

**134 STATION ROAD, LOW VALLEY
WOMBWELL, BARNSELY**

for

Construction and Consultancy Limited

Report Number 3421

November 2013

Michael D Joyce Associates LLP
Geotechnical and Geoenvironmental Consultants



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134 Station Road, Low Valley, Wombwell, Barnsley

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1 INTRODUCTION

- 1.1 On behalf of Mr D Wigglesworth of Construction and Consultancy Limited a Phase I Geoenvironmental and Geotechnical Assessment (Desk Study) has been carried out at the former Low Valley Arms Public House in Wombwell. It is proposed to redevelop the site with residential accommodation.
- 1.2 The purpose of the desk study was to review and assess information on the site including geological, mining and hydrogeological data, to review the past history of the site and its environmental setting, and to determine if there are any geotechnical or geoenvironmental hazards that may impair its safe and economic development.
- 1.3 The study has not included checks on services on or adjacent to the site, and no structural or asbestos surveys have been carried out.

2 THE SITE

- 2.1 The site is approximately 0.1 hectares in size and is located on Station Road in Wombwell, approximately 5 km southeast of the centre of Barnsley. The Ordnance Survey grid reference is SE 405 034 and it lies at approximately 26 mAOD. Figure 1 shows the general site location, whilst figure 2 shows the site in more detail.



Front of the Public House.

- 2.2 The site is presently occupied by a two storey public house of brick construction under a pitched tiled roof. An internal inspection was not possible, although it is very likely that there will be a cellar.



Front of the Public House.

- 2.3 Access is at the southwest corner of the site, leading to a tarmacked car park to the rear of the public house. The northern part of the site is unused and overgrown. A beck passes under Station Road, and passes beneath part of the site. The water level was approximately 1.7m below road level.



Car park to the rear of the Public House.



View of overgrown land.

- 2.4 There is housing to the south, southeast and northeast of the site, with open ground to the opposite side of Station Road.

3 SITE HISTORY

- 3.1 The following archival Ordnance Survey maps have been examined to trace the past development of the site. These are reproduced in Appendix 2 with the current site boundary superimposed on them. The apparent displacement on the older maps is due to a change in Ordnance Survey co-ordinates.

Scale and Year of Publication			
6" to 1 mile	1850	1:2500	1893
	1890		1906
	1904		1931
	1931		1961
	1938		
	1948		
	1951		
	1967		
1:10,000	1977	1:1250	1982
	1987		1993
	1988		1994
	2002		2012
	2012		

- 3.2 The earliest map to show the site in detail is from 1893. It shows Station Road and the site occupied by New Station Inn. Bulling Dyke runs under Station Road. There is some terraced housing to the northeast and southwest.

- 3.3 By 1931, there has been further housing development in the area. A Speedway Stadium was constructed to the northwest. However this has been demolished by 1961, and by 1982 a number of industrial units had been constructed on this site, located off Valley Road.
- 3.4 Due to time and cost constraints, it has not been possible to consult with local history journals and newspapers. This can be carried out if requested at additional cost.
- 3.5 The site is unlikely to be of archaeological interest. However, it may be prudent to make enquiries with South Yorkshire Archaeology Service.

4 GEOLOGY AND MINING

4.1 Geology

- 4.1.1 Maps of the British Geological Survey (BGS), in particular 1:10,560 sheet 275 SW and 1:50,000 sheet 87 show the site to be underlain by Alluvium, which typically comprises clays, silts, sands and gravels. Bedrock is indicated to comprise undifferentiated mudstones, siltstone and shales of the Carboniferous Middle Coal Measures. The site is shown to be free of faulting.

