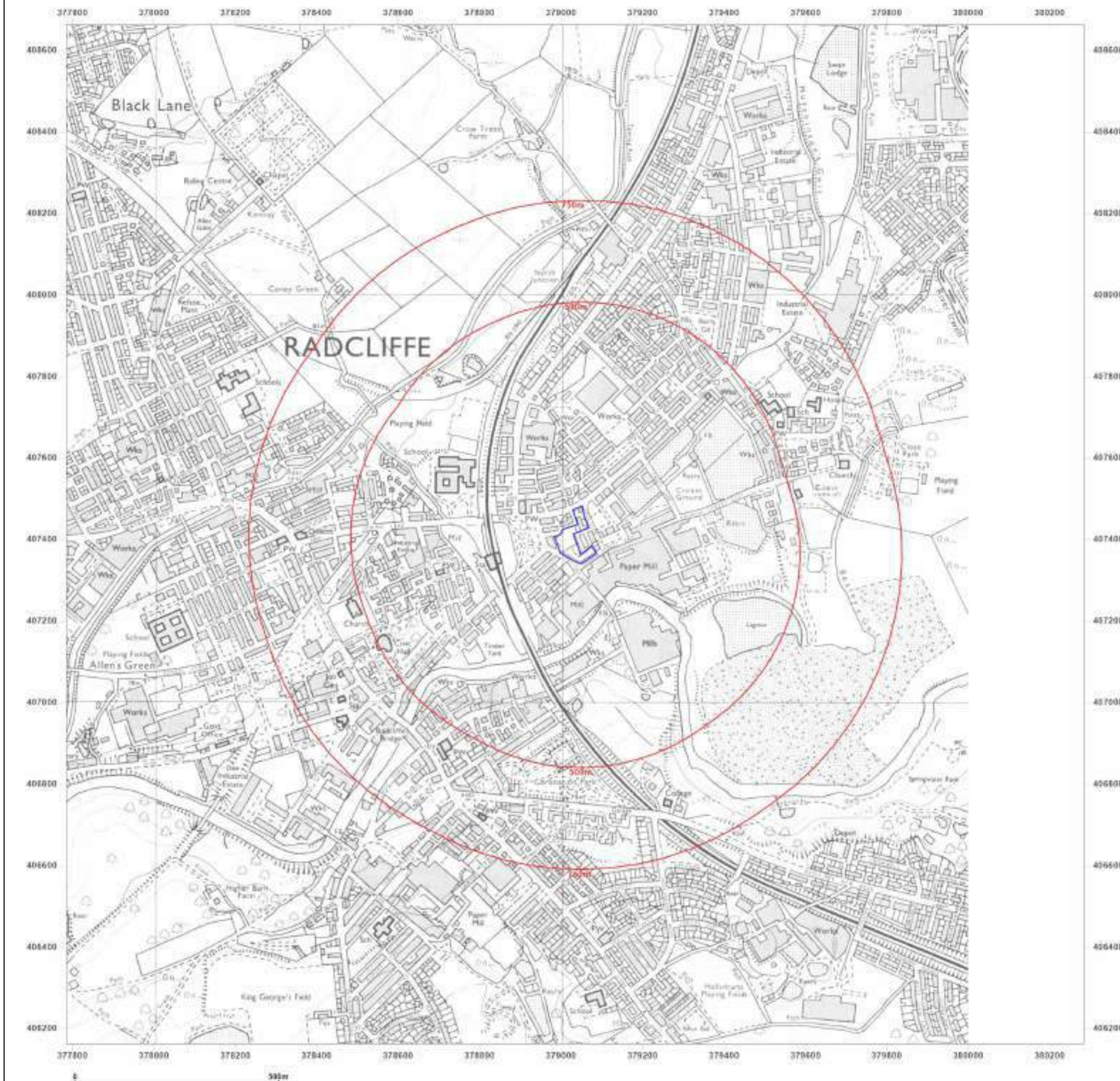


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Site Details:

RECTORY LANE, RADCLIFFE,
M26 2QU

Client Ref: NX418
Report Ref: GS-7611303
Grid Ref: 379034, 407412

Map Name: National Grid

Map date: 2001

Scale: 1:10,000

Printed at: 1:10,000

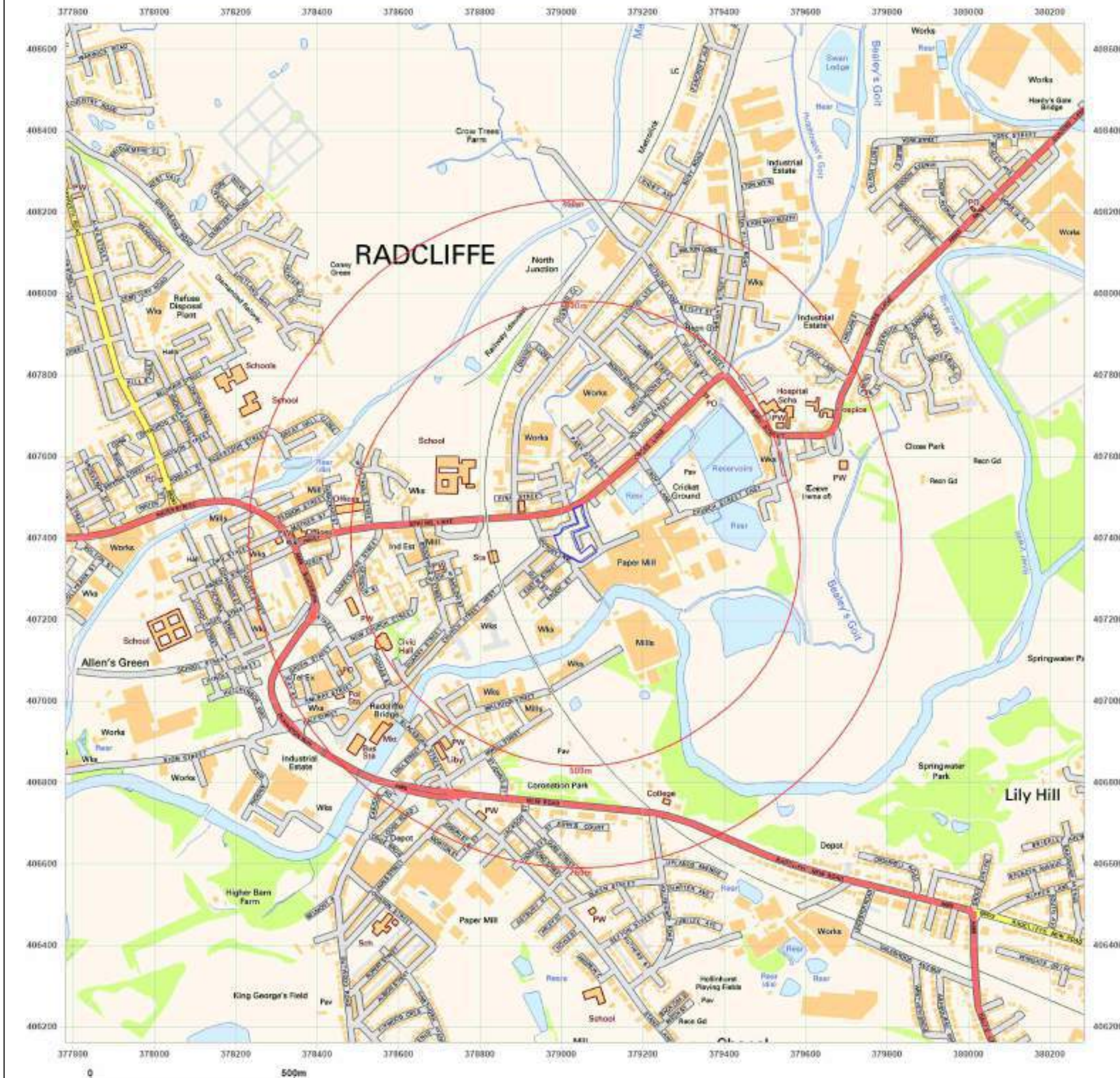


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Site Details:

RECTORY LANE, RADCLIFFE,
M26 2QU

Client Ref: NX418
Report Ref: GS-7611303
Grid Ref: 379034, 407412

Map Name: National Grid

Map date: 2010

Scale: 1:10,000

Printed at: 1:10,000

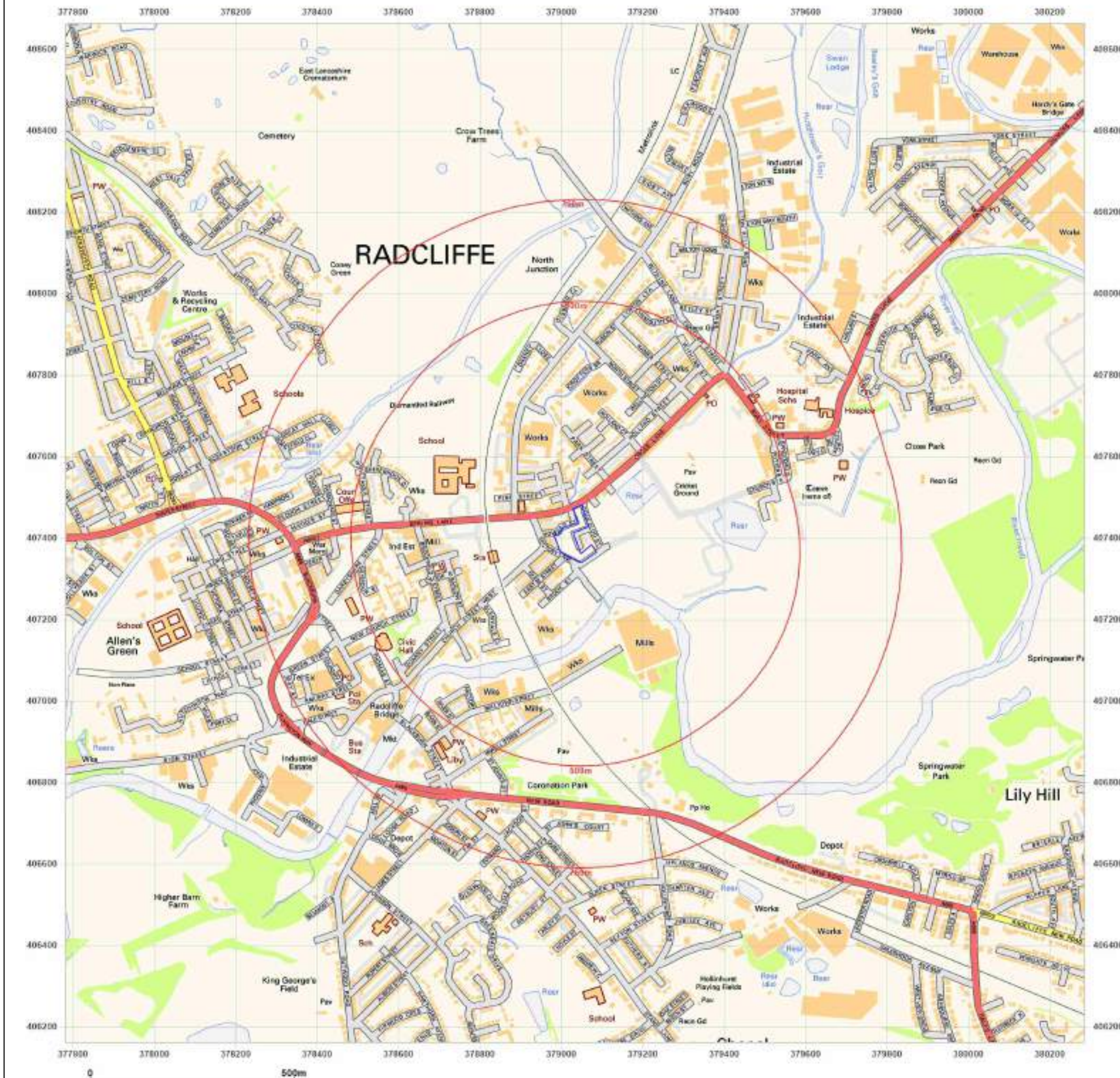


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M26 2QU

Client Ref: NX418
Report Ref: GS-7611303
Grid Ref: 379034, 407412

Map Name: National Grid

Map date: 2021

Scale: 1:10,000

Printed at: 1:10,000

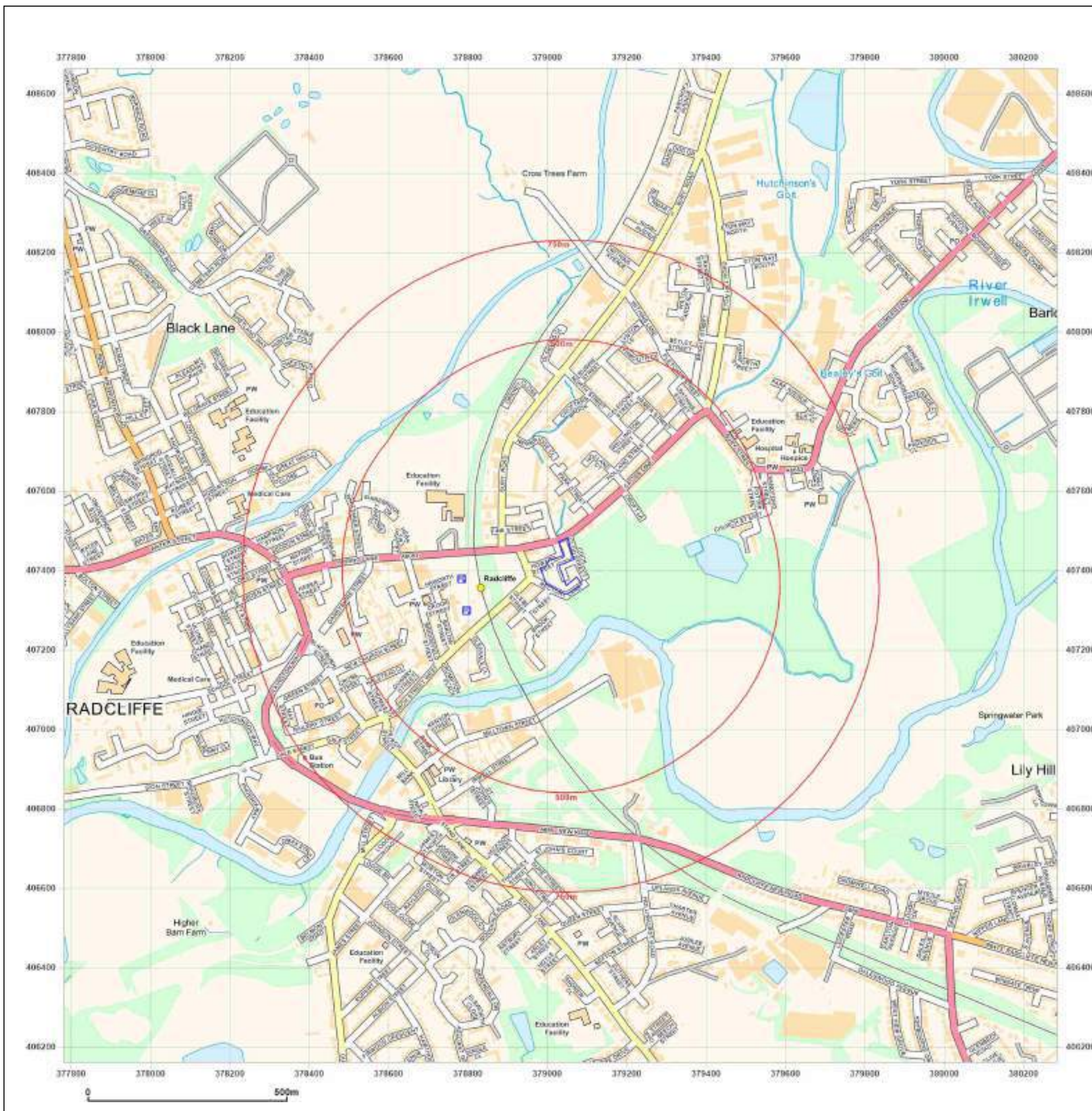


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Site Details:

RECTORY LANE, RADCLIFFE,
M26 2QU

Client Ref: NX418
Report Ref: GS-7611303
Grid Ref: 379034, 407412

Map Name: County Series

Map date: 1893

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1893
Revised 1893
Edition N/A
Copyright N/A
Levelled N/A

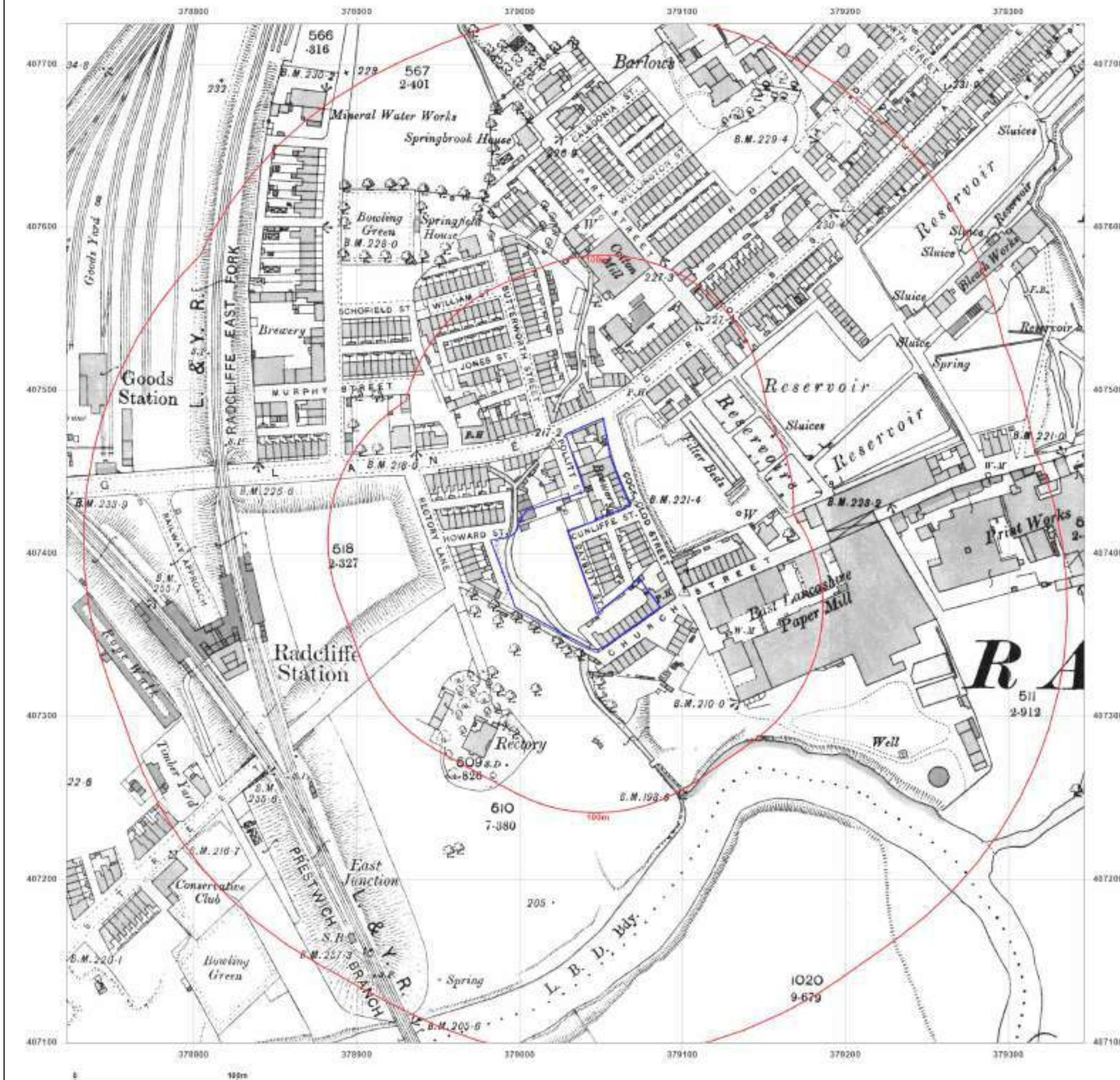


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Site Details:

RECTORY LANE, RADCLIFFE,
M26 2QU

Client Ref: NX418
Report Ref: GS-7611303
Grid Ref: 379034, 407412

Map Name: County Series

Map date: 1909

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1909
Revised 1909
Edition N/A
Copyright N/A
Levelled N/A

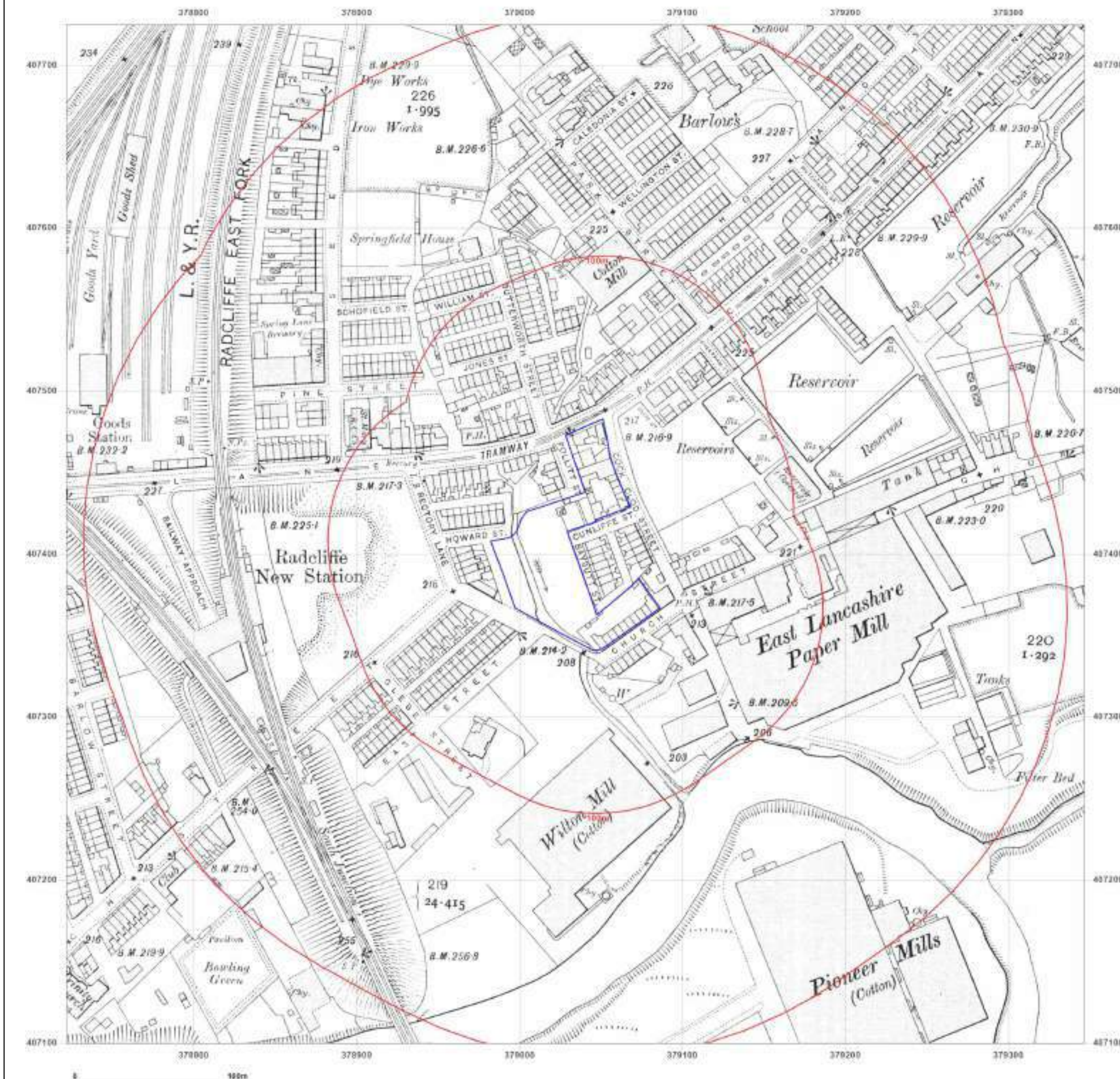


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Site Details:

RECTORY LANE, RADCLIFFE,
M26 2QU

Client Ref: NX418
Report Ref: GS-7611303
Grid Ref: 379034, 407412

Map Name: County Series

Map date: 1929

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1929
Revised 1929
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Site Details:

RECTORY LANE, RADCLIFFE,
M26 2QU

Client Ref: NX418
Report Ref: GS-7611303
Grid Ref: 379034, 407412

Map Name: County Series

Map date: 1937

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1937
Revised 1937
Edition N/A
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Site Details:

RECTORY LANE, RADCLIFFE,
M26 2QU

Client Ref: NX418
Report Ref: GS-7611303
Grid Ref: 379034, 407412

Map Name: National Grid

Map date: 1956

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1956
Revised 1956
Edition N/A
Copyright N/A
Levelled 1927

Surveyed 1956
Revised 1956
Edition N/A
Copyright N/A
Levelled 1927

Surveyed 1956
Revised 1956
Edition N/A
Copyright N/A
Levelled 1927

Surveyed 1956
Revised 1956
Edition N/A
Copyright N/A
Levelled 1927

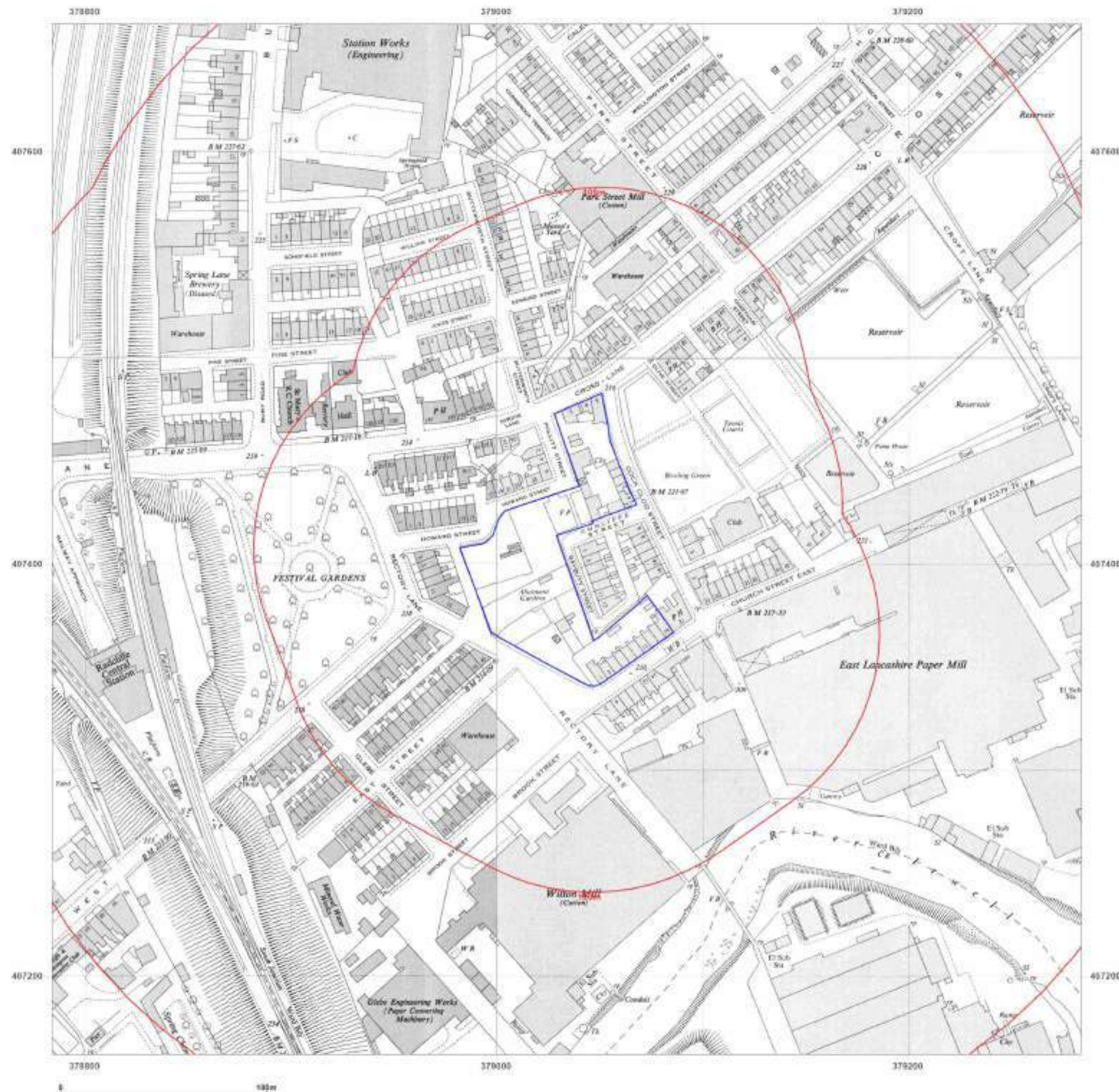


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Site Details:

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M26 2QU

Client Ref: NX418
Report Ref: GS-7611303
Grid Ref: 379034, 407412

Map Name: National Grid

Map date: 1956

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1956
Revised 1956
Edition 1957
Copyright N/A
Levelled 1927

Surveyed 1956
Revised 1956
Edition 1957
Copyright N/A
Levelled 1927

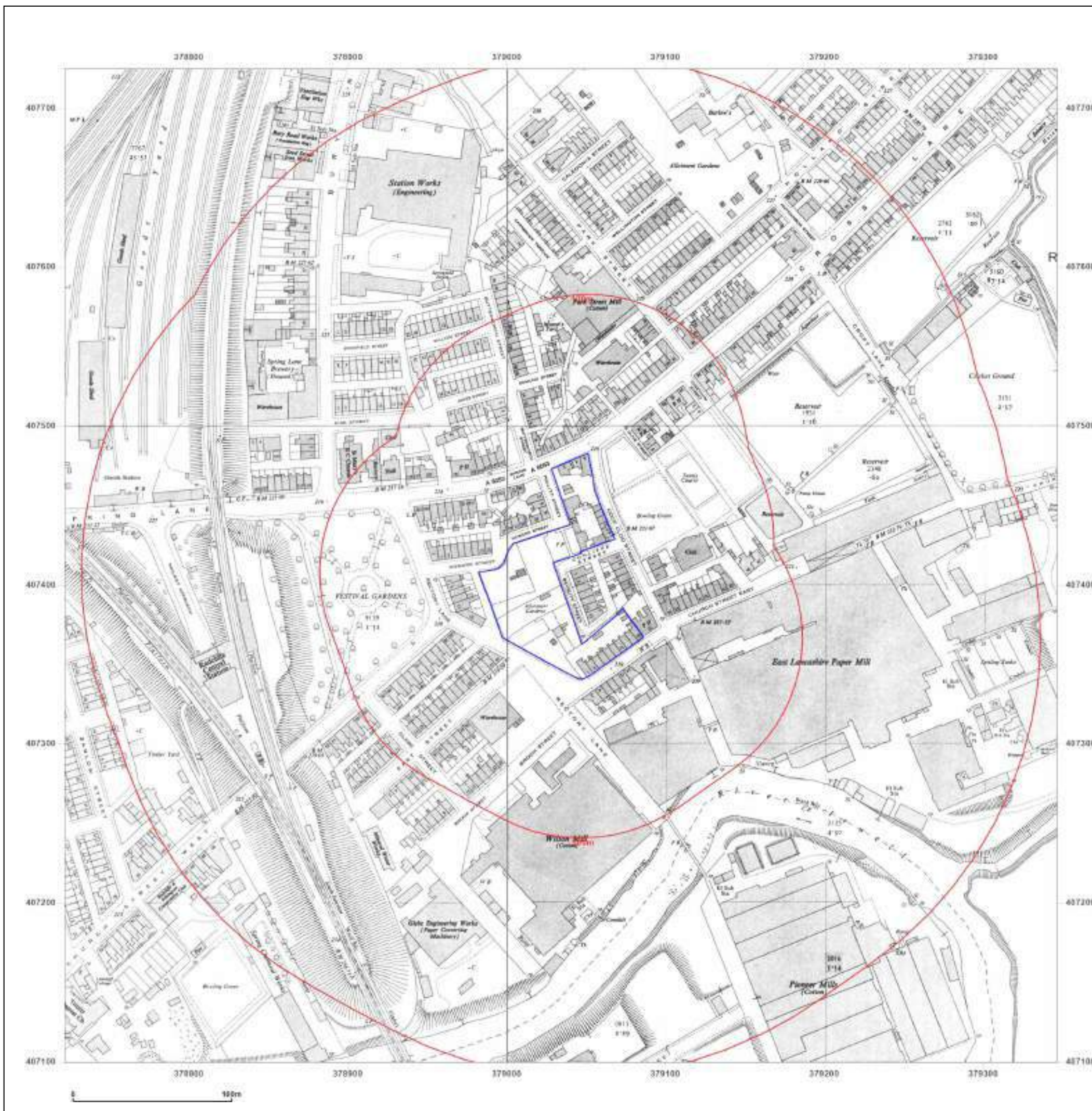


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Site Details:

RECTORY LANE, RADCLIFFE,
M26 2QU

Client Ref: NX418
Report Ref: GS-7611303
Grid Ref: 379034, 407412

Map Name: National Grid

Map date: 1957

Scale: 1:1,250

Printed at: 1:2,000



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

Surveyed 1956
Revised N/A
Edition N/A
Copyright 1957
Levelled 1927

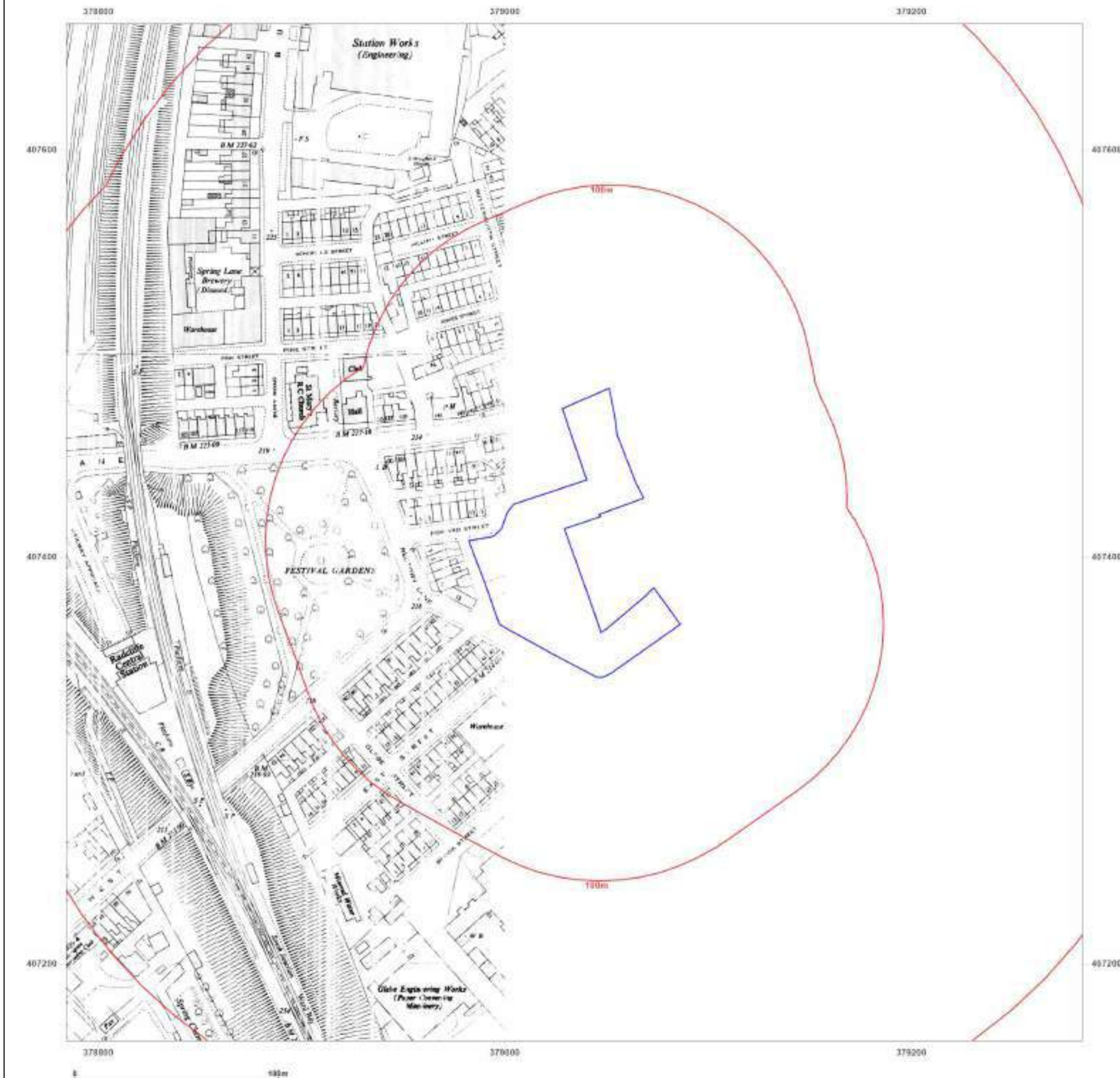


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M26 2QU

Client Ref: NX418
Report Ref: GS-7611303
Grid Ref: 379034, 407412

Map Name: National Grid

Map date: 1966-1970

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1956
Revised 1965
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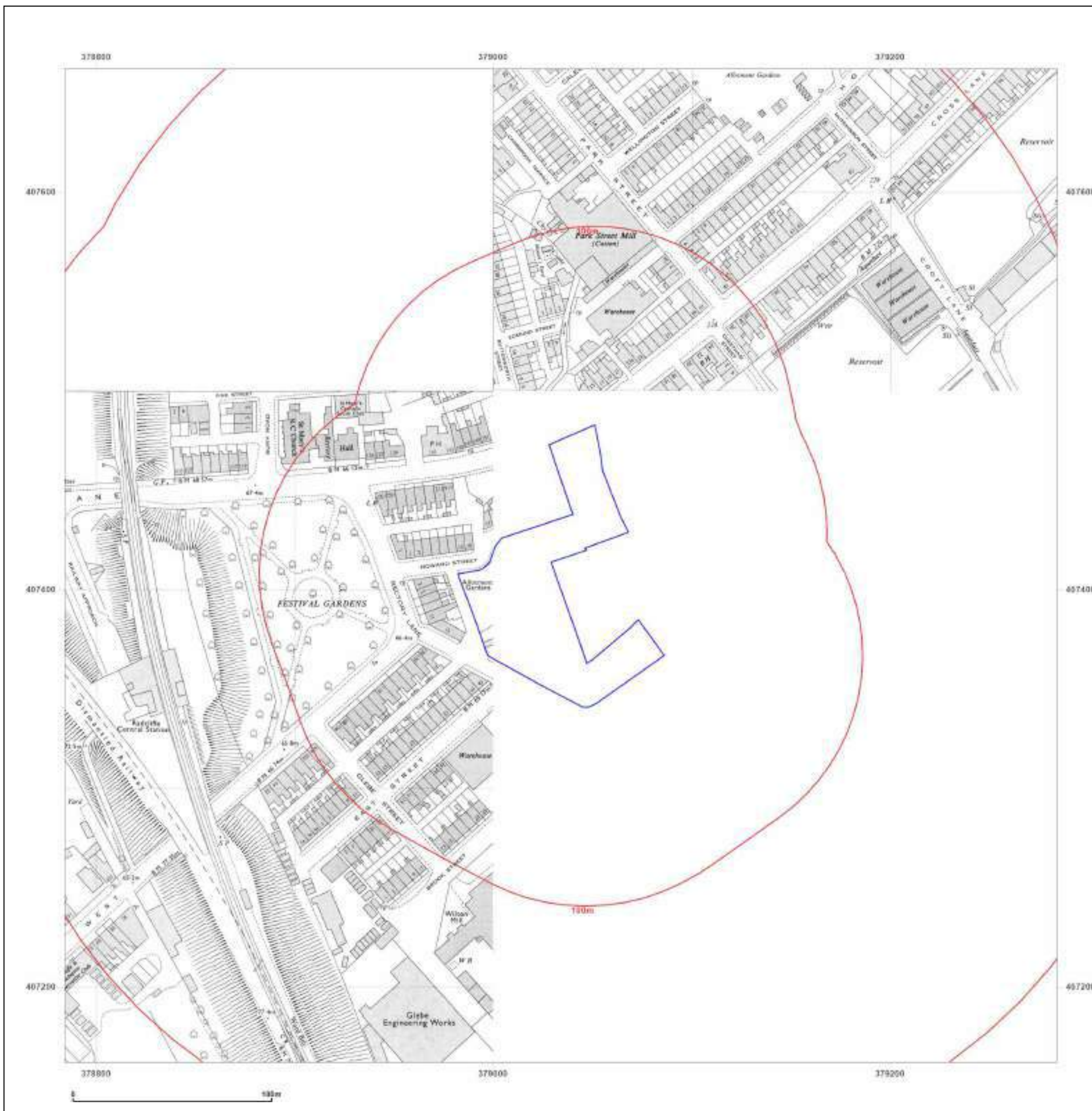


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Grid Ref: 379034, 407412

Map Name: National Grid

Map date: 1976-1978

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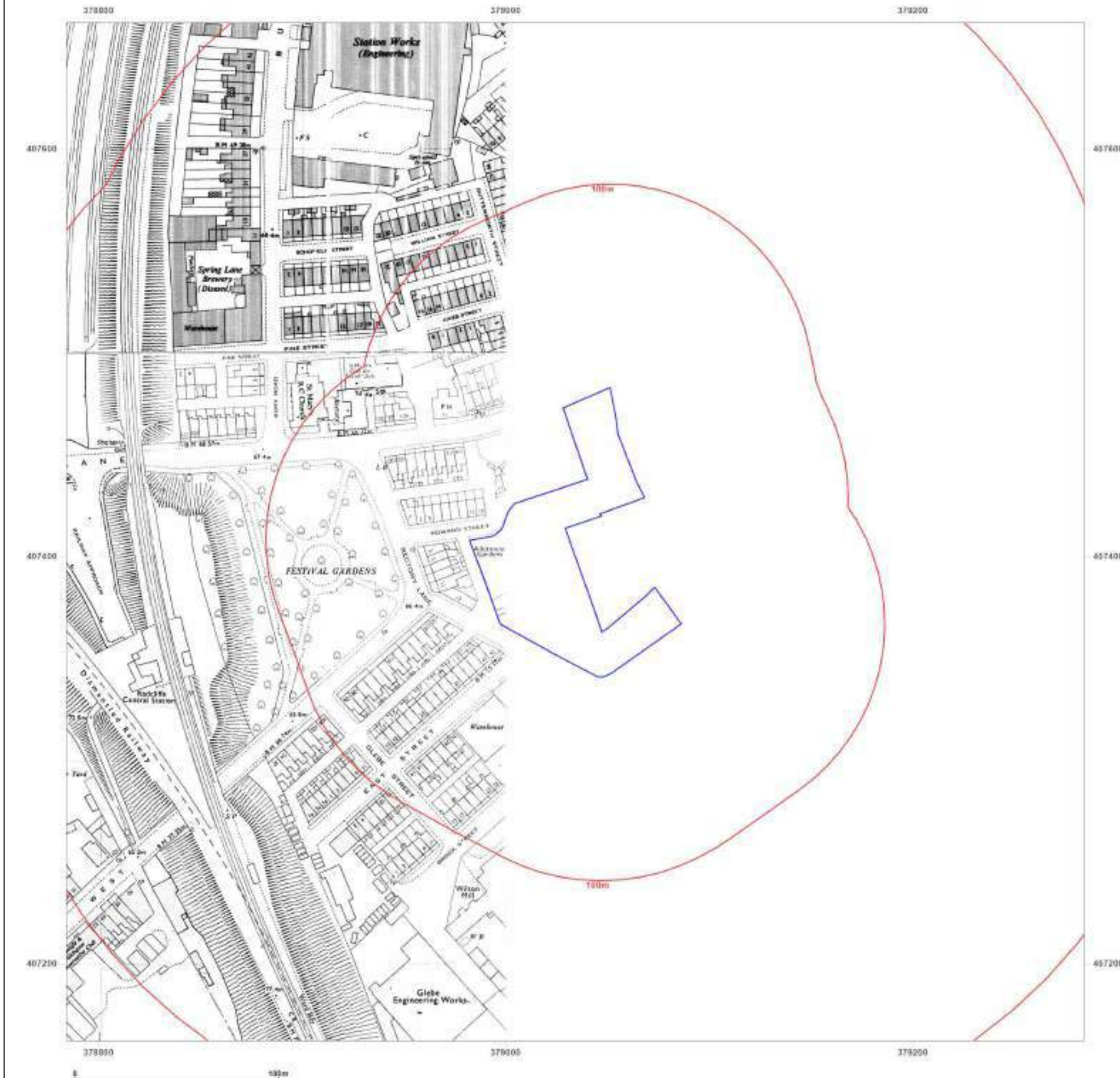


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Client Ref: NX418
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Grid Ref: 379034, 407412

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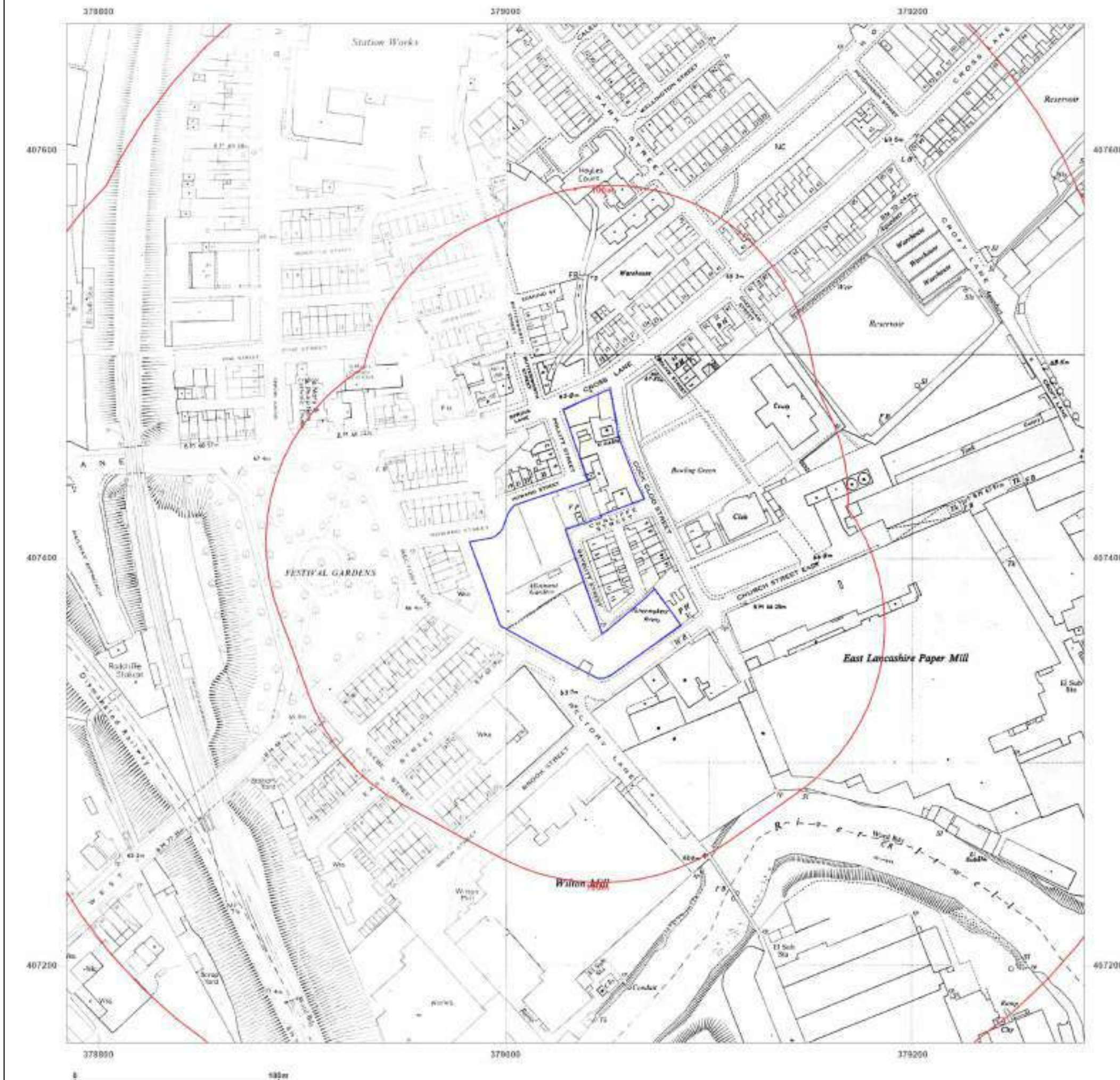


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Client Ref: NX418
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Grid Ref: 379034, 407412

Map Name: National Grid

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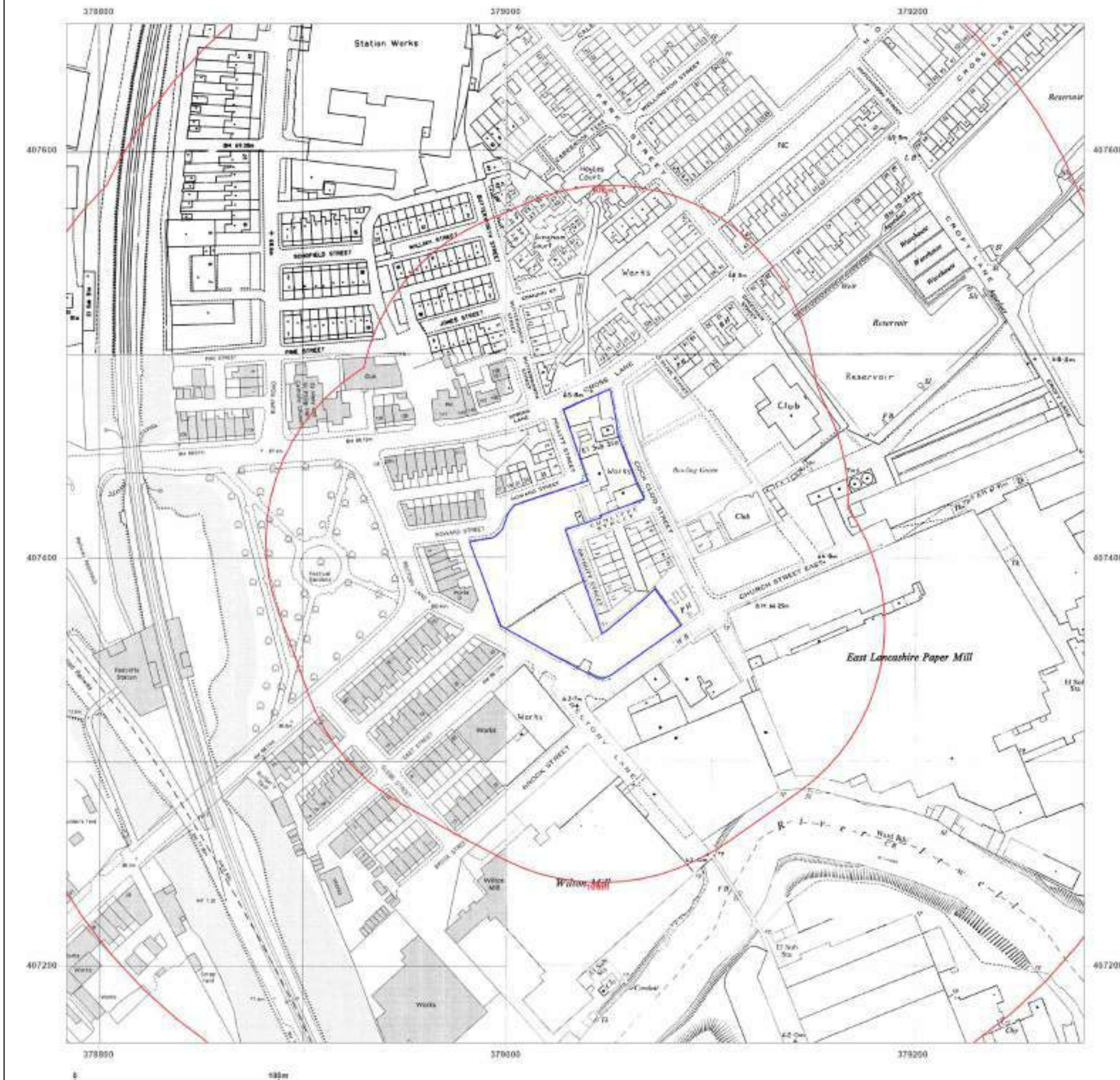