4.2 Mining

- 4.2.1 A mining report has been obtained from the Coal Authority, and is reproduced in full in Appendix 3. It states that there has been mining in eight seams of coal between 140m and 630m depth, with the last date of working being 1989. Under normal circumstances, ground movement should have ceased by now.
- 4.2.2 The report makes no mention of shallow workings being present or that shallow unrecorded workings might be present. The Coal Authority holds no record of any notice or subsidence claim having been made of the site itself, but there are three former claims within 50m of the site.
- 4.2.3 No shaft or adits are reported on the site or within 20m of the site boundary. Although old unrecorded mine entries might be present on the site, these are considered relatively unlikely. No past, present or future opencasts are reported within the vicinity of the site.

4.3 GroundSure Geo-Insight

4.3.1 A GroundSure Geo-Insight Report has been obtained for the site and is reproduced in Appendix 2. The report is based on the British Geological Survey (BGS) geological maps, GroundSure data and miscellaneous other geological sources.

4.3.2 None of the following are recorded beneath the site.

Feature
Records related to the permeability superficial ground Records of landslips Artificial Ground / Made Ground beneath the site Landslips within 500m of the site Historical Surface Ground Working Features Current Ground Workings Non-Coal Mining Cavities Natural Cavities Brine Extraction Gypsum Extraction Tin Mining Clay Mining

In respect of natural ground subsidence, the BGS reports the following risk ratings.

Hazard	Risk
Shrink-Swell Clay Landslide Ground Dissolution of Soluble Rocks Compressible Deposits Collapsible Deposits Running Sand	Low Very Low Null Moderate Negligible Low

- 4.3.3 A number of boreholes have been sunk in the vicinity of the site and their records could probably be obtained if necessary, although soil variability in the area would render them of limited use. In terms of actual ground conditions on the site there is no substitute for an intrusive ground investigation.

5 HYDROGEOLOGY AND FLOODING

Hydrogeology

- 5.1 The Coal Measures occur throughout the heavily industrialised areas of West and South Yorkshire. They comprise a thick sequence of faulted rocks characterised by the repeated sequence of mudstone, siltstone, sandstone, seatearth and coal.
- 5.2 The Coal Measures, though classed as a minor aquifer, may provide good borehole yields from sandstones and many industrial supplies rely on them. However, groundwater flow is extensively affected by the faulting and fissuring of the rocks, and also by the results of coal mining and associated dewatering activities. Due to the complex, and often poorly understood hydrogeology, it is impossible to subdivide the Coal Measures into aquifers and non-aquifers except on a very detailed level and the whole sequence must therefore be considered in general terms as an aquifer.
- 5.3 Since April 2010, the Environment Agency's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive.
- 5.4 The aquifers within both the superficial drift deposits and bedrock are designated as Secondary A. These are described as permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.

- 5.6 Details provided by the Environment Agency in the GroundSure Enviro-Insight Report, indicate there to be no licensed surface water or groundwater abstraction points within at least 1800m of the site.

Flooding

- 5.7 The site is shown to lie within a Zone 3 floodplain according to data supplied by the Environment Agency within the GroundSure Report. This estimates the annual probability of flooding as one in one hundred (1%) or greater from rivers.

6 GROUNDSURE ENVIRO-INSIGHT REPORT

6.1 A GroundSure Enviro-Insight Report has been commissioned for this site. The following features are recorded within 250m of the centre of the site. Full details are given in Appendix 1.

6.2 Records of Water Industry Referrals

Prestigate Electroplating lies approximately 60m to the northwest. It has a Water Industry Referral record and also appears on the List 1 and List 2 Dangerous Substance Inventory.

6.3 Environment Agency Recorded Pollution Incidents

In recent years, there have been three pollution incidents. The nearest was a minor incident consisting of an oil/fuel spillage, but this did not appear to have affected the site.

6.4 Environment Agency Historical Landfills

An area of land on Station Road approximately 110m to the north was licensed for the disposal of inert commercial waste.

6.5 Environment Agency Waste Site

A site on Wombwell Lane, some 220m to the northwest was licensed as a scrapyard/metals recycling centre.

6.6 Contemporary Trade Entries

The GroundSure Enviro-Insight Report lists various trade entries in the vicinity of the site. It should be noted that these lists are rarely complete.

6.7 Others

None of the following are recorded within 250m of the centre of the study site.

Environmental Permits, Incidents and Registers

IPC Authorisations
IPPC Authorisations
Red List Discharge Consents (potentially harmful discharge to controlled waters)
Part A(2) and Part B Activities and Enforcements
Category 3 or 4 Radioactive Substances Authorisations
Licensed Discharge Consents
Planning Hazardous Substance Consents and Enforcements
COMAH and NIHHS sites (within 500m)
Sites Determined as Contaminated Land under Part IIA EPA 1990

Landfill and Other Waste Sites

Landfill Data – Operational Landfill Sites
BGS/DoE Landfill Site Survey
GroundSure Local Authority Landfill Sites Data
Non-Operational Waste Treatment, Transfer and Disposal Sites

Current Land Uses

Records of Petrol and Fuel Sites
Underground High Pressure Oil and Gas Pipelines

Hydrogeology and Hydrology

Groundwater Abstraction Licences
Surface Water Abstraction Licences
Potable Water Abstraction Licences
Source Protection Zones within 500m
Environment Agency information on river quality
Main Rivers

Flooding
Flood Defences within 250m Areas benefiting from Flood Defences within 250m Areas used for Flood Storage within 250m

Designated Environmentally Sensitive Sites
Sites of Special Scientific Interest (SSSI) National Nature Reserves (NNR) Local Nature Reserves (LNR) Special Areas of Conservation (SAC) Special Protection Areas (SPA) Ramsar sites World Heritage Sites Environmentally Sensitive Areas Outstanding Natural Beauty (AONB) National Parks Nitrate Sensitive Areas

- 6.8 The GroundSure Enviro-Insight Report is based upon known, published information and may not comprise a complete record of all features of relevance. An explanation of the datasets used is available on request.

7 CONTAMINATED LAND

- 7.1 There is no visibly contaminated material on the surface of the site, nor is there any distressed vegetation suggestive of significant or serious contamination.

8 RADON

- 8.1 According to the GroundSure Geo-Insight Report the site lies in an area where between 1% and 3% of homes are above the action level recommended by the Health Protection Agency. Radon protective measures are not however necessary according to the BGS data provided in the GroundSure Report and as described in Building Research Publication BR 211.

9 GEOENVIRONMENTAL RISK ASSESSMENT

Conceptual Site Model

- 9.1 A quantitative health and environmental risk assessment has been carried out as part of this assessment. The process of risk assessment is set out in Part IIA of the Environment Protection Act 1990 and amended in part by The Water Act 2003. This defines contaminated land as *"any land which appears to the local authority in whose area it is situated to be in such a condition by reason of substances in, on or under the land, that there is a significant possibility of significant harm being caused, or that significant pollution of controlled waters is being caused or there is a significant possibility of such pollution being caused"*.
- 9.2 The Act introduces the concept of a pollution linkage. This linkage consists of a pollution (contaminative) source or hazard and a receptor, together with an established pathway between the two. For land to be contaminated, a pollution linkage (hazard-pathway-receptor) must exist. This forms a so-called 'conceptual model' of the site.
- 9.3 Examples of pathways and effects from land contamination (after PPS 23) are given below, and these are illustrated on figure 3.

9.3.1 Human Health (Pathways 1-5, Receptors A – C)

Uptake of contaminants by food plants grown in contaminated soil - Uptake will depend on concentration in soil, its chemical form, soil pH, plant species and prominence in diet.

Ingestion and inhalation - Substances may be ingested directly by young children playing on contaminated soil, by eating plants which have absorbed metals or are contaminated with soil or dust. Ingestion may also occur via contaminated water supplies. Metals, some organic materials and radioactive substances may be inhaled from dusts and soils.

Skin contact - Soil containing tars, oils and corrosive substances may cause irritation to the skin through direct contact. Some substances (e.g. phenols) may be absorbed into the body through the skin or through cuts and abrasions.