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Report Ref: GS-7611303
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Map Name: National Grid

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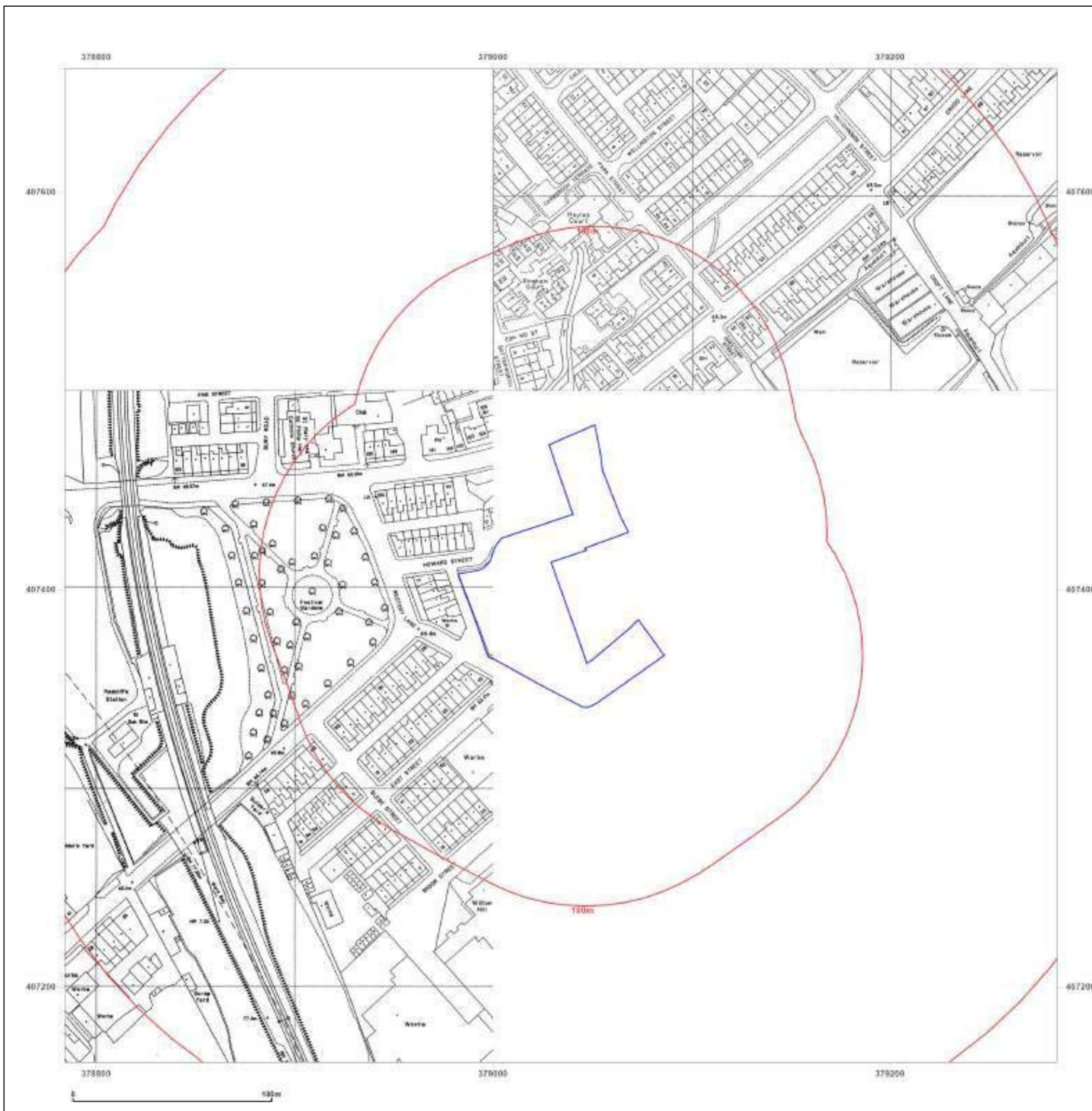


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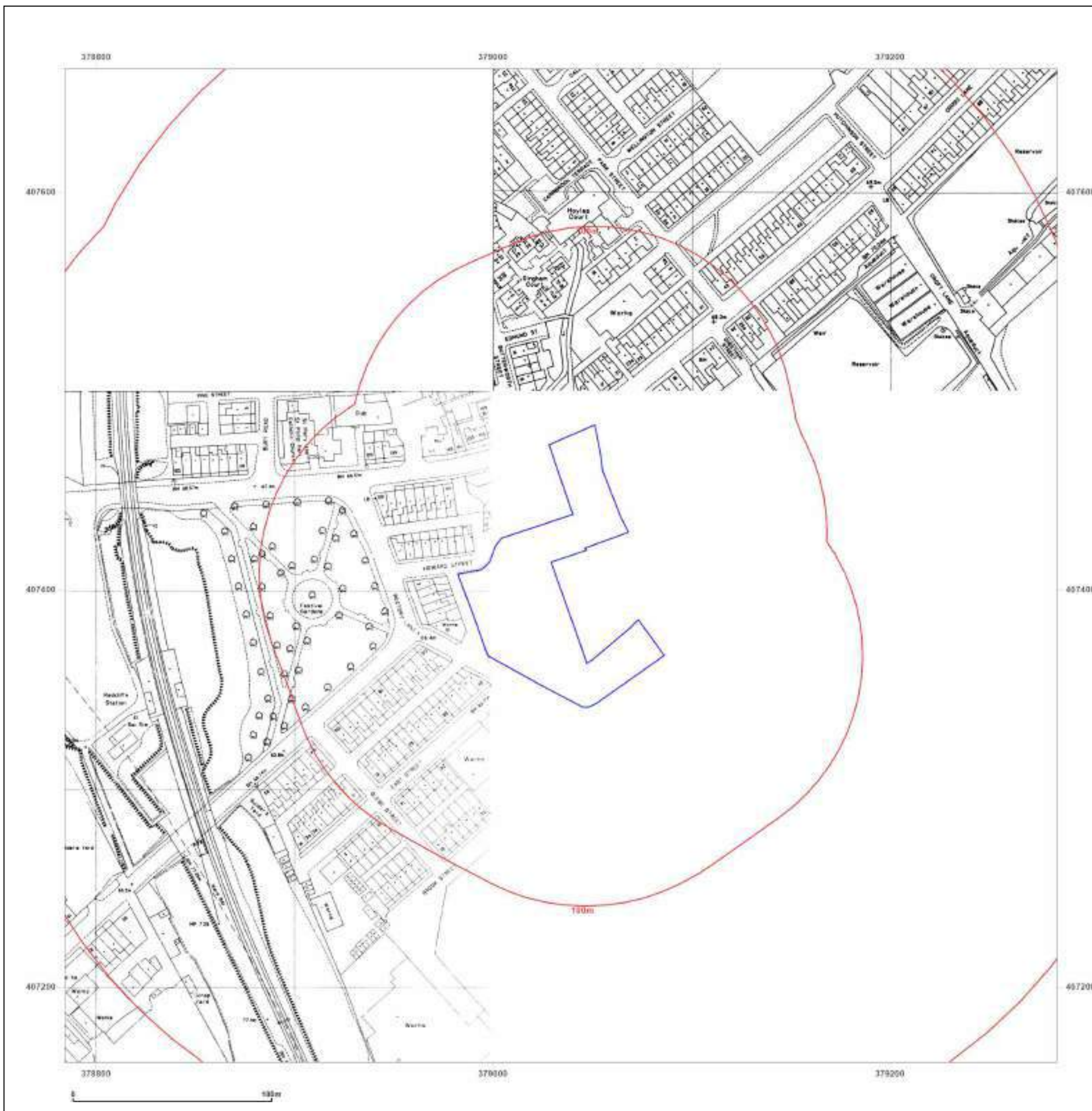


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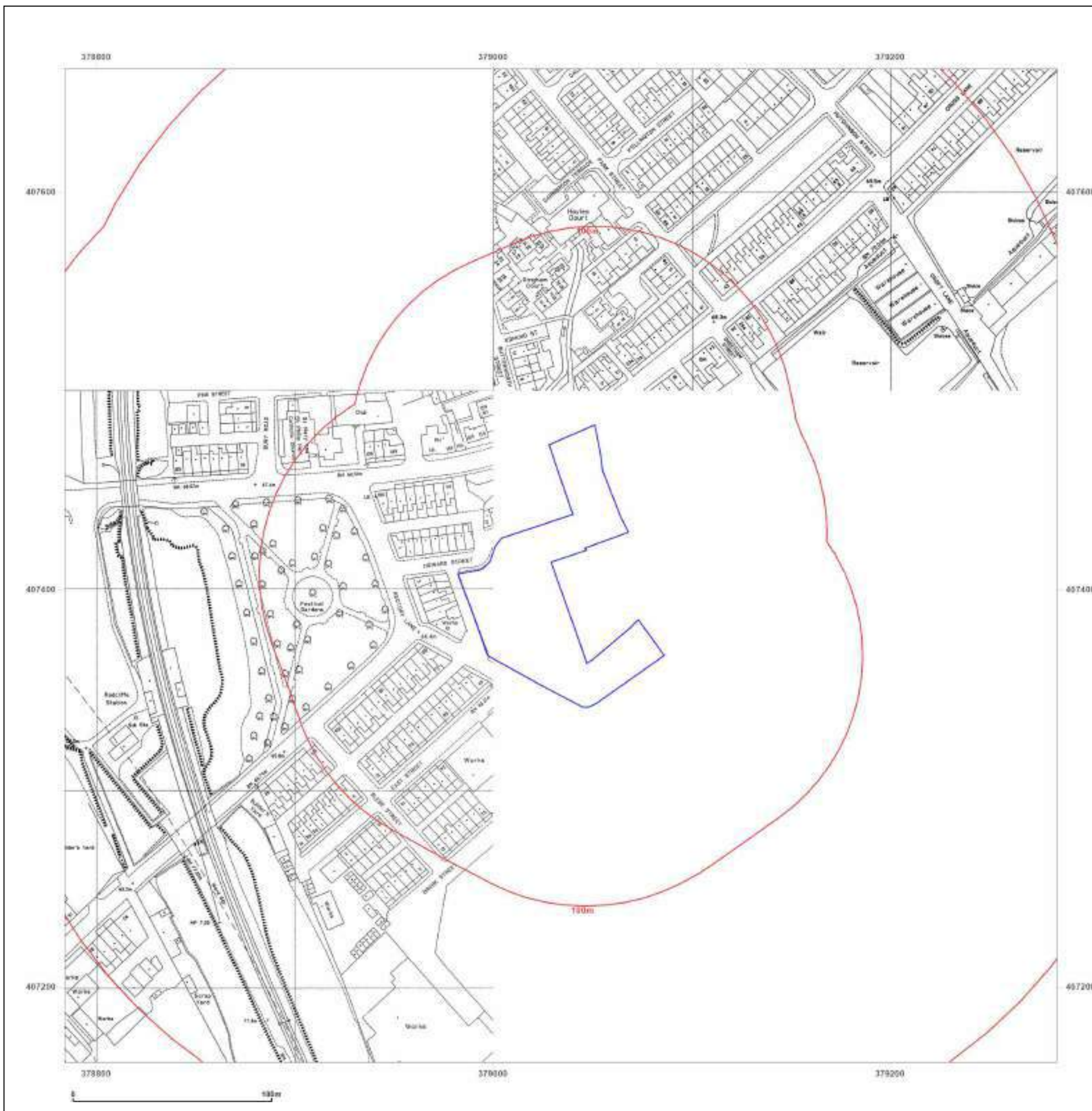


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Grid Ref: 379034, 407412

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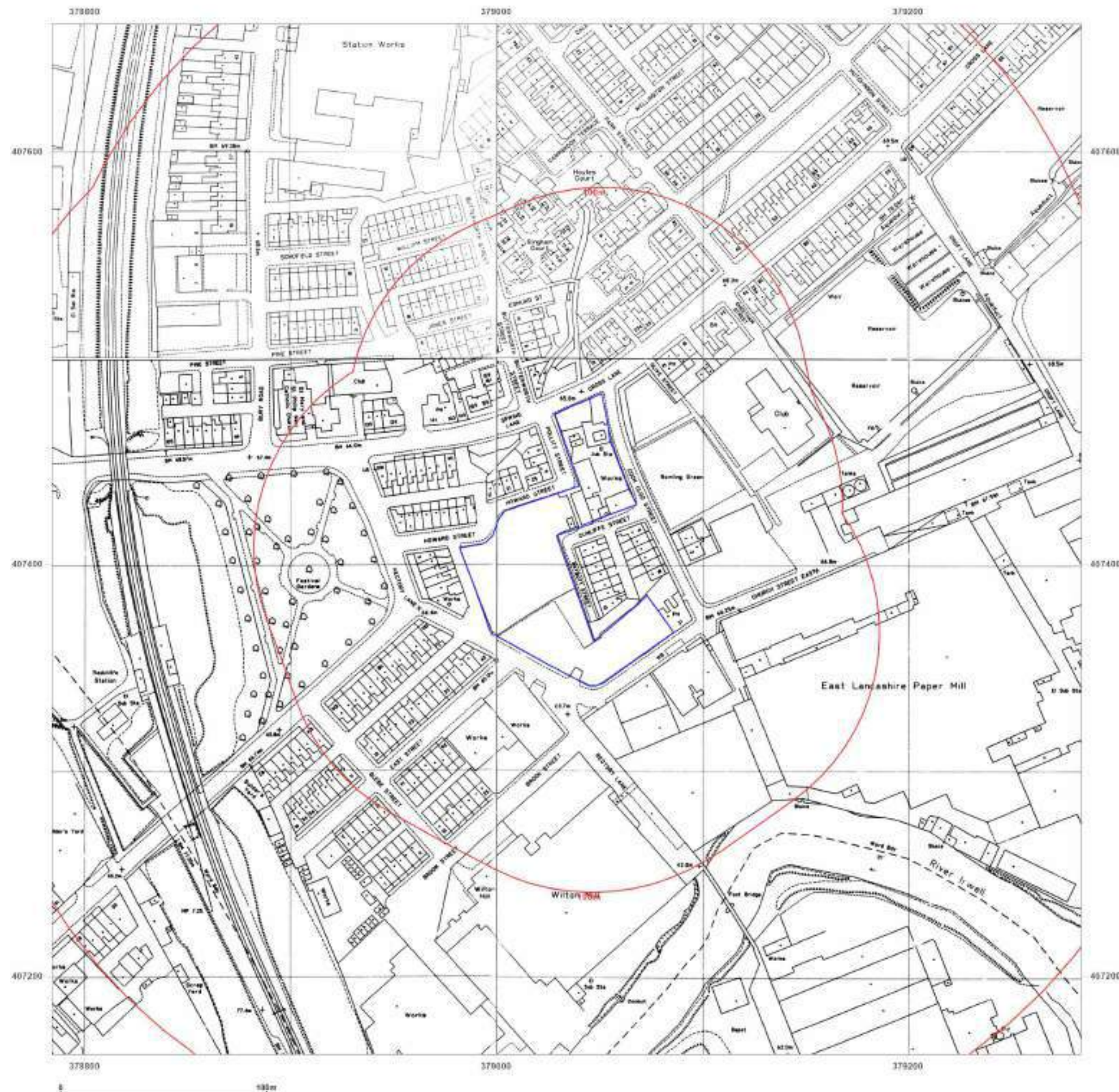


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Client Ref: NX418
Report Ref: GS-7611303
Grid Ref: 379034, 407412

Map Name: National Grid

Map date: 1994-1995

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Client Ref: NX418
Report Ref: GS-7611303
Grid Ref: 379034, 407412

Map Name: LandLine

Map date: 2003

Scale: 1:1,250

Printed at: 1:1,250

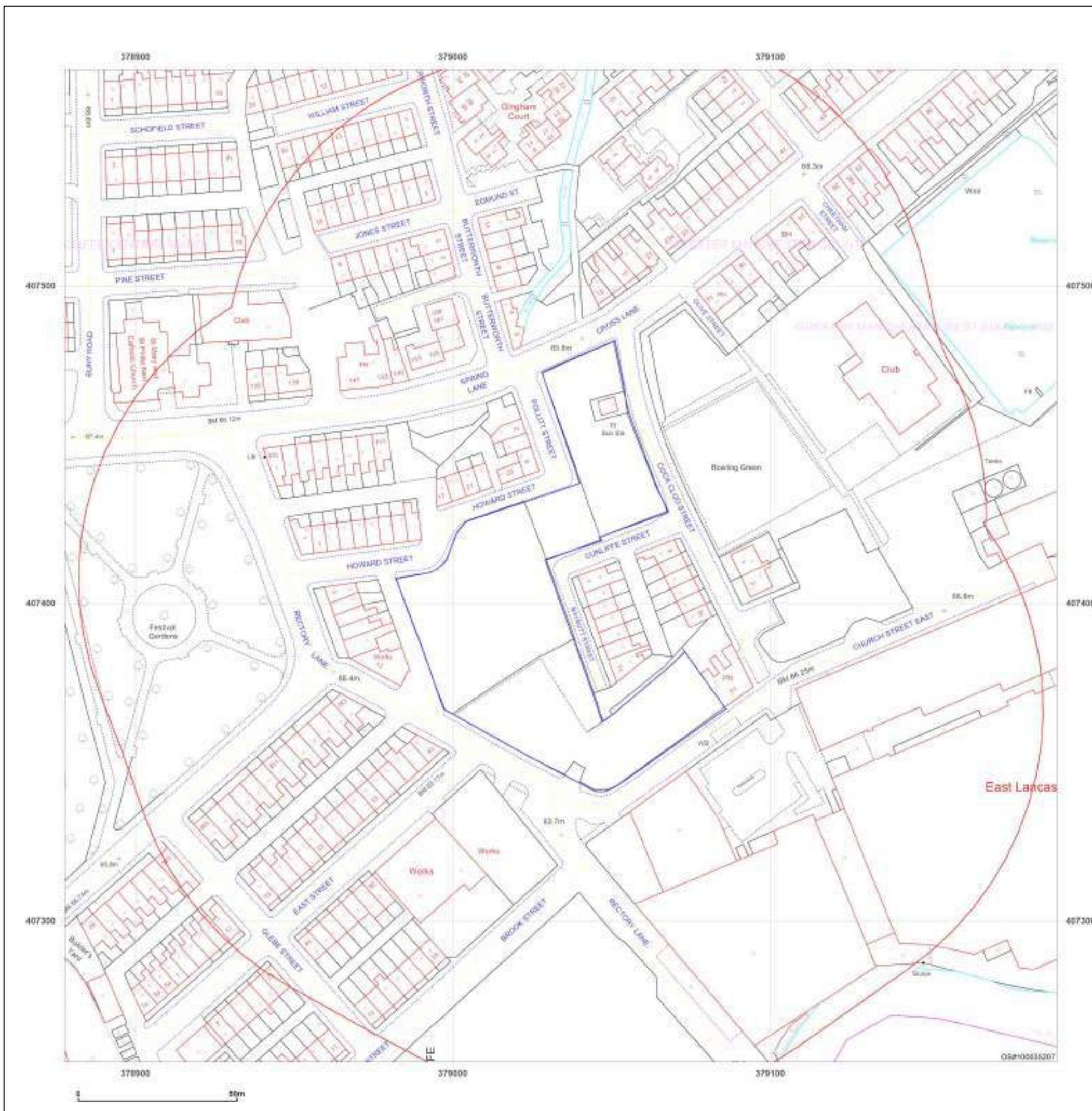


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Appendix D - Exploratory Hole Logs

NX Consulting ROTARY OPEN HOLE BOREHOLE LOG

Project East Lancashire Paper Mill Island				BOREHOLE No RBH01	
Job No NX418	Date 26-04-21	Ground Level (m)	Co-Ordinates ()		
Contractor Taylor Drilling Services Ltd				Sheet	1 of 3

SAMPLES & TESTS			STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
						0.10	MADE GROUND: Grass/Topsoil (Drillers Description).	
						(1.70)	MADE GROUND: Brick and Concrete (Drillers Description).	
						1.80		
						(1.20)	Light brown sand and gravel (Drillers Description).	
						3.00		
						(5.70)	Dark brown boulder clay (Drillers Description).	
						8.70		
						(3.30)	Grey/purple mudstone (Drillers Description).	
						12.00		
							Red/brown mudstone (Drillers Description).	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
26-04-21	00.00		6.00	200mm							No visual or olfactory evidence of solvent and hydrocarbon contamination recorded. No ground gas recorded at drill head.
All dimensions in metres Scale 1:93.75			Client Great Places Housing Group			Method/ Plant Used Commachio			Logged By DT		

AGS3 UK BH NX418 RECTORY LANE, RADCLIFFE GPJ AGS 3 1.GDT 20/5/21

NX Consulting ROTARY OPEN HOLE BOREHOLE LOG

Project East Lancashire Paper Mill Island				BOREHOLE No RBH01	
Job No NX418	Date 26-04-21	Ground Level (m)	Co-Ordinates ()		
Contractor Taylor Drilling Services Ltd				Sheet	2 of 3

SAMPLES & TESTS			STRATA					Geology	Instrument/ Backfill
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thickness)	DESCRIPTION		
						(9.20)	Red/brown mudstone (Drillers Description). <i>(continued)</i>		
						21.20			
						(4.30)	Light grey siltstone with occasional red bands (Drillers Description).		
						25.50			
						(3.50)	Dark grey siltstone (Drillers Description).		
						29.00			
							Dark grey siltstone with light grey sandstone bands (Drillers Description).		

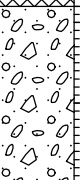
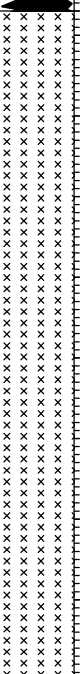
Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
											No visual or olfactory evidence of solvent and hydrocarbon contamination recorded. No ground gas recorded at drill head.
All dimensions in metres Scale 1:93.75			Client Great Places Housing Group			Method/ Plant Used Commachio			Logged By DT		

AGS3 UK BH NX418 RECTORY LANE, RADCLIFFE GPJ AGS 3 1.GDT 20/5/21

[illegible]

GS3 UK BH NX418 RECTORY LANE, RADCLIFFE.GPJ AGS 3_1 GDT 20/5/21

Project East Lancashire Paper Mill Island				BOREHOLE No RBH02	
Job No NX418	Date 27-04-21	Ground Level (m)	Co-Ordinates ()		
Contractor Taylor Drilling Services Ltd				Sheet	1 of 3

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
						(0.80) 0.80	MADE GROUND: Black/brown fine to coarse slightly organic ashy sand with some fine to coarse subangular to angular gravel of brick, timber, concrete, stone, clinker and ash. Occasional plastic sheets/bags.		
						(2.20) 3.00	Light brown sand and gravel (Drillers Description).		
						(2.80) 5.80	Dark brown boulder clay (Drillers Description).		
						(0.90) 6.70	Very shaley intact coal seam (Drillers Description).		
							Interbedded light grey siltstone and sandstone with occasional dark grey shaley bands (Drillers Description).		

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
27-04-21	00.00		6.00	200mm							No visual or olfactory evidence of solvent and hydrocarbon contamination recorded. No ground gas recorded at drill head.
All dimensions in metres Scale 1:93.75			Client Great Places Housing Group			Method/ Plant Used Commachio			Logged By IT		

AGS3 UK BH NX418 RECTORY LANE, RADCLIFFE GPJ AGS 3 1.GDT 20/5/21

[illegible]

GS3 UK BH NX418 RECTORY LANE, RADCLIFFE.GPJ AGS 3_1 GDT 20/5/21

[illegible]

GS3 UK BH NX418 RECTORY LANE, RADCLIFFE.GPJ AGS 3_1 GDT 20/5/21

Project East Lancashire Paper Mill Island				BOREHOLE No WS1	
Job No NX418	Date 26-04-21	Ground Level (m)	Co-Ordinates ()		
Contractor Taylor Drilling Services Ltd				Sheet 1 of 1	

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
						0.10	MADE GROUND: Black/brown fine to coarse slightly organic rooty sand with subrounded to subangular gravel of mixed lithology.		
						0.30			
0.40 0.50	CBR ES	5%				(1.70)	MADE GROUND: Light brown fine to coarse ashy sand with subangular to subrounded gravel and cobbles of brick, sandstone, slate, clinker and timber. MADE GROUND: Dark brown/red fine to coarse sand with some gravel and cobbles of subangular brick, clinker, ash, coal, sandstone and slate. Some subangular brick cobbles.		
1.00	SPT	9							
1.50	ES								
2.00	SPT	13							
2.50 2.60	ES SV	40KPa				(3.45)	Firm to stiff, locally stiff, brown mottled yellow brown silty sandy CLAY with occasional fine gravel of coal, sandstone and mudstone and occasional subangular to subrounded cobbles of sandstone and mudstone.		
3.00-4.00 3.00	BULK SPT	12							
3.50	SV	54KPa							
4.00	SPT	21							
5.00 5.00	SPT SV	43 54KPa							
						5.45	...Borehole ended at 5.45m		

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
											No visual or olfactory evidence of solvent and hydrocarbon contamination recorded. No groundwater recorded at end of drilling.
All dimensions in metres Scale 1:37.5			Client Great Places Housing Group			Method/ Plant Used Tracked Archway Dart			Logged By RL		

Project East Lancashire Paper Mill Island				BOREHOLE No WS2	
Job No NX418	Date 26-04-21	Ground Level (m)	Co-Ordinates ()		
Contractor Taylor Drilling Services Ltd				Sheet 1 of 1	

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thickness)	DESCRIPTION		
0.30	ES CBR	7%				0.15	MADE GROUND: Black/brown slightly organic sandy gravel of clinker, coal and sandstone		
0.40						(0.35)	MADE GROUND: Brown/ red fine to coarse sand with subangular gravel of coal, clinker, brick and sandstone, and angular brick cobbles.		
0.80	ES	9				0.50	Probable Made Ground: Yellow/brown silty clayey sand and gravel of sandstone, slate and coal.		
1.00	SPT					(1.80)			
2.00	SPT	8				2.30			
2.60	ES	11				(3.15)	Firm to stiff, locally stiff silty sandy CLAY with occasional fine gravel of coal, sandstone and mudstone and occasional subangular to subrounded cobbles of sandstone and mudstone.		
3.00	SPT								
3.50-3.90	BULK SV	54KPa							
3.50									
4.00	SPT	15							
5.00	SPT	14				5.45			
							...Borehole ended at 5.45m		

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
											No visual or olfactory evidence of solvent and hydrocarbon contamination recorded. No groundwater recorded at end of drilling.
All dimensions in metres Scale 1:37.5			Client Great Places Housing Group			Method/ Plant Used Tracked Archway Dart			Logged By RL		

Project East Lancashire Paper Mill Island				BOREHOLE No WS3	
Job No NX418	Date 26-04-21	Ground Level (m)	Co-Ordinates ()		
Contractor Taylor Drilling Services Ltd				Sheet 1 of 1	

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick- ness)	DESCRIPTION		
0.50	ES	15				0.10	MADE GROUND: Concrete Slab		
						(0.60)	MADE GROUND: Black/brown fine to coarse sand with much subangular gravel of coal, clinker, brick and sandstone.		
						0.70	Probable Made Ground: Yellow/brown silty clayey sand and fine to coarse angular to subrounded gravel of sandstone, mudstone and coal.		
1.00	ES	12			(0.70)	1.40	Firm to stiff, locally firm, brown silty sandy CLAY with occasional fine gravel of coal, sandstone and mudstone and occasional subangular to subrounded cobbles of sandstone and mudstone.		
1.00	SPT								
1.80	ES								
2.00-3.00	BULK	9			(4.05)				
2.00	SPT								
3.00	SV								
3.00	SPT	10			(4.05)				
4.00	SV								
4.00	SPT								
5.00	SPT	25				5.45	5.00 ...Becoming stiff to very stiff.		
							...Borehole ended at 5.45m		

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
											No visual or olfactory evidence of solvent and hydrocarbon contamination recorded. No groundwater recorded at end of drilling.

All dimensions in metres Scale 1:37.5	Client Great Places Housing Group	Method/ Plant Used Tracked Archway Dart	Logged By RL
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AGS3 UK WS NX418 RECTORY LANE. RADCLIFFE.GPJ AGS3 1.GDT 20/5/21



Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
26-04-21	00.00				3.97						No visual or olfactory evidence of solvent and hydrocarbon contamination recorded. Groundwater recorded at end of drilling.
All dimensions in metres Scale 1:37.5		Client Great Places Housing Group				Method/ Plant Used Tracked Archway Dart					Logged By RL

Project East Lancashire Paper Mill Island				BOREHOLE No WS5	
Job No NX418	Date 27-04-21	Ground Level (m)	Co-Ordinates ()		
Contractor Taylor Drilling Services Ltd				Sheet 1 of 1	

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
0.05	ES					(0.30) 0.30	MADE GROUND: Black/brown fine to coarse slghtly organic rooty sand with fine subangular gravel of ash, brick and mixed lithology (TOPSOIL).		
0.40 0.50	CBR ES	15%				(0.70) 0.90	MADE GROUND: Black fine to coarse slightly organic ashy sand with some subrounded to subangular gravel of mixed lithology and subrounded cobbles of mixed lithology. 0.40 - 1.00 ...thick (800mm) roots from nearby tree		
1.00 1.10	SPT ES	6				(0.40) 1.40	Loose yellow/brown fine to coarse sand with some subangular gravel of mixed lithology. Occasional subrounded cobbles of mixed lithology.		
1.60	ES					(0.60) 2.00	Firm to stiff light brown sandy CLAY with some fine subangular gravel of coal and mixed lithology		
2.00-3.00 2.00	BULK SPT	10				(0.80) 2.90	Medium dense light brown clayey SAND with fine subangular gravel of coal and mixed lithology Medium dense orange/brown fine to coarse SAND		
3.00	SPT	7				(1.10) 4.00	Firm locally soft to firm light brown wet sandy CLAY with fine subangular gravel of coal and mixed lithology.		
4.00	SPT	33				(0.45) 4.45	Dense red/brown silty sandy subrounded gravel of mudstone.		
							...Refusal at 4.45m. Possible bedrock.		

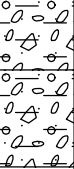
Boring Progress and Water Observations							Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt		From	To	Hours	From	To	
27-04-21	00.00				1.94							No visual or olfactory evidence of solvent and hydrocarbon contamination recorded. Groundwater recorded at 1.94mbgl at end of drilling.
All dimensions in metres Scale 1:31.25			Client Great Places Housing Group		Method/ Plant Used Tracked Archway Dart			Logged By RL				

Project East Lancashire Paper Mill Island				BOREHOLE No WS6	
Job No NX418	Date 27-04-21	Ground Level (m)	Co-Ordinates ()		
Contractor Taylor Drilling Services Ltd				Sheet	1 of 1

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thickness)	DESCRIPTION		
0.40	CBR ES	3%				0.10	MADE GROUND: Black/brown fine to coarse slightly organic rooty sand with fine gravel of mixed lithology (TOPSOIL).		
0.40						(0.30) 0.40	MADE GROUND: Brown/black fine to coarse slightly organic sand with fine subangular gravel of limestone and mixed lithology. Some angular cobbles of limestone.		
0.80	ES					(0.40) 0.80	MADE GROUND: Black fine to coarse slightly ashy sand with angular gravel of coal, clinker, brick, tiles and glass. Occasional angular brick cobbles.		
1.00	SPT	8				1.00	MADE GROUND: Brown fine to coarse sand with some fine subangular gravel of ash, clinker, coal and other mixed lithology		
1.20	ES					(0.30) 1.30	Loose yellow/brown silty clayey SAND and GRAVEL of sandstone, mudstone and coal.		
						(0.70) 2.00	Firm to stiff light brown silty CLAY with subangular to subrounded gravel of coal and mixed lithology and subrounded to subangular cobbles of sandstone and slate.		
2.00	SPT SV	10 54KPa				2.00	Firm to stiff light brown sandy CLAY with occasional subangular gravel of mixed lithology		
2.00						(0.40) 2.40	Medium dense light brown clayey fine to coarse SAND with fine some subangular gravel of mixed lithology.		
3.00-4.00	BULK SPT	12				(1.20) 3.60	Firm light brown sandy CLAY with some fine angular gravel. Occasional subrounded cobbles of mixed lithology.		
3.00						(0.40) 4.00	Medium dense light brown fine to coarse SAND with fine gravel of mixed lithology		
4.00	SPT	16				(1.00) 5.00	Mudstone in SPT sample. Possible bedrock at 5.0m		
5.00	SPT	36				(0.45) 5.45	...Borehole ended at 5.45m		

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
											No visual or olfactory evidence of solvent and hydrocarbon contamination recorded. No groundwater recorded at end of drilling.
All dimensions in metres Scale 1:37.5			Client Great Places Housing Group			Method/ Plant Used Tracked Archway Dart			Logged By RL		

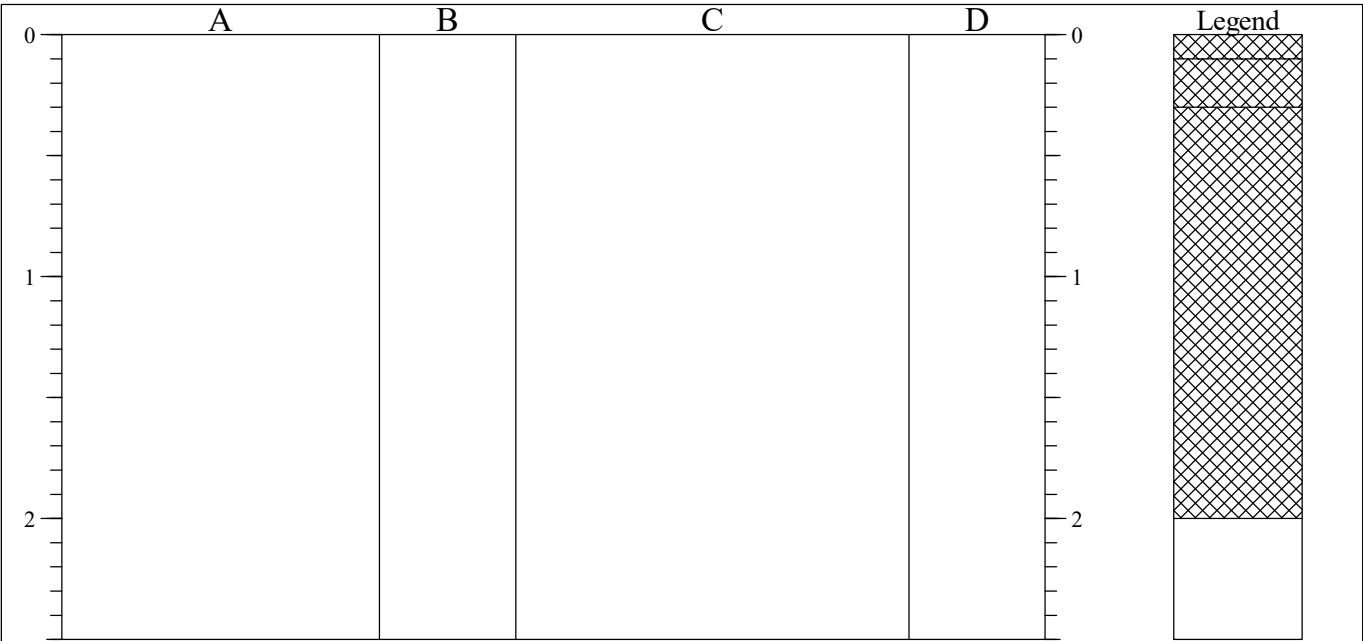
Project East Lancashire Paper Mill Island				BOREHOLE No WS7	
Job No NX418	Date 27-04-21	Ground Level (m)	Co-Ordinates ()		
Contractor Taylor Drilling Services Ltd				Sheet 1 of 1	

SAMPLES & TESTS			STRATA					Geology	Instrument/ Backfill
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick- ness)	DESCRIPTION		
0.40 0.50	CBR ES	8%				0.10	MADE GROUND: Tarmacadam.		
				0.25		MADE GROUND: Grey fine to coarse sand with much angular gravel of mixed lithology and sandstone cobbles.			
				0.45		MADE GROUND: Grey fine to coarse sand with some fine to coarse subangular gravel of brick, coal, clinker and mixed lithology, and angular brick cobbles.			
				0.55					
				(0.25) 0.80			MADE GROUND: Concrete		
1.00 1.00	ES SPT	1			(0.30) 1.10	MADE GROUND: Brown/black fine to coarse sand with some fine to coarse subangular gravel of coal, clinker, ash, brick and mixed lithology. Occasional angular cobbles of mixed lithology.			
			1.20		MADE GROUND: Black coarse sand and fine to coarse angular gravel of coal, clinker and brick. Some fine to coarse angular cobbles of brick and mudstone.				
			1.50		ES			(1.20)	MADE GROUND: Soft light brown/orange sandy clay with some subangular gravel of coal, brick and mixed lithology.
MADE GROUND: Dark grey/black soft silty clay with fine angular gravel of coal and clinker, and occasional subrounded mudstone cobbles									
2.00	SPT	11							2.40
3.00-4.00 3.00	BULK SPT	19			(0.30) 2.70	Medium dense light grey sandy clayey fine to coarse subrounded GRAVEL of mixed lithology.			
					(0.40) 3.10	Medium dense light brown clayey sand and gravel with occasional subangular sandstone cobbles.			
					(0.40) 3.50	Firm to stiff red/grey clay with some fine to coarse subrounded gravel and cobbles of mixed lithology.			
					(1.00) 4.50	Probable mudstone. No recovery in 4-5m due to possible cobble obstruction.			
4.00	SPT	24							
4.50	SPT	50					...Borehole ended at 4.5m		

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
27-04-21	00.00				2.08						
All dimensions in metres Scale 1:31.25		Client Great Places Housing Group				Method/ Plant Used Tracked Archway Dart					Logged By RL

TRIAL PIT LOG

Project East Lancashire Paper Mill Island				TRIAL PIT No TP1
Job No NX418	Date 28-04-21	Ground Level (m)	Co-Ordinates ()	
Contractor TM Plant Hire				Sheet 1 of 1



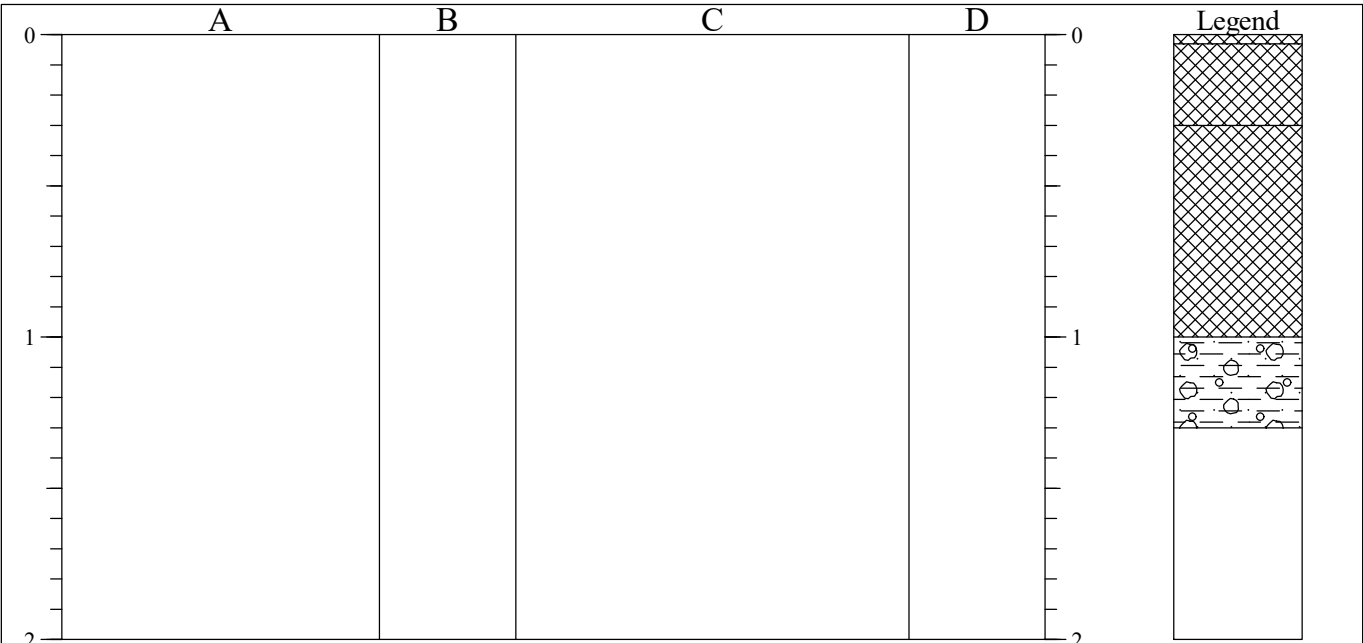
STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.10		MADE GROUND: Brown/black fine to coarse silty slightly organic rooty sand (TOPSOIL).	0.05	ES	
0.10-0.30		MADE GROUND: Yellow/brown silty sandy fine to coarse subrounded gravel of sandstone. Some subrounded cobbles of sandstone.			
0.30-2.00		MADE GROUND: Red/brown/grey fine to coarse ashy very sandy gravel and cobbles of subangular brick, slate, concrete, cement, sandstone and other mixed lithology. Occasional angular to subangular boulders of brick. Some relic brick footings (boulders 400mm x 250mm x 250mm in size. Occasional metal keg rings, plastic sheets, timber and glass. Tree roots present in the north face at 0.6mbgl.	0.50	ES	
2.00		...Trialpit ended at 2.0m due to spalling and collapse.			

Shoring/Support: None Stability: Poor		The diagram shows a rectangular trial pit with dimensions 1.6m (width) and 0.8m (depth). The width is labeled 'A' and the depth is labeled 'B'. The corners are labeled 'C' and 'D'. A north arrow points upwards.	GENERAL REMARKS
			No visual or olfactory evidence of solvent and hydrocarbon contamination recorded. No groundwater recorded in trial pit.

All dimensions in metres Scale 1:31.25	Client Great Places Housing Group	Method/ Plant Used Mini Excavator	Logged By RL
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TRIAL PIT LOG

Project East Lancashire Paper Mill Island				TRIAL PIT No TP2
Job No NX418	Date 28-04-21	Ground Level (m)	Co-Ordinates ()	
Contractor TM Plant Hire				Sheet 1 of 1



STRATA				SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests	
0.00-0.03		MADE GROUND: Paving slab				
0.03-0.30		MADE GROUND: Yellow/brown fine to coarse sand over compact grey/brown fine to coarse angular gravel of limestone (MOT type 1 gravel).				
0.30-1.00		MADE GROUND: Dark brownish black clayey silty fine to coarse sand with some subangular gravel of brick, coal, clinker, mudstone, bathroom tiles and other mixed lithology. Rare plastic bags and timber.	0.50	ES		
1.00-1.30		Soft to firm, locally firm to stiff, light brownish orange silty sandy CLAY with occasional subangular gravel of coal and other mixed lithology. Occasional subrounded sandstone cobbles.	1.10	BULK		
1.30		...Trial pit ended at 1.3m				

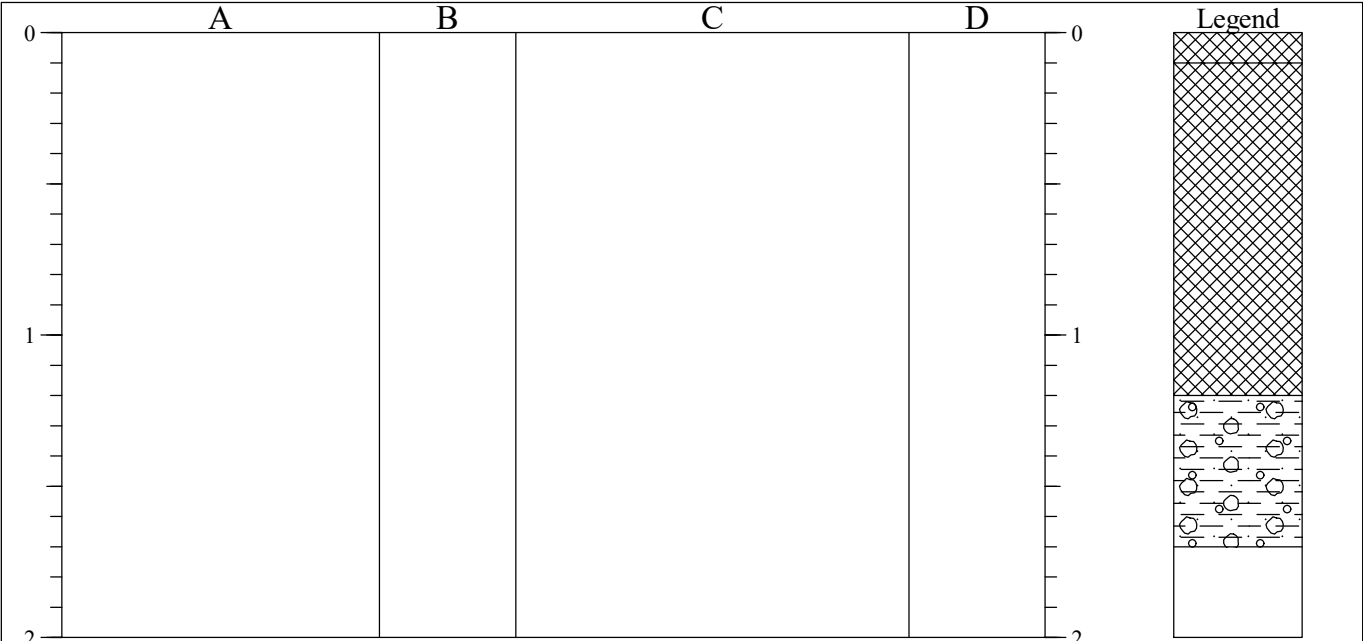
Shoring/Support: None Stability: Good			GENERAL REMARKS
			No visual or olfactory evidence of solvent and hydrocarbon contamination recorded. No groundwater recorded in trial pit.

All dimensions in metres Scale 1:25	Client Great Places Housing Group	Method/ Plant Used Mini Excavator	Logged By RL
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AGS3 UK TP NX418 RECTORY LANE, RADCLIFFE, GPJ AGS 3_1.GDT 20/5/21

TRIAL PIT LOG

Project East Lancashire Paper Mill Island				TRIAL PIT No TP3
Job No NX418	Date 28-04-21	Ground Level (m)	Co-Ordinates ()	
Contractor TM Plant Hire				Sheet 1 of 1



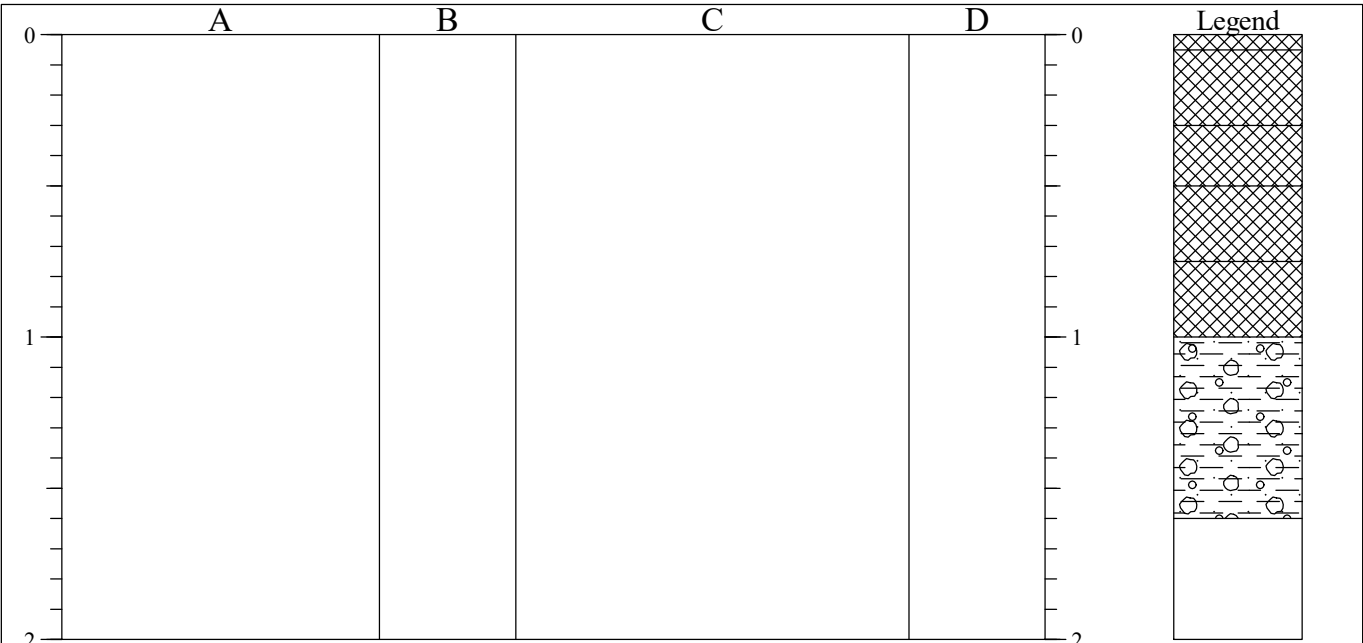
STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.10		MADE GROUND: Dark brown silty sandy slightly organic rooty sand (TOPSOIL).			
0.10-1.20		MADE GROUND: Brown fine to coarse ashy sand with some subangular gravel of brick, concrete, coal, clinker, sandstone and mudstone. Occasional angular to subangular brick cobbles.	0.50	ES	
1.20-1.70		Firm light brownish orange sandy CLAY with some fine to coarse subangular to subrounded gravel of sandstone, coal and other mixed lithology. Occasional subrounded sandstone cobbles.	1.20	BULK	
1.70		...Trial pit ended at 1.7m			

Shoring/Support: None Stability: Good		N	GENERAL REMARKS
			No visual or olfactory evidence of solvent and hydrocarbon contamination recorded. No groundwater recorded in trial pit.