Irradiation - As well as being inhaled and absorbed through the skin, radioactive materials emitting gamma rays can cause a radiation response.

Fire and explosion - Materials such as coal, coke particles, oil, tar, pitch, rubber, plastic and domestic waste are all combustible. Both underground fires and biodegradation of organic materials may produce toxic or flammable gases. Methane and other gases may explode if allowed to accumulate in confined spaces.

9.3.2 **Buildings (Pathways 7 and 8)**

Fire and explosion - Underground fires may cause ground subsidence and cause structural damage. Accumulations of flammable gases in confined space leads to a risk of explosion. Underground fires may damage services.

Chemical attack on building materials and services - Sulphates may attack concrete structures. Acids, oils and tarry substances may accelerate corrosion of metals or attack plastics, rubber and other polymeric materials used in pipework and service conduits or as jointing seals and protective coatings to concrete and metals.

Physical - Blast-furnace and steel-making slag (and some natural materials) may expand. Degradation of fills may cause settlement and voids in buried tanks and drums may collapse as corrosion occurs or under loading.

9.3.3 **Natural Environment (Pathway 6, Receptors D - E)**

Phytotoxicity (prevention/inhibition of plant growth) - Some metals essential for plant growth at low levels are phytotoxic at higher concentrations. Methane and other gases may give rise to phytotoxic effects.

Contamination of water resources - Soil has a limited capacity to absorb, degrade or attenuate the effects of pollutants. When this is exceeded, polluting substances may enter into surface and groundwaters.

Ecotoxological effects - Contaminants in soil may affect microbial, animal and plant populations. Ecosystems or individual species on the site, in surface waters or areas affected by migration from the site may be affected.

- 9.4 For any contaminant source identified, judgement is used regarding the probability of a pollution linkage occurring and the potential consequences of that linkage. Based on the probability and likely consequences, the overall risk (significance) can be established. The definitions that have been used for this purpose are given in Standard Appendix B. The probability of a hazard, combined with its consequences, can be used to assess risk. This forms the so-called Conceptual Site Model.

Sources

- 9.5 The site has only been used in the past as a public house. There is the potential for minor spillages of fuels and the like from vehicles using the site. There may also have been a heating oil tank in the past, but there is not one present now.

Risk Assessment based on Conceptual Site Model

Summary of Hazards, Pathways and Receptors

Source	Potential Pollutant	Pathways	Receptor	Risk (1)
Potential contaminated Made Ground. Possible past minor spillages from vehicles.	Oils, fuels, grease, hydraulic fluid, metals, asbestos.	1 - 5	A. Present Occupants.	Site Unoccupied.
			B. Groundworkers.	Low Risk involved with excavation work, providing personnel adopt suitable precautions, together with washing facilities.
			C. Future Occupants.	Low Risk for residential use, providing any contaminated Made Ground is capped by clean sub soil and topsoil.
		6	D. Controlled Waters.	Low Risk.
			E. Ecosystems.	Low Risk.
		7	F. Building Materials and Services.	Low Risk.
Organic Material.	Landfill Gases, Radon, VOCs, SVOCs.	8	A - F	Low Risk.
Waste materials.	Fly-tipping.			Any waste materials to be removed from site.

Pathways and Receptors

- 9.6 The principal receptors are groundworkers, future residents and controlled water (Receptors B, C and D). However based on the past history of the site the probability of contamination being present sufficient to affect the identified receptors is considered to be a low risk.