All dimensions in metres Scale 1:25	Client Great Places Housing Group	Method/ Plant Used Mini Excavator	Logged By RL
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TRIAL PIT LOG

Project East Lancashire Paper Mill Island				TRIAL PIT No TP4
Job No NX418	Date 28-04-21	Ground Level (m)	Co-Ordinates ()	
Contractor TM Plant Hire				Sheet 1 of 1



STRATA				SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests	
0.00-0.05		MADE GROUND: Tarmacadam over angular limestone gravel.			ES	
0.05-0.30		MADE GROUND: Yellow/brown/grey fine to coarse sand with much subangular to subrounded sandstone gravel. Occasional subangular to subrounded sandstone cobbles.				
0.30-0.50		MADE GROUND: Grey/red/brown fine to coarse sand with some subangular gravel of brick, coal, clinker, ash and other mixed lithology. Occasional subangular cobbles of brick and concrete.				
0.50-0.75		MADE GROUND: Orange/yellow/brown clayey ashy sand with much fine to coarse subangular to subrounded gravel of mixed lithology. Occasional subrounded cobbles of sandstone.	0.50			
0.75-1.00		MADE GROUND: Grey/red/brown fine to coarse sand with some fine to coarse subangular gravel of brick, coal, clinker and other mixed lithology. Occasional subangular to angular cobbles of brick.				
1.00-1.60		Firm light yellowish brown sandy CLAY with some subangular to subrounded gravel of coal, mudstone and sandstone. Occasional subangular to subrounded cobbles of coal, mudstone and sandstone.			BULK	
1.60		...Trial pit ended at 1.7m	1.50			

Shoring/Support: None Stability: Moderate			GENERAL REMARKS No visual or olfactory evidence of solvent and hydrocarbon contamination recorded. No groundwater recorded in trial pit.
1.8 A D B C N			

All dimensions in metres Scale 1:25	Client Great Places Housing Group	Method/ Plant Used Mini Excavator	Logged By RL
--	--------------------------------------	---	-----------------

Appendix E– Geotechnical Laboratory Test Results



TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

Client: NX Consulting
Client Address: Thorpe House, 11 Thorpe Close,
Timperley, Altrincham,
WA15 7WZ

Contact: Mark Newton
Site Address: East Lancs Paper

Client Reference: NX418
Job Number: 21-73447
Date Sampled: Not Given
Date Received: 30/04/2021
Date Tested: 17/05/2021
Sampled By: Client

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

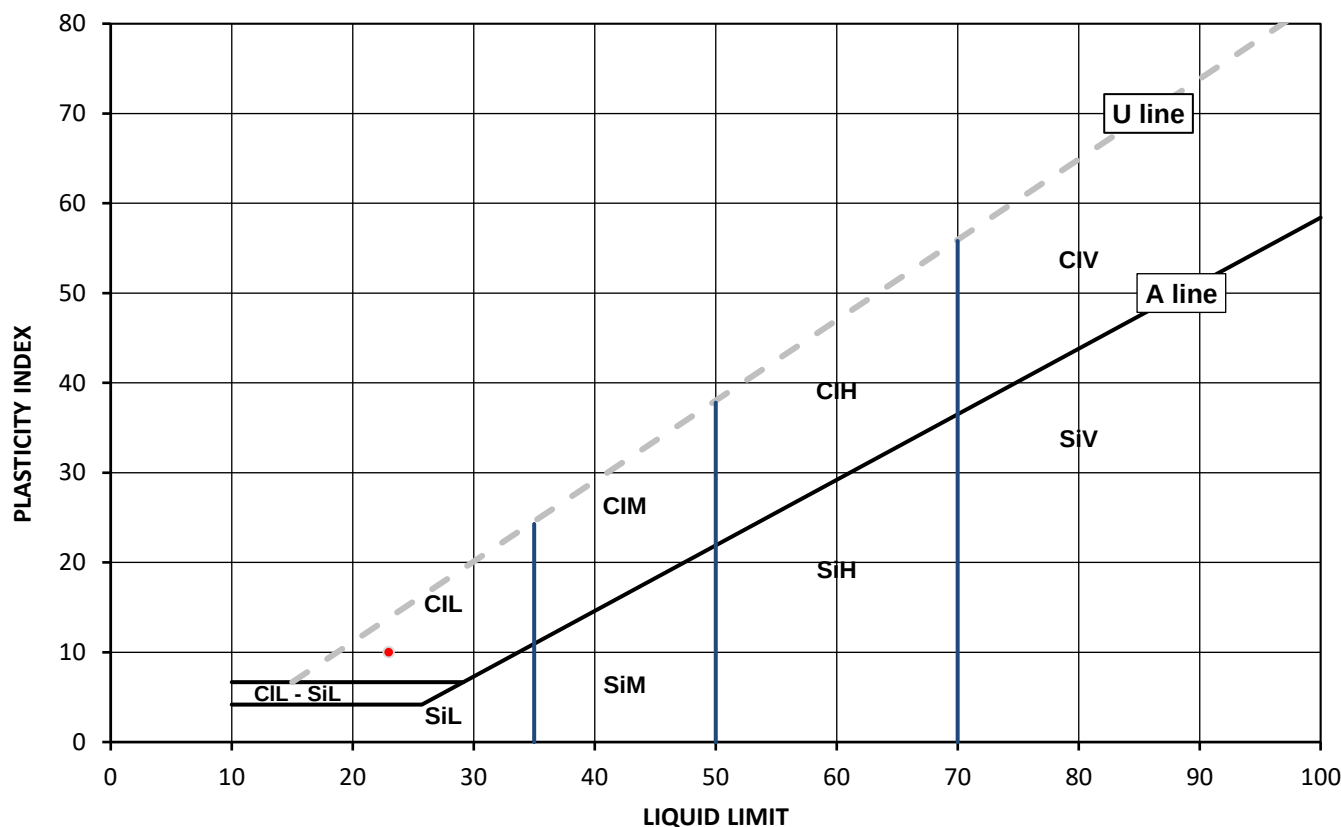
Test Results:

Laboratory Reference: 1862654
Hole No.: WS1
Sample Reference: Not Given
Soil Description: Brown slightly gravelly clayey SAND

Depth Top [m]: 3.00
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested after >425um removed by hand

As Received Moisture Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
12	23	13	10	91



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	L Low below 35
Si	Silt	M Medium 35 to 50
		H High 50 to 70
		V Very high exceeding 70
	O Organic	append to classification for organic material (eg CIHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:

Aleksandra Jurochnik
PL Technical Reviewer
for and on behalf of i2 Analytical Ltd

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Page 1 of 1

Date Reported: 07/06/2021

GF 236.10



TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

Client: NX Consulting
Client Address: Thorpe House, 11 Thorpe Close,
Timperley, Altrincham,
WA15 7WZ

Contact: Mark Newton
Site Address: East Lancs Paper

Client Reference: NX418
Job Number: 21-73447
Date Sampled: Not Given
Date Received: 30/04/2021
Date Tested: 17/05/2021
Sampled By: Client

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

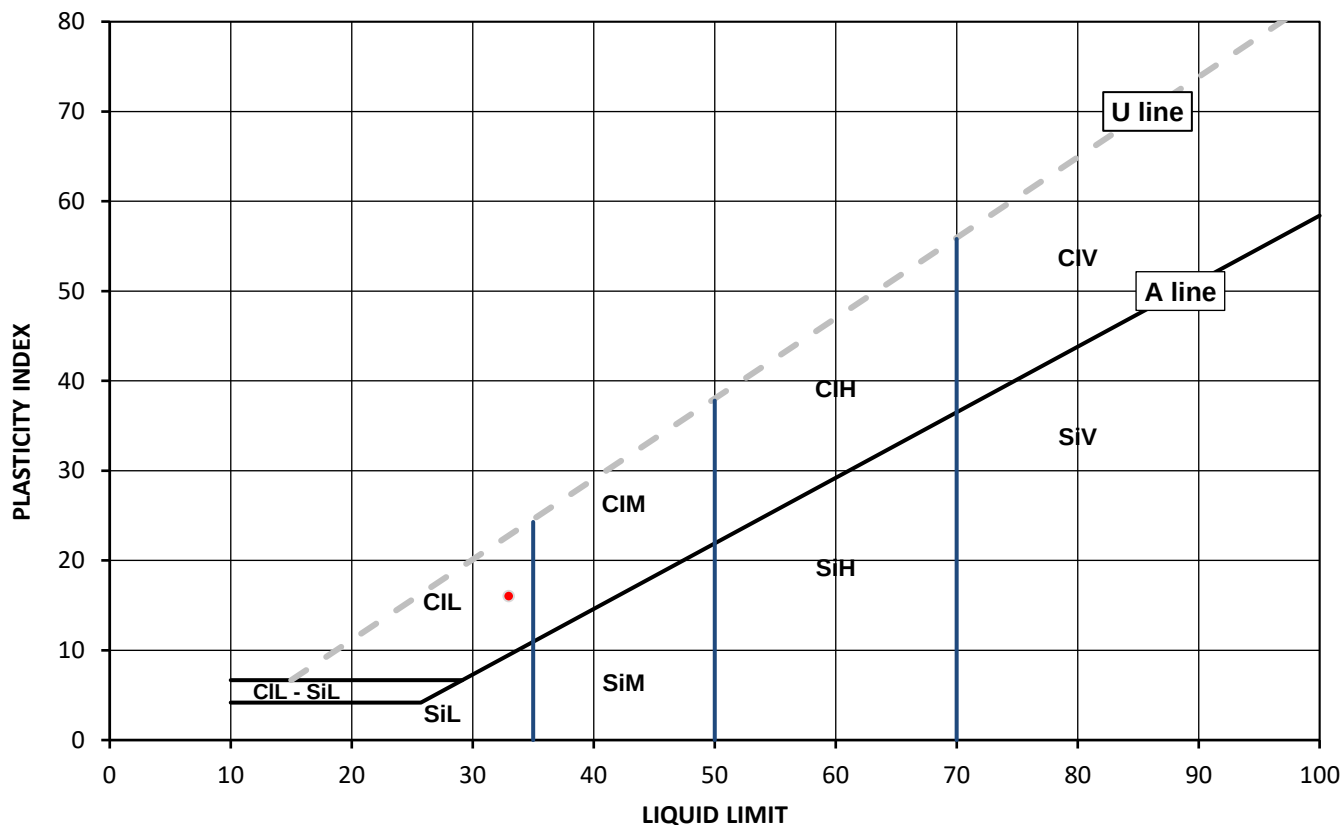
Test Results:

Laboratory Reference: 1862655
Hole No.: WS2
Sample Reference: Not Given
Soil Description: Greyish brown slightly gravelly very sandy CLAY

Depth Top [m]: 2.70
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425um BS Test Sieve
14	33	17	16	68



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Clay	Silt	Plasticity	Liquid Limit
Cl	Clay		L Low	below 35
Si		Silt	M Medium	35 to 50
			H High	50 to 70
			V Very high	exceeding 70
			O Organic	append to classification for organic material (eg CIHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:

Aleksandra Jurochnik
PL Technical Reviewer
for and on behalf of i2 Analytical Ltd

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Page 1 of 1

Date Reported: 07/06/2021

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TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

Client: NX Consulting
Client Address: Thorpe House, 11 Thorpe Close,
Timperley, Altrincham,
WA15 7WZ

Contact: Mark Newton
Site Address: East Lancs Paper

Client Reference: NX418
Job Number: 21-73447
Date Sampled: Not Given
Date Received: 30/04/2021
Date Tested: 17/05/2021
Sampled By: Client

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

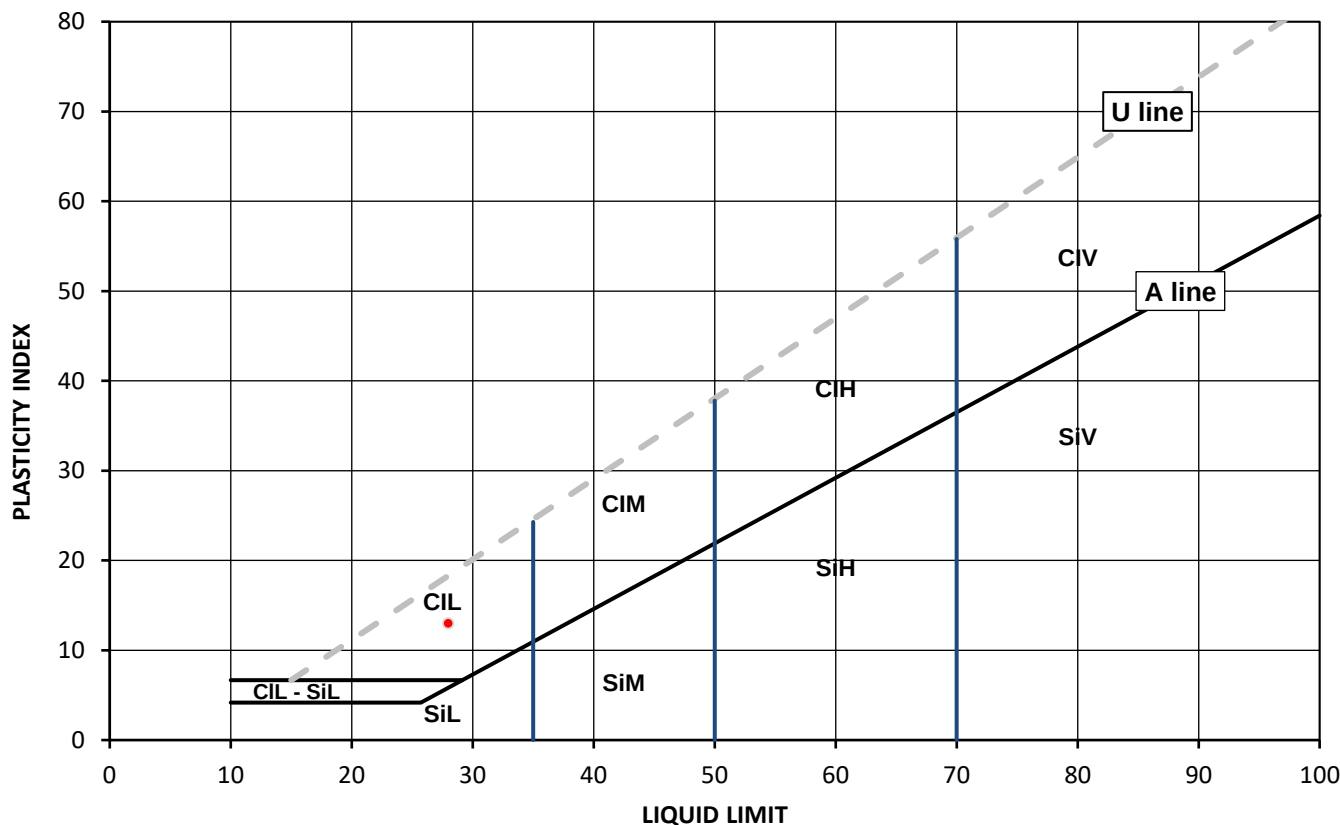
Test Results:

Laboratory Reference: 1862656
Hole No.: WS3
Sample Reference: Not Given
Soil Description: Greyish brown slightly gravelly very sandy CLAY

Depth Top [m]: 3.00
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425um BS Test Sieve
11	28	15	13	85



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl Clay	L Low	below 35
Si Silt	M Medium	35 to 50
	H High	50 to 70
	V Very high	exceeding 70
	O Organic	append to classification for organic material (eg CIHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:

Aleksandra Jurochnik
PL Technical Reviewer
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Date Reported: 07/06/2021

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TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

Client: NX Consulting
Client Address: Thorpe House, 11 Thorpe Close,
Timperley, Altrincham,
WA15 7WZ
Contact: Mark Newton
Site Address: East Lancs Paper

Client Reference: NX418
Job Number: 21-73447
Date Sampled: Not Given
Date Received: 30/04/2021
Date Tested: 17/05/2021
Sampled By: Client

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

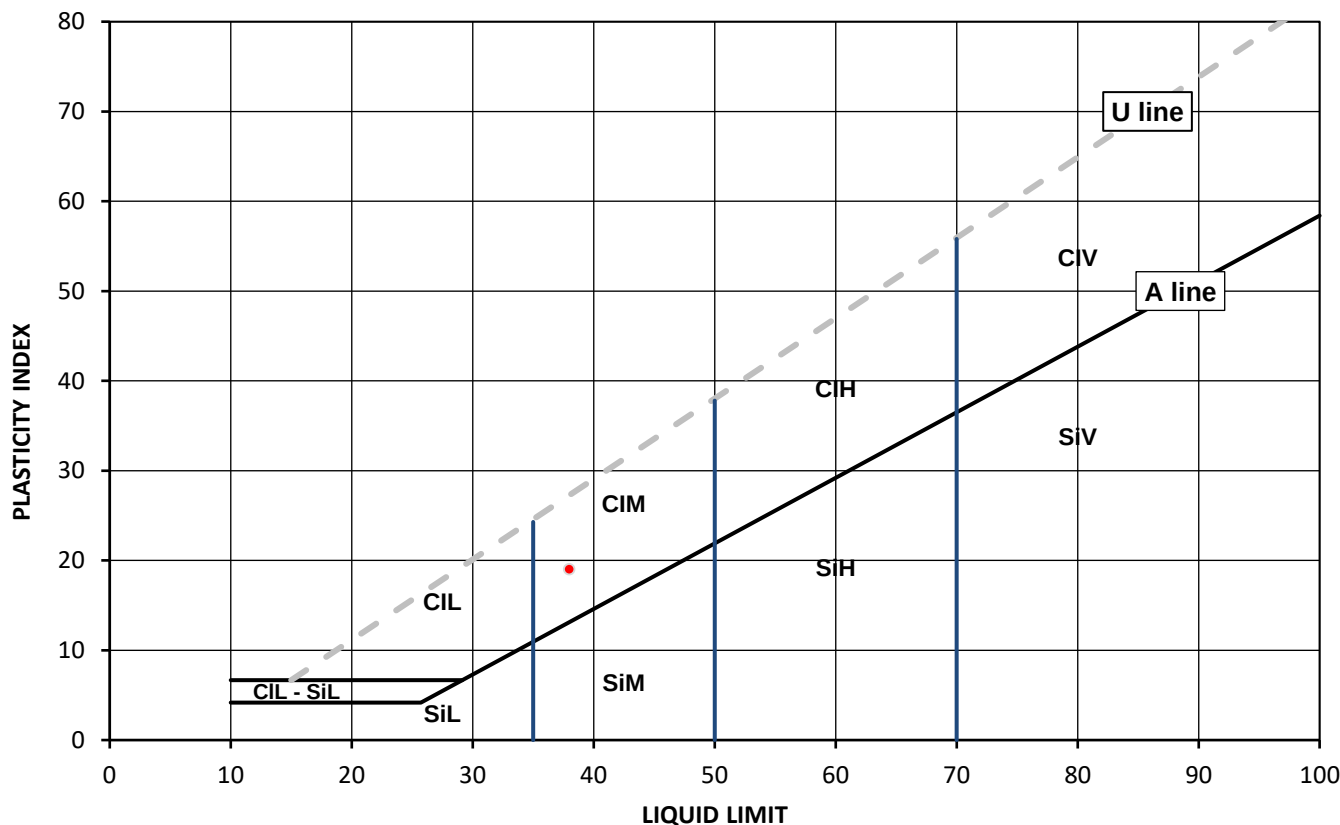
Test Results:

Laboratory Reference: 1862657
Hole No.: WS4
Sample Reference: Not Given
Soil Description: Brown slightly gravelly sandy CLAY

Depth Top [m]: 2.00
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425um BS Test Sieve
17	38	19	19	86



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Clay	Silt	Plasticity	Liquid Limit
Cl	Clay		L Low	below 35
Si		Silt	M Medium	35 to 50
			H High	50 to 70
			V Very high	exceeding 70
			O Organic	append to classification for organic material (eg CIHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:

Aleksandra Jurochnik
PL Technical Reviewer
for and on behalf of i2 Analytical Ltd

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Page 1 of 1

Date Reported: 07/06/2021

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TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
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Brackmills Industrial Estate
Northampton NN4 7EB



4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

Client: NX Consulting
Client Address: Thorpe House, 11 Thorpe Close,
Timperley, Altrincham,
WA15 7WZ

Contact: Mark Newton
Site Address: East Lancs Paper

Client Reference: NX418
Job Number: 21-73447
Date Sampled: Not Given
Date Received: 30/04/2021
Date Tested: 17/05/2021
Sampled By: Client

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

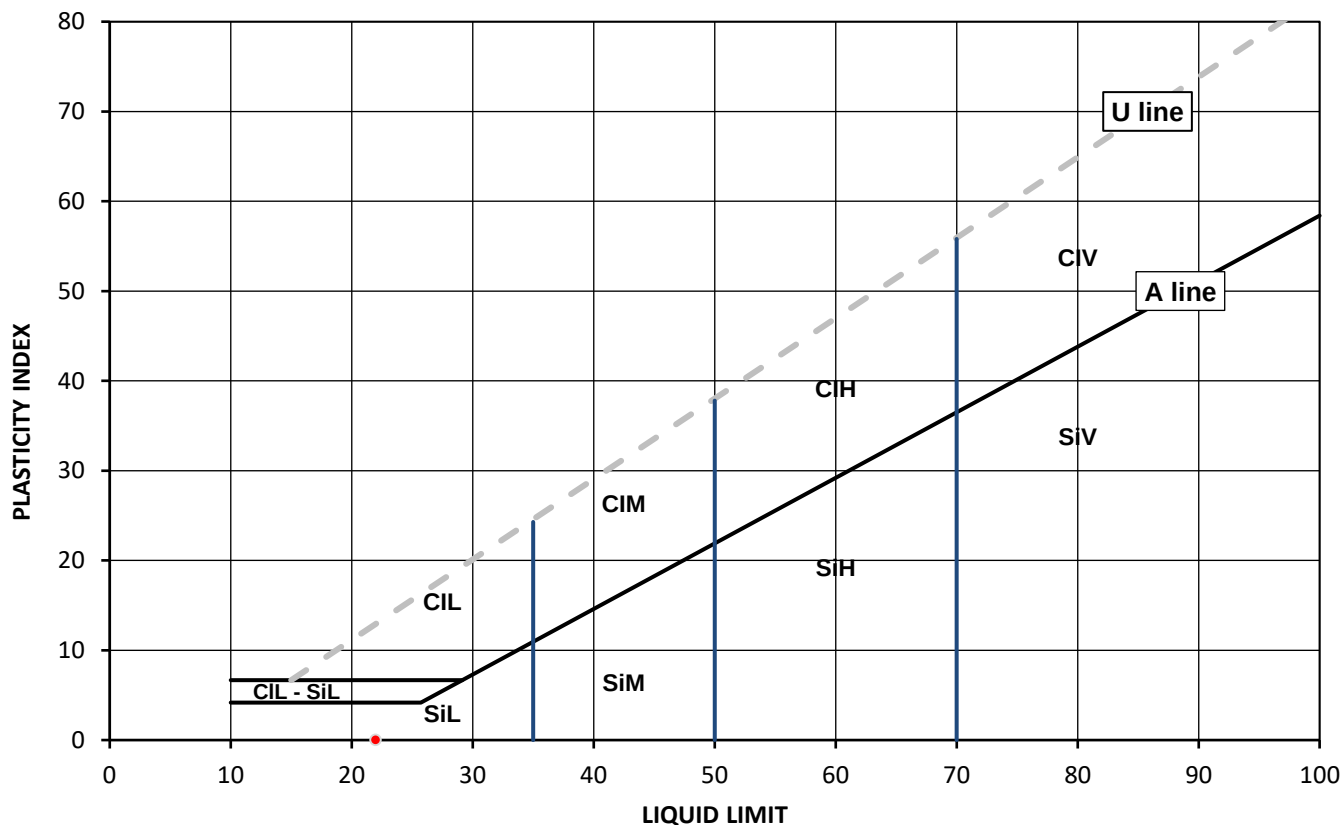
Test Results:

Laboratory Reference: 1862658
Hole No.: WS6
Sample Reference: Not Given
Soil Description: Brown slightly gravelly slightly clayey SAND

Depth Top [m]: 2.00
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested after >425um removed by hand

As Received Moisture Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
13	22	NP	NP	97



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl Clay	L Low	below 35
Si Silt	M Medium	35 to 50
	H High	50 to 70
	V Very high	exceeding 70
	O Organic	append to classification for organic material (eg CIHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks: NP - non plastic

Signed:

Aleksandra Jurochnik
PL Technical Reviewer
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Liquid and Plastic Limits

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Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

Client: NX Consulting
Client Address: Thorpe House, 11 Thorpe Close,
Timperley, Altrincham,
WA15 7WZ

Contact: Mark Newton
Site Address: East Lancs Paper

Client Reference: NX418
Job Number: 21-73447
Date Sampled: Not Given
Date Received: 30/04/2021
Date Tested: 29/05/2021
Sampled By: Client

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

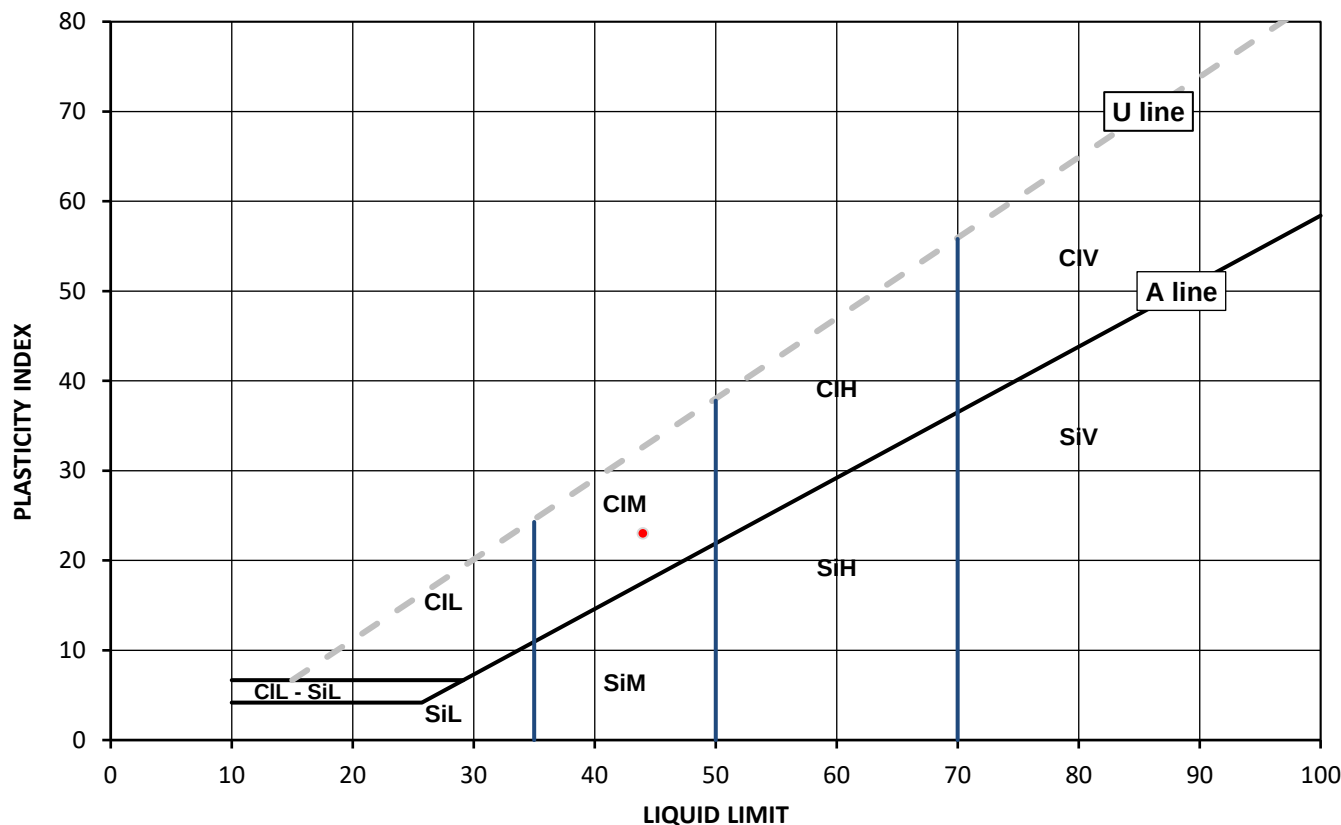
Test Results:

Laboratory Reference: 1862662
Hole No.: WS7
Sample Reference: Not Given
Soil Description: Grey mottled greyish brown slightly gravelly sandy CLAY

Depth Top [m]: 3.00
Depth Base [m]: 4.00
Sample Type: B

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425um BS Test Sieve
14	44	21	23	90



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Clay	Silt	Plasticity	Liquid Limit
Cl	Clay		L Low	below 35
Si		Silt	M Medium	35 to 50
			H High	50 to 70
			V Very high	exceeding 70
			O Organic	append to classification for organic material (eg CIHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:

Aleksandra Jurochnik
PL Technical Reviewer
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

Client: NX Consulting
Client Address: Thorpe House, 11 Thorpe Close,
Timperley, Altrincham,
WA15 7WZ

Contact: Mark Newton
Site Address: East Lancs Paper

Client Reference: NX418
Job Number: 21-73447
Date Sampled: Not Given
Date Received: 30/04/2021
Date Tested: 29/05/2021
Sampled By: Client

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

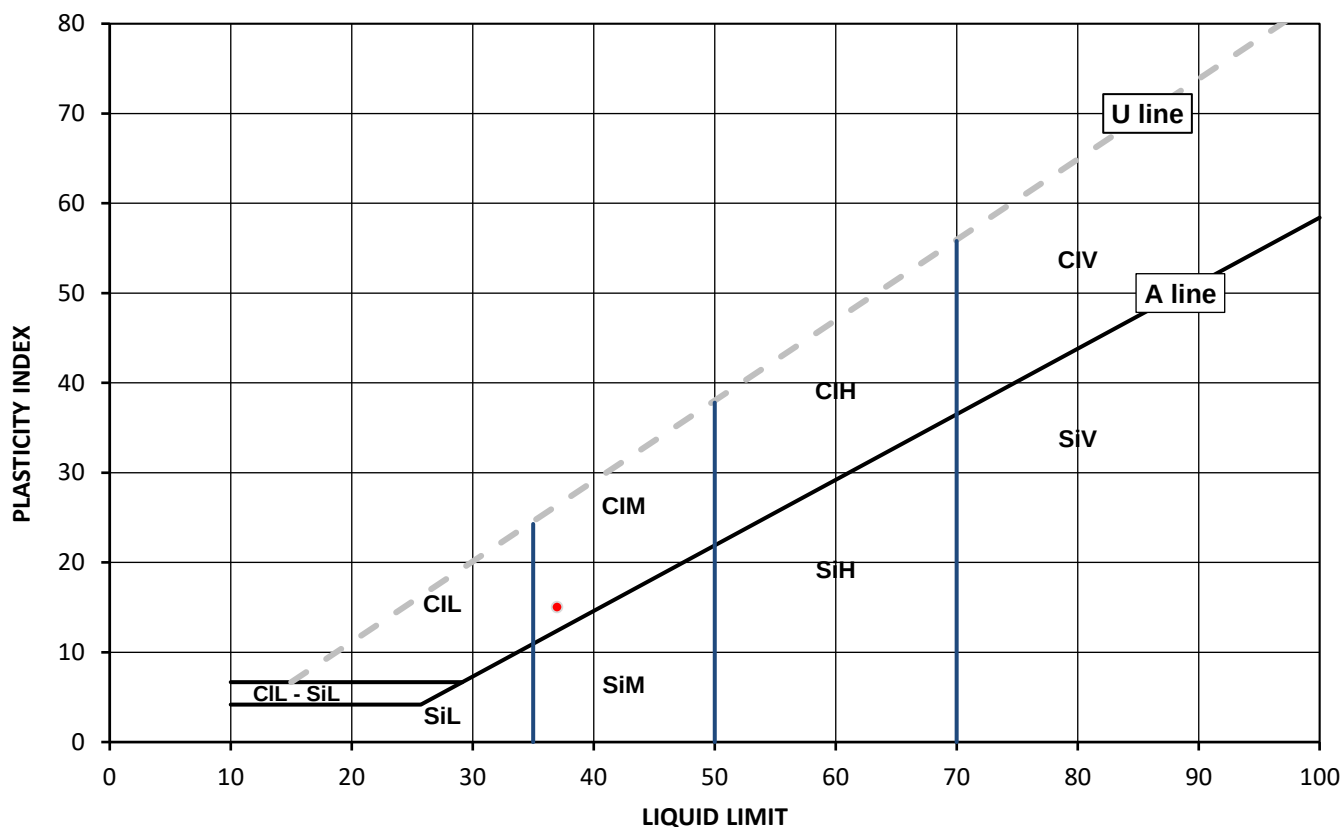
Test Results:

Laboratory Reference: 1862663
Hole No.: TP2
Sample Reference: Not Given
Soil Description: Brown slightly gravelly sandy CLAY

Depth Top [m]: 1.10
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425um BS Test Sieve
30	37	22	15	80



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Clay	Silt	Plasticity	Liquid Limit
Cl	Clay		L Low	below 35
Si		Silt	M Medium	35 to 50
			H High	50 to 70
			V Very high	exceeding 70
			O Organic	append to classification for organic material (eg CIHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:

Aleksandra Jurochnik
PL Technical Reviewer
for and on behalf of i2 Analytical Ltd

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4041

Client: NX Consulting
 Client Address: Thorpe House, 11 Thorpe Close,
 Timperley, Altrincham,
 WA15 7WZ

Contact: Mark Newton
 Site Address: East Lancs Paper

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

SUMMARY REPORT

Summary of Classification Test Results

Tested in Accordance with:

Moisture Content by BS 1377-2: 1990: Clause 3.2; Water Content by BS EN 17892-1: 2014; Atterberg by BS 1377-2: 1990: Clause 4.3 (4 Point Test), Clause 4.4 (1 Point Test) and 5; PD by BS 1377-2: 1990: Clause 8.2

i2 Analytical Ltd
 Unit 8 Harrowden Road
 Brackmills Industrial Estate
 Northampton NN4 7EB



Client Reference: NX418
 Job Number: 21-73447
 Date Sampled: Not Given
 Date Received: 30/04/2021
 Date Tested: 17/05 - 29/05/2021
 Sampled By: Client

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Moisture Content [W]	Water Content [W]	Atterberg				Density			Total Porosity#		
		Reference	Depth Top	Depth Base	Type					% Passing 425um	WL	Wp	Ip	bulk	dry	PD			
			m	m				%	%	%	%	%	%	Mg/m3	Mg/m3	Mg/m3	%		
1862663	TP2	Not Given	1.10	Not Given	B	Brown slightly gravelly sandy CLAY	Atterberg 4 Point	30		80	37	22	15						
1862654	WS1	Not Given	3.00	Not Given	B	Brown slightly gravelly clayey SAND	Atterberg 4 Point	12		91	23	13	10						
1862655	WS2	Not Given	2.70	Not Given	B	Greyish brown slightly gravelly very sandy CLAY	Atterberg 4 Point	14		68	33	17	16						
1862656	WS3	Not Given	3.00	Not Given	B	Greyish brown slightly gravelly very sandy CLAY	Atterberg 4 Point	11		85	28	15	13						
1862657	WS4	Not Given	2.00	Not Given	B	Brown slightly gravelly sandy CLAY	Atterberg 4 Point	17		86	38	19	19						
1862658	WS6	Not Given	2.00	Not Given	B	Brown slightly gravelly slightly clayey SAND	Atterberg 4 Point	13		97	22	NP	NP						
1862662	WS7	Not Given	3.00	4.00	B	Grey mottled greyish brown slightly gravelly sandy CLAY	Atterberg 4 Point	14		90	44	21	23						

Note: # Non accredited; NP - Non plastic

Comments:

Signed:

Aleksandra Jurochnik
 PL Technical Reviewer
 for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Particle Size Distribution

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with: BS 1377-2: 1990

Client: NX Consulting
Client Address: Thorpe House, 11 Thorpe Close,
Timperley, Altrincham,
WA15 7WZ
Contact: Mark Newton
Site Address: East Lancs Paper

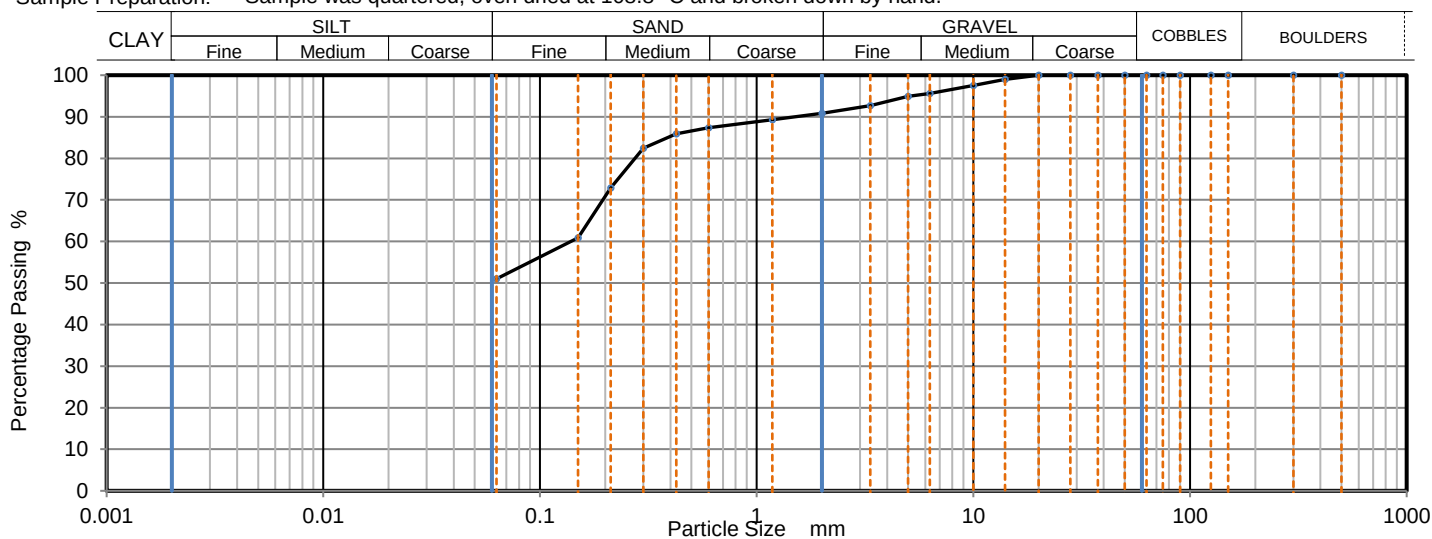
Client Reference: NX418
Job Number: 21-73447
Date Sampled: Not Given
Date Received: 30/04/2021
Date Tested: 29/05/2021
Sampled By: Client

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1862659
Hole No.: WS1
Sample Reference: Not Given
Sample Description: Brownish grey slightly gravelly very sandy CLAY
Sample Preparation: Sample was quartered, oven dried at 108.8 °C and broken down by hand.

Depth Top [m]: 3.00
Depth Base [m]: 4.00
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	99		
10	98		
6.3	96		
5	95		
3.35	93		
2	91		
1.18	89		
0.6	87		
0.425	86		
0.3	82		
0.212	73		
0.15	61		
0.063	51		

Sample Proportions	% dry mass
Very coarse	0
Gravel	9
Sand	39
Fines <0.063mm	51

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	> 2.2
Curvature Coefficient	

Uniformity Coefficient and Coefficient of Curvature calculated in accordance with BS EN ISO 14688-2: 2004 + A1: 2013

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed:

Aleksandra Jurochnik
PL Technical Reviewer
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Particle Size Distribution

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with: BS 1377-2: 1990

Client: NX Consulting
Client Address: Thorpe House, 11 Thorpe Close,
Timperley, Altrincham,
WA15 7WZ
Contact: Mark Newton
Site Address: East Lancs Paper

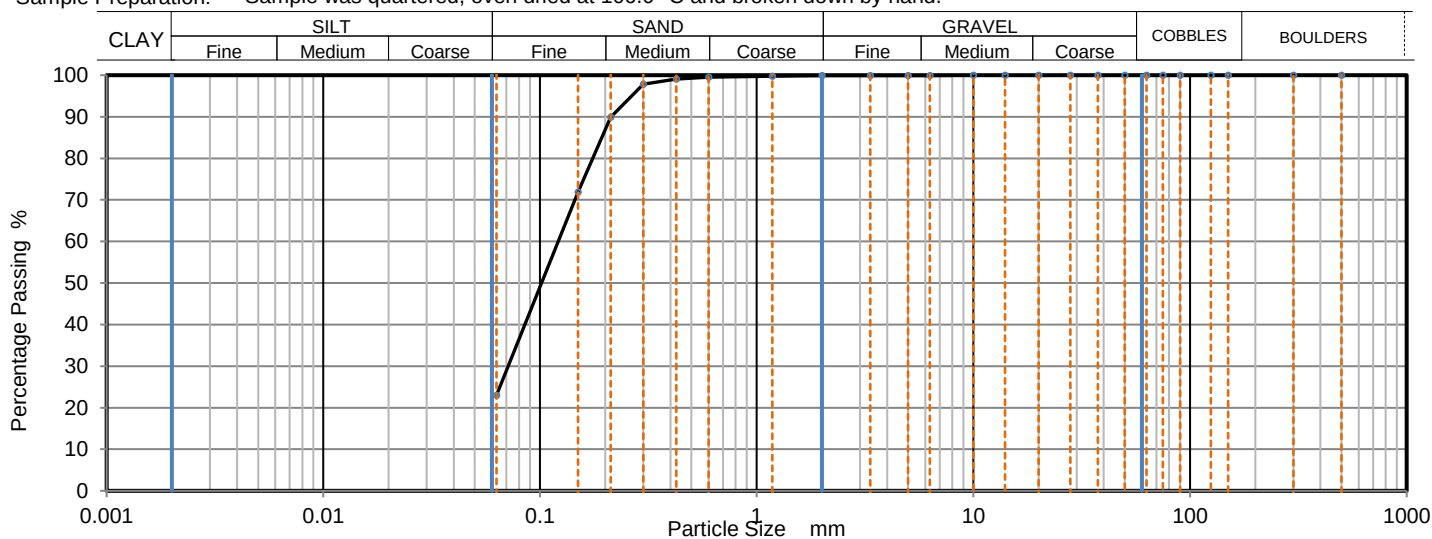
Client Reference: NX418
Job Number: 21-73447
Date Sampled: Not Given
Date Received: 30/04/2021
Date Tested: 29/05/2021
Sampled By: Client

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1862660
Hole No.: WS5
Sample Reference: Not Given
Sample Description: Brown clayey SAND
Sample Preparation: Sample was quartered, oven dried at 106.0 °C and broken down by hand.

Depth Top [m]: 2.00
Depth Base [m]: 3.00
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	99		
0.3	98		
0.212	90		
0.15	72		
0.063	23		

Sample Proportions	% dry mass
Very coarse	0
Gravel	0
Sand	77
Fines <0.063mm	23

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	> 1.9
Curvature Coefficient	

Uniformity Coefficient and Coefficient of Curvature calculated in accordance with BS EN ISO 14688-2: 2004 + A1: 2013

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed:

Aleksandra Jurochnik
PL Technical Reviewer
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Particle Size Distribution

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with: BS 1377-2: 1990

Client: NX Consulting
Client Address: Thorpe House, 11 Thorpe Close,
Timperley, Altrincham,
WA15 7WZ
Contact: Mark Newton
Site Address: East Lancs Paper

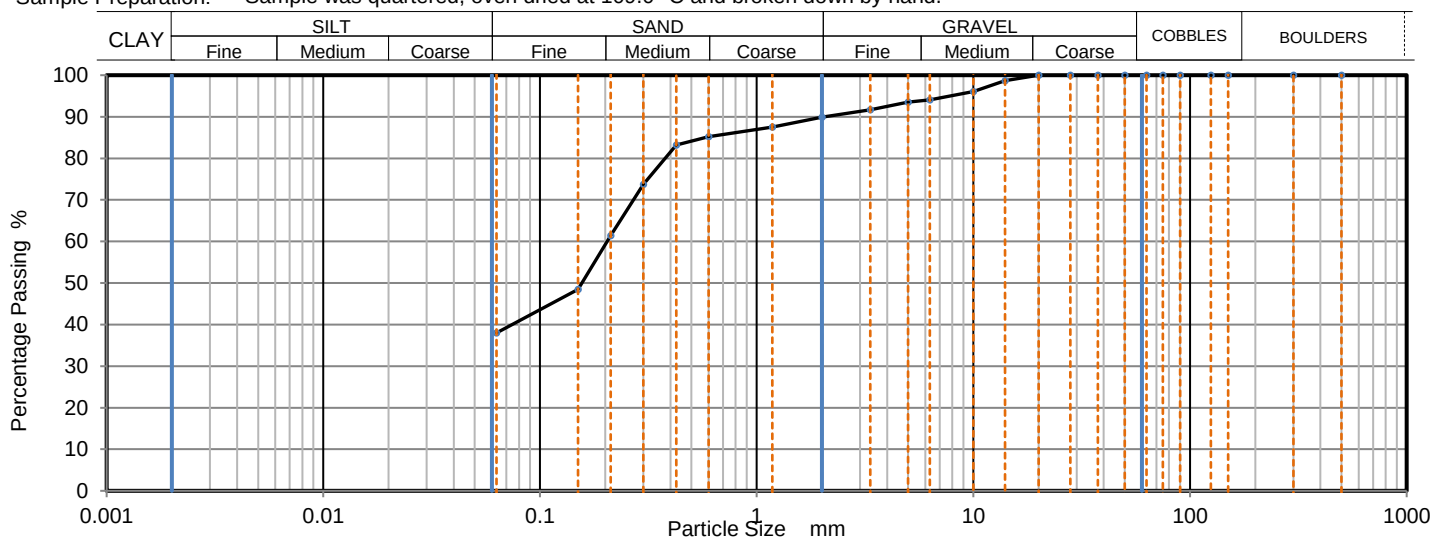
Client Reference: NX418
Job Number: 21-73447
Date Sampled: Not Given
Date Received: 30/04/2021
Date Tested: 31/05/2021
Sampled By: Client

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1862661
Hole No.: WS6
Sample Reference: Not Given
Sample Description: Brownish grey slightly gravelly clayey SAND
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 3.00
Depth Base [m]: 4.00
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	99		
10	96		
6.3	94		
5	94		
3.35	92		
2	90		
1.18	88		
0.6	85		
0.425	83		
0.3	74		
0.212	61		
0.15	49		
0.063	39		

Sample Proportions	% dry mass
Very coarse	0
Gravel	10
Sand	51
Fines <0.063mm	39

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	> 3.2
Curvature Coefficient	

Uniformity Coefficient and Coefficient of Curvature calculated in accordance with BS EN ISO 14688-2: 2004 + A1: 2013

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed:

Aleksandra Jurochnik
PL Technical Reviewer
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Particle Size Distribution

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with: BS 1377-2: 1990

Client: NX Consulting
Client Address: Thorpe House, 11 Thorpe Close,
Timperley, Altrincham,
WA15 7WZ
Contact: Mark Newton
Site Address: East Lancs Paper

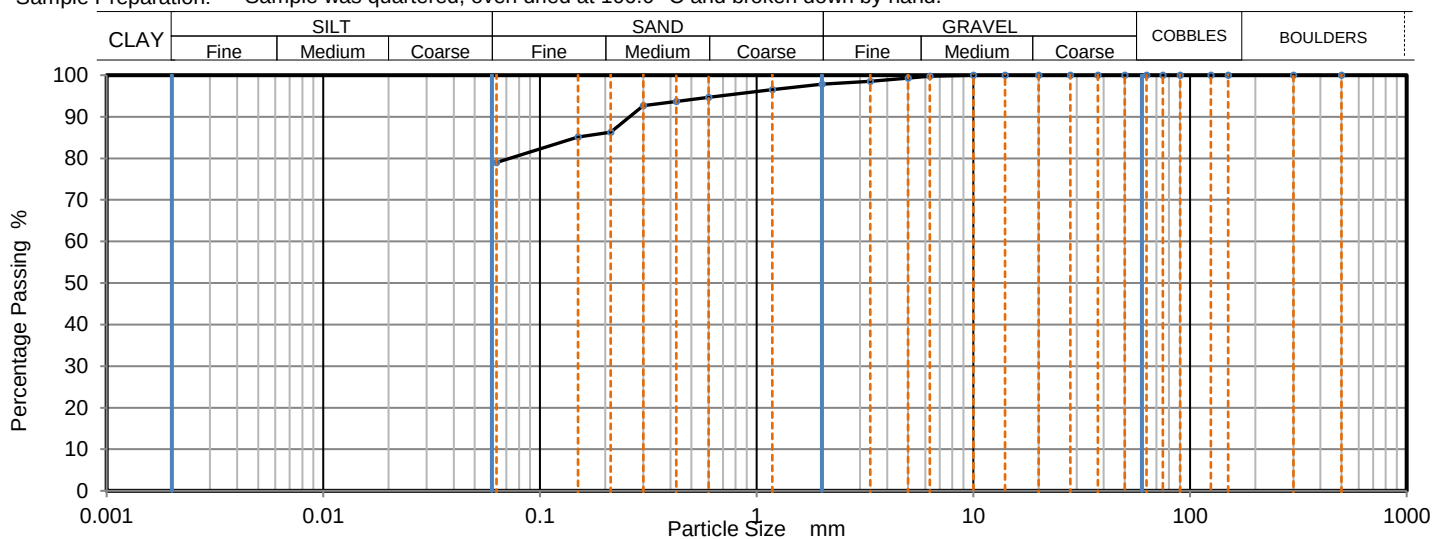
Client Reference: NX418
Job Number: 21-73447
Date Sampled: Not Given
Date Received: 30/04/2021
Date Tested: 29/05/2021
Sampled By: Client

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1862662
Hole No.: WS7
Sample Reference: Not Given
Sample Description: Grey mottled greyish brown slightly gravelly sandy CLAY
Sample Preparation: Sample was quartered, oven dried at 106.0 °C and broken down by hand.