-
- 9.7 The overall risk is assessed to be low. At this stage it is not considered that there is likely to be any immediate significant risk but an intrusive investigation in respect of contamination is considered prudent.
- 9.8 With any site, the possibility of contaminants being present, sufficient to cause significant harm cannot be entirely precluded without intrusive investigation, sampling and testing since it is not always possible to determine if contaminants have been tipped on the site, or have seeped into the ground, or have migrated below the ground onto the site from adjacent pieces of land. This is however considered unlikely.
- 9.9 This risk can be mitigated by intrusive investigation. Contamination testing is recommended in order to reduce the risk of any unforeseen contamination being uncovered during construction. Any investigation should be carried out in accordance with BS10175 "Investigation of Potentially Contaminated Sites". In any event, it is recommended that if during construction any suspicious or unusual odours, colours, liquids or soils are uncovered, these should be brought to the attention of Michael D Joyce Associates LLP and appropriate advice sought.
- 9.10 Prior to detailed design it is also recommended that consideration be given to a first stage ground investigation to determine the engineering and foundation characteristics of the sub-soils in respect of the proposed development.

10 GEOTECHNICAL ASSESSMENT

- 10.1 Although no intrusive investigation has been carried out on the site, preliminary indications in respect of geotechnical matters are set out below.

Foundations	Normal to deep strip footings should be suitable. Made Ground, old foundations, cellar(s), services may all be encountered.
Mining and Quarrying	None expected.
Soakaways	Soakaways are unlikely to be suitable. On-site permeability tests would need to be carried out to determine suitability or not.
Roads	Design will be dependent on the CBR measured on site.
Excavations	Soft ground plant will be suitable in the near surface, although rock breakers may be needed for deeper excavation.
Groundwater	Shallow groundwater may be present.
Earthworks	No significant earthworks are anticipated.
Made Ground	If present testing is recommended to check for potential contamination.
Gas Protection	Gas protection measures are not required but would be prudent and in accordance with good practice.
Flooding	The site lies in Flood Zone 3, and a Flood Risk Assessment may be required.

- 10.2 The above are given on the basis of limited site data and it is strongly recommended that an intrusive ground investigation as described overleaf is carried out prior to detailed design.

11 GROUND INVESTIGATION

11.1 It is recommended that one day's window sampling is carried out in order to ascertain ground conditions and to obtain samples for laboratory testing. It would also be prudent to install gas monitoring standpipes.

11.2 It is recommended that all ground investigation work is supervised by a suitably experienced Chartered Engineer, Chartered Geologist or a Fellow of the Geological Society in accordance with the relevant Codes of Practice.

A D Joyce

BSc MSc ARSM CEng CGeol CEnv MICE FGS SiLC

A handwritten signature in dark ink, appearing to read 'A D Joyce', is centered on the page.

M D Joyce

HonDSc (Consultant)

November 2013

This report is subject to the provisions of the Copyright Acts and is for the sole benefit of Construction and Consulting Limited in respect of a preliminary assessment of geoenvironmental and geotechnical conditions on the site. The report cannot be assigned to, or relied on, by any other party without prior permission.

Procedure Notes

The desk study has been carried out in accordance with the principles of BS EN 1997-1: 2004 “Eurocode 7 - Geotechnical Design - Part 1: General Rules”, BS EN 1997-2: 2007 “Eurocode 7 - Geotechnical Design - Part 2: Ground Investigation and Testing”, BS5930: 1999 and BS10175: 2001, and the terms of the client’s brief.

Further investigation can be carried out to further reduce uncertainty and risk but ultimately these risks cannot be eliminated. Similarly a desk study normally only considers readily available information and further information could be held by other sources. In commissioning further research or investigation the cost/benefit of doing so must be considered.

Where buildings are present on a site, structural and asbestos surveys have not been carried out, unless specifically stated. An unexploded ordnance survey has not been carried out. In relevant situations it would be prudent to commission such surveys.

Where information has been obtained from Third Parties, no liability can be accepted for the accuracy or completeness of this information, where anecdotal evidence or speculation are presented, they must be treated as such and cannot be relied upon.