Depth Top [m]: 3.00
Depth Base [m]: 4.00
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	99		
3.35	99		
2	98		
1.18	97		
0.6	95		
0.425	94		
0.3	93		
0.212	86		
0.15	85		
0.063	80		

Sample Proportions	% dry mass
Very coarse	0
Gravel	2
Sand	18
Fines <0.063mm	80

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	N/A
Curvature Coefficient	

Uniformity Coefficient and Coefficient of Curvature calculated in accordance with BS EN ISO 14688-2: 2004 + A1: 2013

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed:

Aleksandra Jurochnik
PL Technical Reviewer
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Particle Size Distribution

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with: BS 1377-2: 1990

Client: NX Consulting
Client Address: Thorpe House, 11 Thorpe Close,
Timperley, Altrincham,
WA15 7WZ
Contact: Mark Newton
Site Address: East Lancs Paper

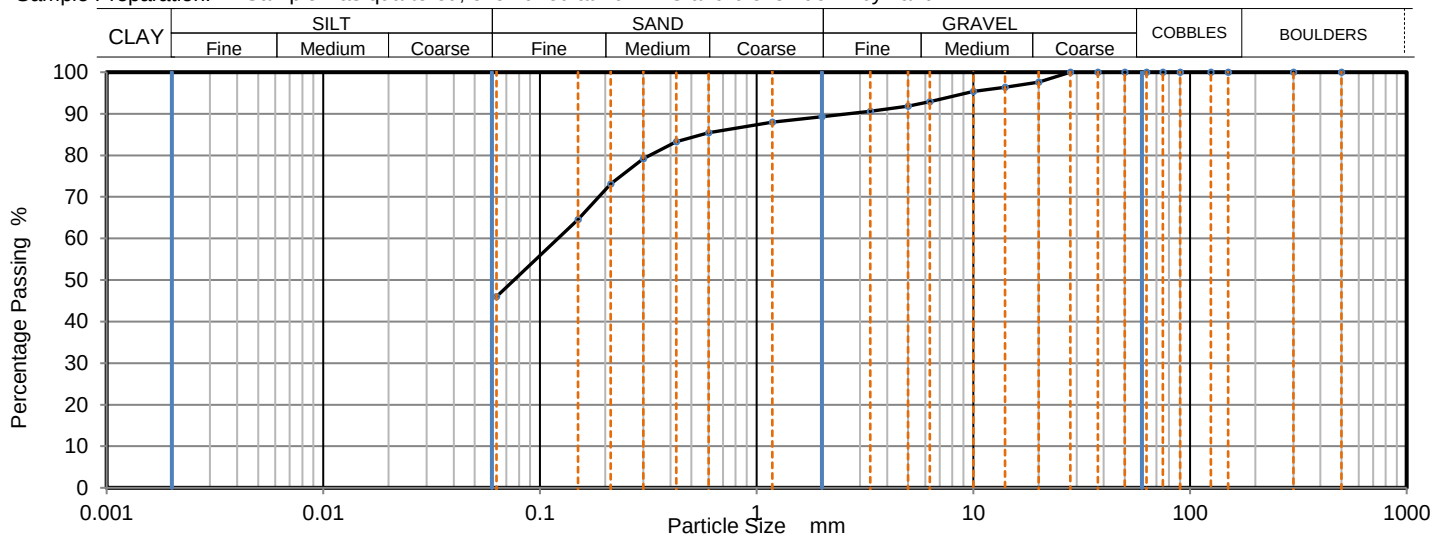
Client Reference: NX418
Job Number: 21-73447
Date Sampled: Not Given
Date Received: 30/04/2021
Date Tested: 29/05/2021
Sampled By: Client

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1862664
Hole No.: TP3
Sample Reference: Not Given
Sample Description: Greyish brown gravelly very sandy CLAY
Sample Preparation: Sample was quartered, oven dried at 107.7 °C and broken down by hand.

Depth Top [m]: 1.20
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	98		
14	96		
10	95		
6.3	93		
5	92		
3.35	91		
2	89		
1.18	88		
0.6	85		
0.425	83		
0.3	79		
0.212	73		
0.15	65		
0.063	46		

Sample Proportions	% dry mass
Very coarse	0
Gravel	11
Sand	43
Fines <0.063mm	46

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	> 1.9
Curvature Coefficient	

Uniformity Coefficient and Coefficient of Curvature calculated in accordance with BS EN ISO 14688-2: 2004 + A1: 2013

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed:

Aleksandra Jurochnik
PL Technical Reviewer
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Particle Size Distribution

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with: BS 1377-2: 1990

Client: NX Consulting
Client Address: Thorpe House, 11 Thorpe Close,
Timperley, Altrincham,
WA15 7WZ
Contact: Mark Newton
Site Address: East Lancs Paper

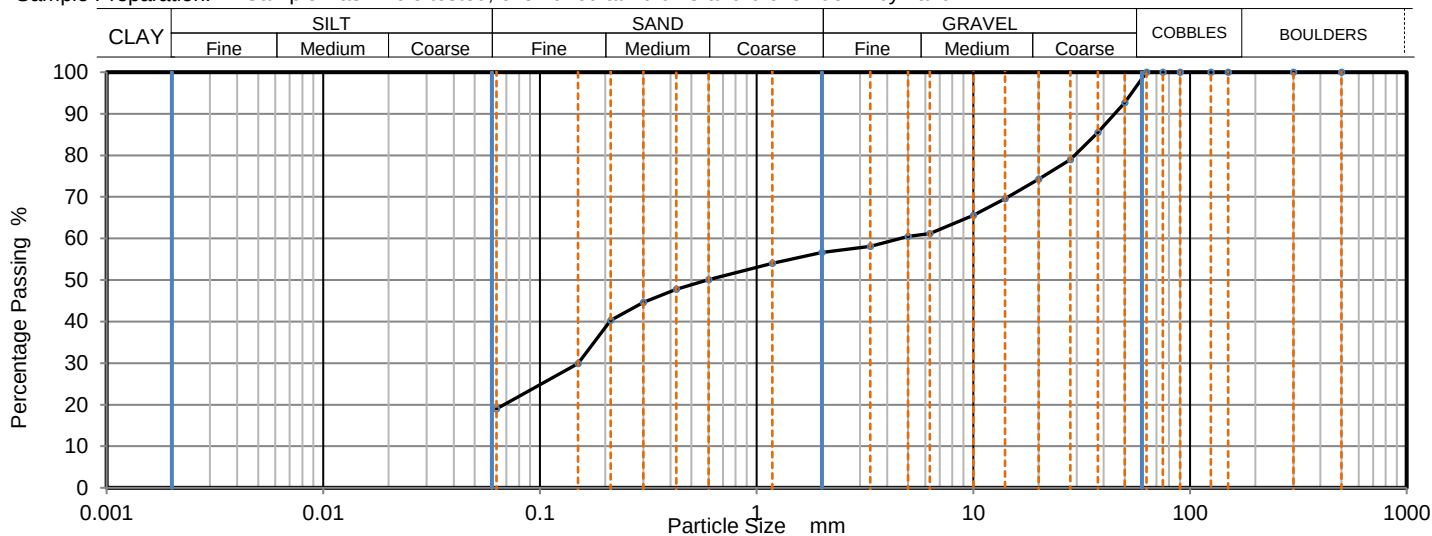
Client Reference: NX418
Job Number: 21-73447
Date Sampled: Not Given
Date Received: 30/04/2021
Date Tested: 31/05/2021
Sampled By: Client

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1862665
Hole No.: TP4
Sample Reference: Not Given
Sample Description: Dark brown clayey very sandy GRAVEL with asphalt
Sample Preparation: Sample was whole tested, oven dried at 40.0 °C and broken down by hand.

Depth Top [m]: 1.50
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	93		
37.5	86		
28	79		
20	74		
14	70		
10	66		
6.3	61		
5	61		
3.35	58		
2	57		
1.18	54		
0.6	50		
0.425	48		
0.3	45		
0.212	40		
0.15	30		
0.063	19		

Sample Proportions	% dry mass
Very coarse	0
Gravel	43
Sand	37
Fines <0.063mm	19

Grading Analysis	
D100	mm 63
D60	mm 4.61
D30	mm 0.15
D10	mm
Uniformity Coefficient	> 73
Curvature Coefficient	

Uniformity Coefficient and Coefficient of Curvature calculated in accordance with BS EN ISO 14688-2: 2004 + A1: 2013

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed:

Aleksandra Jurochnik
PL Technical Reviewer
for and on behalf of i2 Analytical Ltd

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Appendix F – Chemical Test Results

**Mark Newton**

NX Consulting
Thorpe House
11 Thorpe Close
Timperley
Altrincham
WA15 7WZ

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404

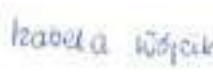
f: 01923 237404

e: reception@i2analytical.com

e: marknewton@nxconsulting.org.uk

Analytical Report Number : 21-73279

Project / Site name:	Land at East Lancashire Paper Mill Island, Radcliffe	Samples received on:	30/04/2021
Your job number:	NX418	Samples instructed on/ Analysis started on:	06/05/2021
Your order number:	NX418	Analysis completed by:	18/05/2021
Report Issue Number:	1	Report issued on:	18/05/2021
Samples Analysed:	2 10:1 WAC samples		


Signed:

Izabela Wójcik
Technical Reviewer (Reporting Team)
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.



i2 Analytical

7 Woodshots Meadow
Croxley Green Business Park
Watford, WD18 8YS

Telephone: 01923 225404
Fax: 01923 237404
email: reception@i2analytical.com

Waste Acceptance Criteria Analytical Results							
Report No:	21-73279						
				Client: NXCONSULTI			
Location	Land at East Lancashire Paper Mill Island, Radcliffe						
Lab Reference (Sample Number)	1861681 / 1861682			Landfill Waste Acceptance Criteria			
Sampling Date	28/04/2021			Limits			
Sample ID	TP2			Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill	
Depth (m)	0.50						
Solid Waste Analysis							
TOC (%)**	2.4			3%	5%	6%	
Loss on Ignition (%) **	6.4			--	--	10%	
BTEX (µg/kg) **	< 10			6000	--	--	
Sum of PCBs (mg/kg) **	< 0.007			1	--	--	
Mineral Oil (mg/kg)	< 10			500	--	--	
Total PAH (WAC-17) (mg/kg)	2.56			100	--	--	
pH (units)**	7.3			--	>6	--	
Acid Neutralisation Capacity (mol / kg)	0.83			--	To be evaluated	To be evaluated	
Eluate Analysis							
	10:1		10:1	Limit values for compliance leaching test			
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l		mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)			
Arsenic *	0.115		0.995	0.5	2	25	
Barium *	0.0197		0.171	20	100	300	
Cadmium *	< 0.0001		< 0.0008	0.04	1	5	
Chromium *	0.0015		0.013	0.5	10	70	
Copper *	0.010		0.087	2	50	100	
Mercury *	< 0.0005		< 0.0050	0.01	0.2	2	
Molybdenum *	0.0047		0.0405	0.5	10	30	
Nickel *	0.0036		0.032	0.4	10	40	
Lead *	0.024		0.21	0.5	10	50	
Antimony *	< 0.0017		< 0.017	0.06	0.7	5	
Selenium *	< 0.0040		< 0.040	0.1	0.5	7	
Zinc *	0.0094		0.082	4	50	200	
Chloride *	1.2		10	800	15000	25000	
Fluoride	0.55		4.7	10	150	500	
Sulphate *	4.2		36	1000	20000	50000	
TDS*	31		270	4000	60000	100000	
Phenol Index (Monohydric Phenols) *	< 0.010		< 0.10	1	-	-	
DOC	7.82		67.7	500	800	1000	
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.80						
Dry Matter (%)	80						
Moisture (%)	20						
Results are expressed on a dry weight basis, after correction for moisture content where applicable. * = UKAS accredited (liquid eluate analysis only)							
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation ** = MCERTS accredited							
Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3. This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.							



i2 Analytical

7 Woodshots Meadow
Croxley Green Business Park
Watford, WD18 8YS

Telephone: 01923 225404
Fax: 01923 237404
email: reception@i2analytical.com

Waste Acceptance Criteria Analytical Results								
Report No:	21-73279							
					Client: NXCONSULTI			
Location	Land at East Lancashire Paper Mill Island, Radcliffe							
Lab Reference (Sample Number)	1861683 / 1861684				Landfill Waste Acceptance Criteria			
Sampling Date	28/04/2021				Limits			
Sample ID	TP3				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill	
Depth (m)	0.50							
Solid Waste Analysis								
TOC (%)**	1.7				3%	5%	6%	
Loss on Ignition (%) **	4.3				--	--	10%	
BTEX (µg/kg) **	< 10				6000	--	--	
Sum of PCBs (mg/kg) **	0.028				1	--	--	
Mineral Oil (mg/kg)	< 10				500	--	--	
Total PAH (WAC-17) (mg/kg)	38.8				100	--	--	
pH (units)**	8.2				--	>6	--	
Acid Neutralisation Capacity (mol / kg)	13				--	To be evaluated	To be evaluated	
Eluate Analysis								
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	10:1			10:1	Limit values for compliance leaching test			
	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)			
Arsenic *	0.0153			0.132	0.5	2	25	
Barium *	0.0108			0.0933	20	100	300	
Cadmium *	< 0.0001			< 0.0008	0.04	1	5	
Chromium *	0.0013			0.011	0.5	10	70	
Copper *	0.0058			0.050	2	50	100	
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2	
Molybdenum *	0.0004			< 0.0040	0.5	10	30	
Nickel *	0.0022			0.019	0.4	10	40	
Lead *	< 0.0010			< 0.010	0.5	10	50	
Antimony *	< 0.0017			< 0.017	0.06	0.7	5	
Selenium *	< 0.0040			< 0.040	0.1	0.5	7	
Zinc *	0.0084			0.072	4	50	200	
Chloride *	1.4			12	800	15000	25000	
Fluoride	0.28			2.4	10	150	500	
Sulphate *	5.7			49	1000	20000	50000	
TDS*	56			490	4000	60000	100000	
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-	
DOC	6.18			53.3	500	800	1000	
Leach Test Information								
Stone Content (%)	< 0.1							
Sample Mass (kg)	0.80							
Dry Matter (%)	87							
Moisture (%)	13							
Results are expressed on a dry weight basis, after correction for moisture content where applicable.								
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation					** = MCERTS accredited			
Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.								
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.								



Analytical Report Number : 21-73279

Project / Site name: Land at East Lancashire Paper Mill Island, Radcliffe

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1861681	TP2	None Supplied	0.5	Brown sandy clay with gravel.
1861683	TP3	None Supplied	0.5	Brown loam and clay with gravel and brick.

Analytical Report Number : 21-73279

Project / Site name: Land at East Lancashire Paper Mill Island, Radcliffe

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
BS EN 12457-2 (10:1) Leachate Prep	10:1 (as recieved, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.	In-house method based on BSEN12457-2.	L043-PL	W	NONE
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance""	L046-PL	W	NONE
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In house method.	L047-PL	D	MCERTS
Mineral Oil (Soil) C10 - C40	Determination of mineral oil fraction extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L076-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270. MCERTS accredited except Coronene.	L064-PL	D	NONE
PCB's By GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	MCERTS
pH at 20oC in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In house method.	L005-PL	W	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
BTEX in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Total BTEX in soil (Poland)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073-PL	W	MCERTS
Metals in leachate by ICP-OES	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260.	L082-PL	W	ISO 17025
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination"	L033B-PL	W	ISO 17025
Sulphate 10:1 WAC	Determination of sulphate in leachate by ICP-OES	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Total dissolved solids 10:1 WAC	Determination of total dissolved solids in water by EC probe using a factor of 0.6.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L004-PL	W	ISO 17025

Analytical Report Number : 21-73279

Project / Site name: Land at East Lancashire Paper Mill Island, Radcliffe

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Monohydric phenols 10:1 WAC	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved inorganic carbon in leachate by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.



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Analytical Report Number : 21-73274

Project / Site name:	Land at East Lancashire Paper Mill Island, Radcliffe	Samples received on:	30/04/2021
Your job number:	NX418	Samples instructed on/ Analysis started on:	06/05/2021
Your order number:	NX418	Analysis completed by:	13/05/2021
Report Issue Number:	1	Report issued on:	13/05/2021
Samples Analysed:	22 soil samples		


Signed:

Joanna Wawrzeczko
Technical Reviewer (Reporting Team)
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 21-73274

Project / Site name: Land at East Lancashire Paper Mill Island, Radcliffe

Your Order No: NX418

Lab Sample Number				1861650	1861651	1861652	1861653	1861654
Sample Reference				WS1	WS1	WS1	WS2	WS2
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	1.50	2.50	0.30	0.80
Date Sampled				26/04/2021	26/04/2021	26/04/2021	26/04/2021	26/04/2021
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	9.4	7.6	9.1	8.5	8.2
Total mass of sample received	kg	0.001	NONE	1.2	1.2	1.0	0.70	1.0

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	-	-	-	Not-detected
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.4	8.2	8.5	8.4	-
Total Cyanide	mg/kg	1	MCERTS	< 1.0	-	-	-	-
Total Sulphate as SO ₄	mg/kg	50	MCERTS	630	-	-	-	-
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	0.13	0.11	0.018	-
Sulphide	mg/kg	1	MCERTS	10	-	-	-	-
Total Organic Carbon (TOC)	%	0.1	MCERTS	0.8	-	-	-	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	-	-	-	-
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	0.69	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	0.30	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	5.1	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	1.1	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	11	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	11	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	6.3	-	-	-	-
Chrysene	mg/kg	0.05	MCERTS	5.6	-	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	8.9	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	2.7	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	6.7	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	4.1	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	1.1	-	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	5.2	-	-	-	-

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	70.4	-	-	-	-
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.3	-	-	-	-
Boron (water soluble)	mg/kg	0.2	MCERTS	0.4	-	-	-	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	13	-	-	-	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	19	-	-	-	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	200	-	-	-	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.4	-	-	-	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	12	-	-	-	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-	-	-	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	120	-	-	-	-

Analytical Report Number: 21-73274

Project / Site name: Land at East Lancashire Paper Mill Island, Radcliffe

Your Order No: NX418

Lab Sample Number				1861650	1861651	1861652	1861653	1861654
Sample Reference				WS1	WS1	WS1	WS2	WS2
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	1.50	2.50	0.30	0.80
Date Sampled				26/04/2021	26/04/2021	26/04/2021	26/04/2021	26/04/2021
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
Toluene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
p & m-xylene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
o-xylene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	-	-	-	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	-	-	-	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-	-	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	-	-	-	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	-	-	-	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-	< 10

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	-	-	-	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	-	-	-	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-	-	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	-	-	-	10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-	-	-	16
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-	26

PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	MCERTS	< 0.001	-	-	-	< 0.001
PCB Congener 52	mg/kg	0.001	MCERTS	< 0.001	-	-	-	< 0.001
PCB Congener 101	mg/kg	0.001	MCERTS	< 0.001	-	-	-	< 0.001
PCB Congener 118	mg/kg	0.001	MCERTS	< 0.001	-	-	-	< 0.001
PCB Congener 138	mg/kg	0.001	MCERTS	< 0.001	-	-	-	< 0.001
PCB Congener 153	mg/kg	0.001	MCERTS	< 0.001	-	-	-	< 0.001
PCB Congener 180	mg/kg	0.001	MCERTS	< 0.001	-	-	-	< 0.001

Total PCBs by GC-MS

Total PCBs	mg/kg	0.007	MCERTS	< 0.007	-	-	-	< 0.007
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U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 21-73274

Project / Site name: Land at East Lancashire Paper Mill Island, Radcliffe

Your Order No: NX418

Lab Sample Number				1861655	1861656	1861657	1861658	1861659
Sample Reference				WS3	WS3	WS3	WS4	WS4
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	1.00	1.80	0.05	1.00
Date Sampled				26/04/2021	26/04/2021	26/04/2021	26/04/2021	26/04/2021
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	15	12	9.6	8.9	12
Total mass of sample received	kg	0.001	NONE	0.70	0.70	1.0	1.0	0.70

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	-	-	Not-detected	-
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	6.8	7.1	7.2	7.2	7.8
Total Cyanide	mg/kg	1	MCERTS	< 1.0	-	-	5.4	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	640	-	-	1100	1300
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	0.024	0.036	-	-
Sulphide	mg/kg	1	MCERTS	< 1.0	-	-	2.4	3.9
Total Organic Carbon (TOC)	%	0.1	MCERTS	4.3	-	-	2.0	1.6

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	-	-	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.73	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.22	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	-	1.5	0.31
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	-	1.1	0.22
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	-	-	11	2.9
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	2.5	0.67
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	16	3.5
Pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	15	3.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	8.0	1.9
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-	-	6.4	1.5
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	7.4	1.7
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	4.0	0.91
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	6.8	1.7
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	3.8	0.82
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	1.1	0.27
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	-	4.7	1.1

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	-	-	89.4	20.7
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	30	-	-	58	74
Boron (water soluble)	mg/kg	0.2	MCERTS	0.7	-	-	0.7	0.9
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	1.2	-	-	< 0.2	< 0.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	18	-	-	81	20
Copper (aqua regia extractable)	mg/kg	1	MCERTS	220	-	-	110	120
Lead (aqua regia extractable)	mg/kg	1	MCERTS	260	-	-	250	2500
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	1.6
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	53	-	-	15	32
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-	-	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	320	-	-	220	210

Analytical Report Number: 21-73274

Project / Site name: Land at East Lancashire Paper Mill Island, Radcliffe

Your Order No: NX418

Lab Sample Number				1861655	1861656	1861657	1861658	1861659
Sample Reference				WS3	WS3	WS3	WS4	WS4
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	1.00	1.80	0.05	1.00
Date Sampled				26/04/2021	26/04/2021	26/04/2021	26/04/2021	26/04/2021
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	-	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
p & m-xylene	µg/kg	1	MCERTS	-	-	-	-	-
o-xylene	µg/kg	1	MCERTS	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	-

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-	-

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-	-

PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 52	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 101	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 118	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 138	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 153	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 180	mg/kg	0.001	MCERTS	-	-	-	-	-

Total PCBs by GC-MS

Total PCBs	mg/kg	0.007	MCERTS	-	-	-	-	-
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U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 21-73274

Project / Site name: Land at East Lancashire Paper Mill Island, Radcliffe

Your Order No: NX418

Lab Sample Number				1861660	1861661	1861662	1861663	1861664
Sample Reference				WS4	WS4	WS5	WS5	WS5
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.50	2.50	0.05	1.10	1.60
Date Sampled				26/04/2021	26/04/2021	27/04/2021	27/04/2021	27/04/2021
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	22	9.8	9.7	13	9.3
Total mass of sample received	kg	0.001	NONE	0.70	0.70	0.70	0.70	1.0

Asbestos in Soil	Type	N/A	ISO 17025	-	-	Not-detected	Not-detected	-
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.3	7.0	6.5	6.9	7.2
Total Cyanide	mg/kg	1	MCERTS	-	-	6.0	< 1.0	-
Total Sulphate as SO ₄	mg/kg	50	MCERTS	-	-	1100	500	-
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.026	0.052	-	-	0.026
Sulphide	mg/kg	1	MCERTS	-	-	< 1.0	< 1.0	-
Total Organic Carbon (TOC)	%	0.1	MCERTS	-	-	3.3	1.2	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	-	-	< 1.0	< 1.0	-
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-	-	1.2	< 0.05	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	0.24	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	2.9	0.41	-
Fluorene	mg/kg	0.05	MCERTS	-	-	2.1	0.23	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	21	2.9	-
Anthracene	mg/kg	0.05	MCERTS	-	-	4.9	0.52	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	29	4.3	-
Pyrene	mg/kg	0.05	MCERTS	-	-	26	4.0	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	14	2.2	-
Chrysene	mg/kg	0.05	MCERTS	-	-	13	1.9	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	14	2.7	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	7.4	0.63	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	13	2.0	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	7.5	1.2	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	2.1	0.32	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	9.1	1.4	-

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	-	166	24.6	-
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	-	710	61	-
Boron (water soluble)	mg/kg	0.2	MCERTS	-	-	0.8	0.6	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	-	< 0.2	< 0.2	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	140	26	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	-	260	45	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	-	580	85	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	-	1.2	< 0.3	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	-	39	24	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	< 1.0	< 1.0	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	-	760	170	-

Analytical Report Number: 21-73274

Project / Site name: Land at East Lancashire Paper Mill Island, Radcliffe

Your Order No: NX418

Lab Sample Number				1861660	1861661	1861662	1861663	1861664
Sample Reference				WS4	WS4	WS5	WS5	WS5
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.50	2.50	0.05	1.10	1.60
Date Sampled				26/04/2021	26/04/2021	27/04/2021	27/04/2021	27/04/2021
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Toluene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
p & m-xylene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
o-xylene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	< 1.0	-

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	-	-	< 0.001	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	-	-	< 0.001	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-	< 0.001	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	< 1.0	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	< 2.0	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	-	-	< 8.0	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	-	-	< 8.0	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	< 10	-

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	-	-	< 0.001	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	-	-	< 0.001	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-	< 0.001	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	< 1.0	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	13	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	-	-	24	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-	-	40	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	76	-

PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 52	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 101	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 118	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 138	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 153	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 180	mg/kg	0.001	MCERTS	-	-	-	-	-

Total PCBs by GC-MS

Total PCBs	mg/kg	0.007	MCERTS	-	-	-	-	-
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U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 21-73274

Project / Site name: Land at East Lancashire Paper Mill Island, Radcliffe

Your Order No: NX418

Lab Sample Number				1861665	1861666	1861667	1861668	1861669
Sample Reference				WS6	WS6	WS7	WS7	WS7
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	1.20	0.50	1.00	1.50
Date Sampled				27/04/2021	27/04/2021	27/04/2021	27/04/2021	27/04/2021
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		
Stone Content				%	0.1	NONE	< 0.1	< 0.1
Moisture Content				%	0.01	NONE	12	24
Total mass of sample received				kg	0.001	NONE	0.70	1.0

Asbestos in Soil	Type	N/A	ISO 17025	-	-	Not-detected	-	-
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.4	7.2	9.2	7.4	6.7
Total Cyanide	mg/kg	1	MCERTS	2.8	< 1.0	< 1.0	-	-
Total Sulphate as SO ₄	mg/kg	50	MCERTS	760	260	2000	-	-
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	-	-	0.11	0.15
Sulphide	mg/kg	1	MCERTS	1.8	7.0	14	-	-
Total Organic Carbon (TOC)	%	0.1	MCERTS	3.5	0.3	0.9	-	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	-	-
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	4.6	< 0.05	< 0.05	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	-
Acenaphthene	mg/kg	0.05	MCERTS	8.6	< 0.05	0.32	-	-
Fluorene	mg/kg	0.05	MCERTS	5.6	< 0.05	0.24	-	-
Phenanthrene	mg/kg	0.05	MCERTS	48	< 0.05	2.1	-	-
Anthracene	mg/kg	0.05	MCERTS	10	< 0.05	0.51	-	-
Fluoranthene	mg/kg	0.05	MCERTS	52	< 0.05	2.9	-	-
Pyrene	mg/kg	0.05	MCERTS	47	< 0.05	2.9	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	25	< 0.05	1.7	-	-
Chrysene	mg/kg	0.05	MCERTS	22	< 0.05	1.5	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	23	< 0.05	1.8	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	14	< 0.05	0.84	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	23	< 0.05	1.7	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	13	< 0.05	0.90	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	3.8	< 0.05	< 0.05	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	15	< 0.05	1.1	-	-

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	314	< 0.80	18.5	-	-
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	190	6.5	21	-	-
Boron (water soluble)	mg/kg	0.2	MCERTS	1.4	0.4	1.2	-	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	-	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	41	20	18	-	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	170	8.0	42	-	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	560	25	190	-	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	0.8	-	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	36	18	16	-	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	-	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	360	51	110	-	-

Analytical Report Number: 21-73274

Project / Site name: Land at East Lancashire Paper Mill Island, Radcliffe

Your Order No: NX418

Lab Sample Number				1861665	1861666	1861667	1861668	1861669
Sample Reference				WS6	WS6	WS7	WS7	WS7
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	1.20	0.50	1.00	1.50
Date Sampled				27/04/2021	27/04/2021	27/04/2021	27/04/2021	27/04/2021
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	-	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
p & m-xylene	µg/kg	1	MCERTS	-	-	-	-	-
o-xylene	µg/kg	1	MCERTS	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	-

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-	-

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-	-

PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 52	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 101	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 118	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 138	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 153	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 180	mg/kg	0.001	MCERTS	-	-	-	-	-

Total PCBs by GC-MS

Total PCBs	mg/kg	0.007	MCERTS	-	-	-	-	-
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U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 21-73274

Project / Site name: Land at East Lancashire Paper Mill Island, Radcliffe

Your Order No: NX418

Lab Sample Number				1861670	1861671
Sample Reference				TP1	TP4
Sample Number				None Supplied	None Supplied
Depth (m)				0.50	0.50
Date Sampled				28/04/2021	28/04/2021
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	15	16
Total mass of sample received	kg	0.001	NONE	1.0	0.70

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.3	8.5
Total Cyanide	mg/kg	1	MCERTS	2.3	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	1700	910
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	-
Sulphide	mg/kg	1	MCERTS	17	36
Total Organic Carbon (TOC)	%	0.1	MCERTS	0.8	0.9

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.73	0.34
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	1.3	0.49
Pyrene	mg/kg	0.05	MCERTS	1.2	0.41
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.72	0.33
Chrysene	mg/kg	0.05	MCERTS	0.63	0.26
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.78	0.38
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.40	0.18
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.68	0.26
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.40	0.21
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.52	0.28

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	7.28	3.14
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	14	11
Boron (water soluble)	mg/kg	0.2	MCERTS	0.5	0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.5
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	20	12
Copper (aqua regia extractable)	mg/kg	1	MCERTS	43	14
Lead (aqua regia extractable)	mg/kg	1	MCERTS	6000	270
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	1.2	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	12	8.7
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	110	140

Analytical Report Number: 21-73274

Project / Site name: Land at East Lancashire Paper Mill Island, Radcliffe

Your Order No: NX418

Lab Sample Number				1861670	1861671
Sample Reference				TP1	TP4
Sample Number				None Supplied	None Supplied
Depth (m)				0.50	0.50
Date Sampled				28/04/2021	28/04/2021
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Monoaromatics & Oxygenates					
Benzene	µg/kg	1	MCERTS	-	-
Toluene	µg/kg	1	MCERTS	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-
p & m-xylene	µg/kg	1	MCERTS	-	-
o-xylene	µg/kg	1	MCERTS	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-

PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	MCERTS	-	-
PCB Congener 52	mg/kg	0.001	MCERTS	-	-
PCB Congener 101	mg/kg	0.001	MCERTS	-	-
PCB Congener 118	mg/kg	0.001	MCERTS	-	-
PCB Congener 138	mg/kg	0.001	MCERTS	-	-
PCB Congener 153	mg/kg	0.001	MCERTS	-	-
PCB Congener 180	mg/kg	0.001	MCERTS	-	-

Total PCBs by GC-MS

Total PCBs	mg/kg	0.007	MCERTS	-	-
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U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 21-73274

Project / Site name: Land at East Lancashire Paper Mill Island, Radcliffe

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1861650	WS1	None Supplied	0.5	Brown loam with gravel and vegetation.
1861651	WS1	None Supplied	1.5	Brown loam with gravel and vegetation.
1861652	WS1	None Supplied	2.5	Brown clay and loam with gravel.
1861653	WS2	None Supplied	0.3	Brown loam with coal.
1861654	WS2	None Supplied	0.8	Brown loam with gravel and vegetation.
1861655	WS3	None Supplied	0.5	Brown loam with gravel and vegetation.
1861656	WS3	None Supplied	1	Brown clay and loam with gravel.
1861657	WS3	None Supplied	1.8	Brown clay and loam with gravel and vegetation.
1861658	WS4	None Supplied	0.05	Brown loam with gravel.
1861659	WS4	None Supplied	1	Brown loam with gravel.
1861660	WS4	None Supplied	1.5	Brown loam and clay with gravel and vegetation.
1861661	WS4	None Supplied	2.5	Brown clay and loam with gravel and vegetation.
1861662	WS5	None Supplied	0.05	Brown loam with gravel and vegetation.
1861663	WS5	None Supplied	1.1	Brown loam and clay with gravel.
1861664	WS5	None Supplied	1.6	Brown clay and loam with gravel and vegetation.
1861665	WS6	None Supplied	0.4	Brown loam with gravel and vegetation.
1861666	WS6	None Supplied	1.2	Brown loam and clay with gravel.
1861667	WS7	None Supplied	0.5	Brown loam with gravel.
1861668	WS7	None Supplied	1	Brown loam and clay with gravel.
1861669	WS7	None Supplied	1.5	Brown clay and loam.
1861670	TP1	None Supplied	0.5	Brown loam with gravel.
1861671	TP4	None Supplied	0.5	Brown loam and clay with gravel.

Analytical Report Number : 21-73274

Project / Site name: Land at East Lancashire Paper Mill Island, Radcliffe

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
PCB's By GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS



Analytical Report Number : 21-73274

Project / Site name: Land at East Lancashire Paper Mill Island, Radcliffe

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Sample Deviation Report



Analytical Report Number : 21-73274

Project / Site name: Land at East Lancashire Paper Mill Island, Radcliffe

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
TP1	None Supplied	S	1861670	c	Sulphide in soil	L010-PL	c
TP1	None Supplied	S	1861670	c	Total cyanide in soil	L080-PL	c
TP4	None Supplied	S	1861671	c	Sulphide in soil	L010-PL	c
TP4	None Supplied	S	1861671	c	Total cyanide in soil	L080-PL	c
WS1	None Supplied	S	1861650	c	Sulphide in soil	L010-PL	c
WS1	None Supplied	S	1861650	c	Total cyanide in soil	L080-PL	c
WS3	None Supplied	S	1861655	c	Sulphide in soil	L010-PL	c
WS3	None Supplied	S	1861655	c	Total cyanide in soil	L080-PL	c
WS4	None Supplied	S	1861658	c	Sulphide in soil	L010-PL	c
WS4	None Supplied	S	1861658	c	Total cyanide in soil	L080-PL	c
WS4	None Supplied	S	1861659	c	Sulphide in soil	L010-PL	c
WS4	None Supplied	S	1861659	c	Total cyanide in soil	L080-PL	c
WS5	None Supplied	S	1861662	c	Sulphide in soil	L010-PL	c
WS5	None Supplied	S	1861662	c	Total cyanide in soil	L080-PL	c
WS5	None Supplied	S	1861663	c	Sulphide in soil	L010-PL	c
WS5	None Supplied	S	1861663	c	Total cyanide in soil	L080-PL	c
WS6	None Supplied	S	1861665	c	Sulphide in soil	L010-PL	c
WS6	None Supplied	S	1861665	c	Total cyanide in soil	L080-PL	c
WS6	None Supplied	S	1861666	c	Sulphide in soil	L010-PL	c
WS6	None Supplied	S	1861666	c	Total cyanide in soil	L080-PL	c
WS7	None Supplied	S	1861667	c	Sulphide in soil	L010-PL	c
WS7	None Supplied	S	1861667	c	Total cyanide in soil	L080-PL	c

Appendix G – Gas monitoring Record Sheet



Next Generation Engineering Consultancy Services

Job No:	NX418
Date:	28.07.2021
Engineer:	MN/RL

Site:	Rectory Ln Radcliffe
Client:	Great Places HG
Equipment:	GA2000

WS1	Flow Rate (l/h)	Pressure Differential	Gas Concentration										Water		Start		Finish	
			Peak					Steady										
Date			CH ₄ %	CO ₂ %	O ₂ %	LEL %	H2S/ CO (ppm)	CH ₄ %	CO ₂ %	O ₂ %	LEL %	H2S/ CO (ppm)	Depth to Water	Depth to Base	Barometric Pressure		Barometric Pressure	
13/05/2021	0	0	0	0.7	19.9	0	0	0	0.7	19.9	0	0	2.7	4.37		998	998	
21/05/2021	0.1	0.01	0	0.6	20	0	0	0	0.6	20	0	0	2.75	4.37		990	990	
28/05/2021	0	0	0	1.6	18.5	0	0	0	1.6	18.5	0	0	2.2	4.38		1019	1019	
04/06/2021	0	0	0	2.5	17.9	0	0	0	2.5	17.9	0	0	2.21	4.34		1016	1016	
09/06/2021	0	0.02	0	0.2	20.3	0	0	0	0.2	20.3	0	0	2.15	4.36		1014	1014	
16/06/2021	0	0.01	0.1	0.6	20.1	2	0	0.1	0.6	20.1	2	0	2.1	4.32		1002	1002	
02/07/2021	0	0	0.1	2.2	19.7	1	0	0.1	1.9	19	2	0	2.48	4.37		1010	1010	
06/07/2021	0	0.1	0	0.2	20.7	0	0	0	0.2	20.7	0	0	2.68	4.37		993	993	
27/07/2021	0	0.02	0	0.2	20.6	0	0	0	0.2	4.2	0	0	2.47	4.38		1000	999	

WS3	Flow Rate (l/h)	Pressure Differential	Gas Concentration										Water		Start		Finish	
			Peak					Steady										
Date			CH ₄ %	CO ₂ %	O ₂ %	LEL %	H2S/ CO (ppm)	CH ₄ %	CO ₂ %	O ₂ %	LEL %	H2S/ CO (ppm)	Depth to Water	Depth to Base		Barometric Pressure		Barometric Pressure
13/05/2021	0.1	0	0	4.1	15.5	0	0	0	4.1	15.5	0	0	2.03	4		997		997
21/05/2021	0	0	0	3.8	16.1	0	0	0	3.8	16.1	0	0	2.08	4		990		990
28/05/2021	0	0	0	0.3	20	0	0	0	0.3	20	0	0	1.88	4.02		1019		1019
04/06/2021	0	0	0	0.4	20.5	0	0	0	0.4	20.5	0	0	2.16	3.98		1016		1016
09/06/2021	0	0.01	0	0.3	20.4	0	0	0	0.3	20.4	0	0	2.1	4		1014		1014
16/06/2021	0	-0.04	0	0.2	20.6	2	0	0.1	0.2	20.6	2	0	2.05	3.97		1002		1002
02/07/2021	0	0.01	0	0.2	20.8	0	0	0.1	0.2	20.8	0	0	2.67	4		1010		1010
06/07/2021	0	0.01	0	0.2	20.6	0	0	0	0.2	20.6	0	0	2.6	3.99		993		993
27/07/2021	0	0.02	0	0.1	20.7	0	0	0	0.1	20.7	0	0	2.61	3.99		1000		999

WS4	Flow Rate (l/h)	Pressure Differential	Gas Concentration										Water		Start		Finish	
			Peak					Steady										
Date			CH ₄ %	CO ₂ %	O ₂ %	LEL %	H2S/ CO (ppm)	CH ₄ %	CO ₂ %	O ₂ %	LEL %	H2S/ CO (ppm)	Depth to Water	Depth to Base		Barometric Pressure		Barometric Pressure
13/05/2021	0.01	0	0	2.2	17.7	0	0	0	2.2	17.7	0	0	2.06	4		998		998
21/05/2021	0	0	0	2.1	18	0	0	0	2.1	18	0	0	2.1	4.01		990		990
28/05/2021	0	0.1	0	2.7	16.8	0	0	0	2.7	16.8	0	0	2.02	4		1019		1019
04/06/2021	0	0	0	2.6	18	0	0	0	2.6	18	0	0	2.3	3.94		1016		1016
09/06/2021	0	0.01	0	2.5	18.4	0	0	0	2.5	18.4	0	0	2.15	3.97		1014		1014
16/06/2021	0	0.01	0.1	2.7	18.7	2	0	0.1	2.7	18.7	2	0	2.18	3.99		1002		1002
02/07/2021	0	0.01	0.1	2.4	20.3	2	0	0.1	2.4	20.3	2	0	2.34	3.92		1010		1010
06/07/2021	0	0.01	0	0.1	20.6	0	0	0	0.1	20.6	0	0	2.2	3.92		993		993
27/07/2021	0	0.02	0	0.4	4.2	0	0	0	0.4	4.2	0	0	1.51	2.94		1000		999

WS7	Flow Rate (l/h)	Pressure Differential	Gas Concentration										Water		Start		Finish	
			Peak					Steady										
			Date	CH ₄ %	CO ₂ %	O ₂ %	LEL %	H2S/ CO (ppm)	CH ₄ %	CO ₂ %	O ₂ %	LEL %	H2S/ CO (ppm)	Depth to Water	Depth to Base	Barometric Pressure	Barometric Pressure	
13/05/2021	0.2	0	0	2.4	10.1	0	0	0	2.4	10.1	0	0	1.64	2.75	999	999		
21/05/2021	0	0	0	2.1	11.9	0	0	0	2.1	11.9	0	0	1.69	2.74	990	990		
28/05/2021	0	0	0	3.8	9.4	0	0	0	3.8	9.4	0	0	1.55	2.75	1019	1019		
04/06/2021	0	0	0	3.5	9.9	0	0	0	3.5	9.9	0	0	1.59	2.75	1016	1016		
09/06/2021	0	0	0	3.2	10.6	0	0	0	3.2	10.6	0	0	1.52	2.73	1014	1014		
16/06/2021	0	0.01	0.1	6.1	6.9	2	0	0.1	6.1	6.9	2	0	1.58	2.71	1002	1002		
02/07/2021	0	0	0	7.4	5.1	0	0	0	7.4	5.1	0	0	1.44	2.63	1010	1010		
06/07/2021	0	0.01	0	9.0	3.6	0	0	0	9.0	3.6	0	0	1.5	2.63	993	993		
27/07/2021	0	0.02	0	8.2	4.2	0	0	0	8.2	4.2	0	0	1.51	2.65	1000	999		

CH ₄	Above the <u>1.0%</u> v/v guideline value in Waste Management Paper no 27 (WMP27).		CO ₂	Above the <u>1.5%</u> v/v guideline value given in WMP27.	
Date	Weather	Pressure Trend		Ground Conditions	
13/05/2021	Raining	Low and steady		Wet	
21/05/2021	Raining	Low and rising		wet	
28/05/2021	Overcast	High and Steady		Dry	
04/06/2021	Sunny	High and Steady		Dry	
09/06/2021	Sunny	High and Steady		Dry	
02/07/2021	Sunny	High and falling		Dry	
06/07/2021	Cloudy with rain	Low and falling		Wet	
27/07/2021	Heavy rain	Low and falling		Wet	

Appendix H – Conceptual Models & Risk Assessments

PRINCIPLES OF RISK ASSESSMENT

MONITORING AND ASSESSMENT CRITERIA

C 1.0 GENERAL

- C 1.1 The purpose of this appendix is to describe in detail the concepts underlying the risk-based approach to assessing potentially contaminated land, introduce the roles of key legislation and describe the qualitative methodology adopted for evaluating and characterising risk.
- C 1.2 Current best practice in the UK promotes a risk-based approach to dealing with both soil and groundwater contamination. The principal aim of the approach is to ensure protection of human health and the environment in a thorough, transparent and cost-effective manner.
- C 1.3 Fundamental to the risk-based approach is the concept that for 'Contaminated Land' to be designated, as a consequence of historic activities, a pathway for contamination must be shown to exist between a source of contamination and a receptor. The combined presence of a source, pathway and a receptor is described as a 'pollutant linkage'.
- C 1.4 The concepts associated with a contaminant source, pathway and receptor are defined in DETR Circular 02/2000 'Contaminated Land Environmental Protection Act 1990: Part II A'. A **source** of contamination may be considered as a 'substance which is in, on or under land that has the potential to cause harm or to cause pollution of controlled waters'. A **receptor** can be considered as either 'a living organism, a group of living organisms, an ecological system or a piece of property which is being, or could be harmed, by a contaminant or controlled waters which are being, or could be, polluted by a contaminant'. A **pathway** may be considered as one or more routes by, or through, which a receptor is being, or could be, exposed to or affected by a contaminant. Typical pathways may include migration in groundwater, surface water run-off or infiltration, inhalation, dermal contact and ingestion.
- C 1.5 The risks posed by an identified pollutant linkage can often be mitigated by removing the source of contamination, treating the source of contamination, blocking the relevant pathway(s) or by protecting the receptor.

C 2.0 PRINCIPLES OF RISK EVALUATION

- C 2.1 The risk evaluation methodology presented below is qualitative in nature, and is therefore a subjective method. It is based upon guidance presented in CIRIA publication referenced C552, 'Contaminated land risk assessment ~ A guide to good practice', 2001 and involves the classification of the following.
- C 2.2 The magnitude of the potential **consequence** (severity) of risk occurring (Table C 1).
- C 2.3 The magnitude of the **probability** (likelihood) of the risk occurring (Table C 2).
- C 2.4 These are then considered in conjunction to give a risk matrix (Table C 3)

Classification	Definition	Examples
Severe	Short-term (acute) risk to human health likely to result in 'significant harm' as defined by the Environmental Protection Act 1990, Part II A. Short-term risk of pollution (note: Water Resources Act contains no scope for considering significance of pollution) of sensitive water resource. Catastrophic damage to buildings/property. A short-term risk to a particular ecosystem, or organism forming part of such ecosystem (note the definitions of ecological systems within the Draft Circular on Contaminated Land, DETR, 2000).	High concentrations of cyanide on the surface of an informal recreation area. Major spillage of contaminants from site into controlled water. Explosion, causing building collapse (can also equate to a short-term human health risk if buildings are occupied).
Medium	Chronic damage to Human Health ('significant harm' as defined in DETR, 2000). Pollution of sensitive water resources (note: Water Resources Act contains no scope for considering significance of pollution). A significant change in a particular ecosystem, or organism forming part of such ecosystem. (Note: the definitions of ecological systems within Draft Circular on Contaminated Land, DETR, 2000).	Concentrations of a contaminant from site exceed the generic, or site-specific assessment criteria. Leaching of contaminants from a site to a major or minor aquifer. Death of a species within a designated nature reserve.
Mild	Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services ('significant harm' as defined in the <i>Draft Circular on Contaminated Land</i> , DETR, 2000). Damage to sensitive buildings/structures/ services or the environment.	Pollution of non-classified groundwater. Damage to building rendering it unsafe to occupy (e.g. foundation damage resulting in instability).
Minor	Harm although not necessarily significant harm, which may result in a financial loss, or expenditure to resolve. Non-permanent health effects to human health (easily prevented by means such as personal protective clothing etc). Easily repairable effects of damage to buildings, structures and services.	The presence of contaminants at such concentrations that protective equipment is required during site works. The loss of plants in a landscaping scheme. Discolouration of concrete.

Table C 1: Classification of Consequence

Classification	Definition
High likelihood	There is a pollution linkage and an event that either appears very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor of harm or pollution.
Likely	There is a pollution linkage and all the elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.
Low Likelihood	There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such event would take place, and is less likely in the shorter term.
Unlikely	There is a pollution linkage but circumstances are such that it is improbable that an event would occur even in the very long term.

Table C 2: Classification of Probability

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

Table C 3: Comparison of Consequence Against Probability

Very High Risk	There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR, there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not undertaken already) and remediation are likely to be required.
High Risk	Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not undertaken already) is required and remedial works may be necessary in the short term and are likely over the longer term.
Moderate Risk	It is possible that harm could arise to a designated receptor from an identified hazard. However, 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. Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer term.
Low Risk	It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst 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.

Table C 4: Description of the classified risks and likely action required

Refined Conceptual Site Model (CSM) and Risk Assessment Table 2.0 (Phase 2)

SOURCE -PATHWAY -RECEPTOR LINKAGE				QUALITATIVE RISK ASSESSMENT		
Contaminant	Location	Receptors	Pathways to Receptors	Associated Hazard (Potential Severity)	Likelihood of Occurrence	Risk*
Potential contaminants may be present beneath the site - Heavy metals, sulphates and PAHs. - Hydrocarbons - Asbestos Containing Material (ACM). - PCBs	Possibly within sub surface strata & Groundwater.	Ground water (Secondary A Aquifers)	Vertical percolation to groundwater	Groundwater (Medium – pollution of sensitive water resource)	Unlikely based upon concentrations of contaminants recorded and cover of Glacial Clay.	Low Post Construction
		Surface Water – Culverted Brook	Lateral percolation & Surface Run-off to surface water	Groundwater (Medium – pollution of sensitive water resource)	Low – Brook that runs through site is culverted, the possibility for flow pathway from the site unlikely based on concentrations recorded	Low Post Construction
		End user of site (Staff and patrons)	Direct contact, Ingestion, Inhalation (Dust and Vapours)	Human Health (Medium)	Unlikely based upon concentrations of contaminants. 600mm cover system recommended for new gardens/ landscaped areas and basic asbestos control measures adopted.	Low Post Construction
		Humans – site workers, neighbouring properties/site workers, maintenance & construction staff,	Direct contact, Ingestion, Inhalation (Dust and Vapours)	Human Health (Minor – providing suitable PPE equipment is worn)	Unlikely based upon concentrations of contaminants. 600mm cover system recommended for new gardens/ landscaped areas and basic asbestos control measures adopted.	Low risk (if PPE equipment worn and mitigation measures adopted)
		Risk to plants/trees	Root Uptake	Inhibition of plant growth	Unlikely based upon concentrations of contaminants	Low Post Construction
	Water Supply Pipework	Future site users. Water pipes.	Ingestion of tainted water supply.	Human Health (Medium)	UU Risk assessment is required, and possible specialist protection required.	Low to moderate.

* Risk refers to the potential risk that the Source, Pathway, Receptor linkage is complete and is used to determine if any further investigation/measures are required. It does not indicate immediate emergency risk to any individual or feature present on the site unless specifically noted.

Table and Summary of Potential Risks, Sheet 2

SOURCE -PATHWAY -RECEPTOR LINKAGE				QUALITATIVE RISK ASSESSMENT		
Contaminant	Location	Receptors	Pathways to Receptors	Associated Hazard (Potential Severity)	Likelihood of Occurrence	Risk*
Off site contaminants from surrounding land use including; former colliery/infilled land/paper mill.	Possibly within made-ground surrounding site.	End user of site (Staff and patrons)	Direct contact, Ingestion, Inhalation (Dust and Vapours)	Human Health (Medium)	Low likelihood, given concentrations recorded	Low Post Construction
		Construction workers if applicable	Direct contact, Ingestion, Inhalation (Dust and Vapours)	Human Health (Minor – Providing suitable PPE equipment is worn)	Low likelihood, given concentrations recorded.	Low risk (if PPE equipment not worn)
Hazardous Ground Gas associated with potential Made Ground in filled ground off site as well as Coal Measures strata.	Possibly within strata beneath the site.	End user of site (Staff and patrons)	Migration through strata and accumulation under buildings of explosive and asphyxiating gases.	Human Health (Severe)	Low likelihood given concentrations recorded to date and presence of underlying Glacial Clay. Ground gas monitoring ongoing. No radon protection required.	Low/Moderate Amber 1 Protection Measures Required
		Buildings & Infrastructure	Coal mining beneath the site causing surface ground instability causing building subsidence	Buildings & Infrastructure (Medium)	Low Likelihood. Mining from past or present below likely depth of influence. Foundations to be developed in line with CIRIA guidance.	Low to Moderate Low Post Construction

* Risk refers to the potential risk that the Source, Pathway, Receptor linkage is complete and is used to determine if any further investigation/measures are required. It does not indicate immediate emergency risk to any individual or feature present on the site unless specifically noted.