Appendix 1

GroundSure Enviro-Insight and Geo-Insight Reports

Appendix 2

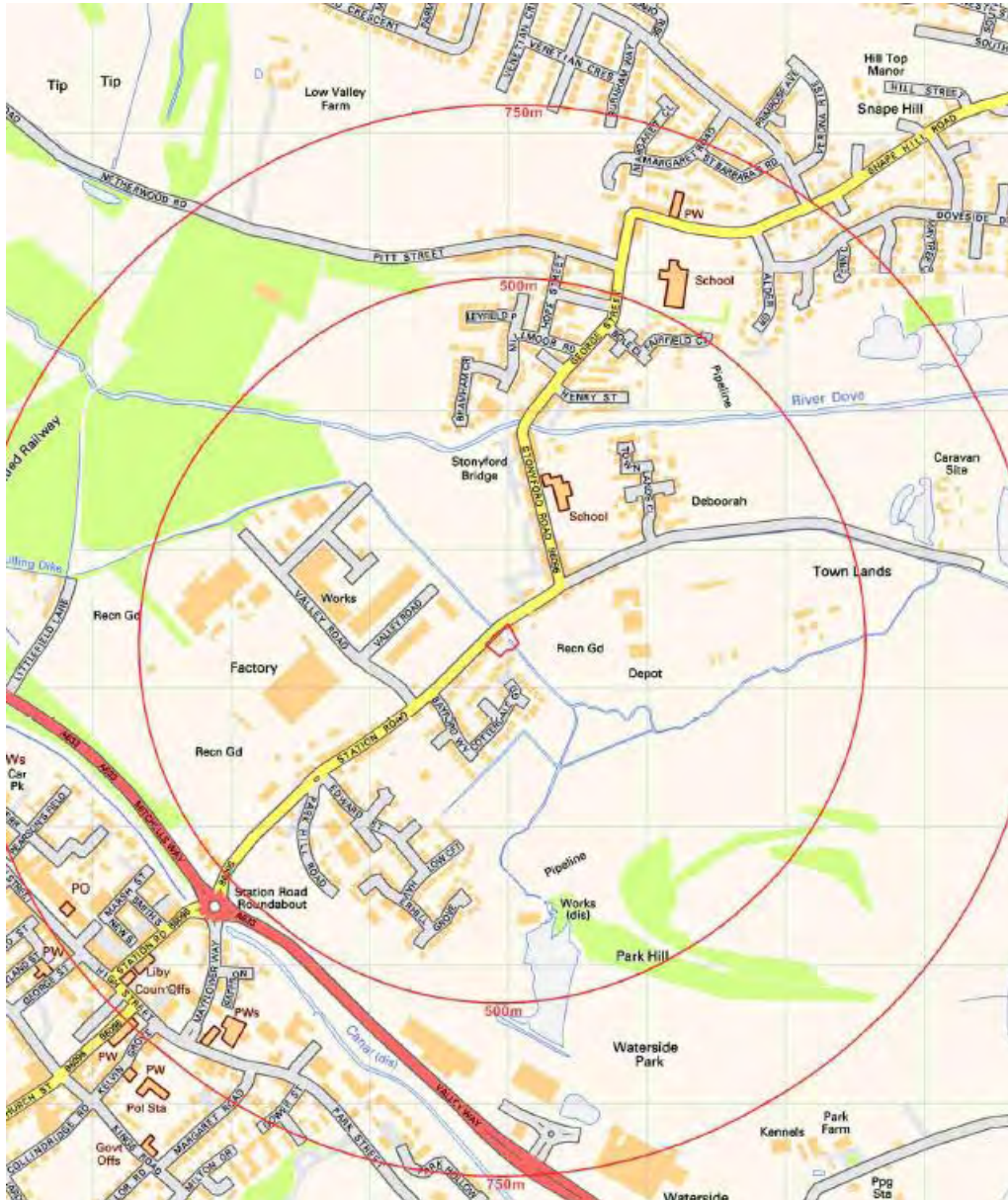
Historical Maps

Appendix 3

Coal Authority Mining Report

Standard Appendices

A and B



134 Station Road, Wombwell
Site Location

Michael D Joyce Associates LLP
Geotechnical and Geoenvironmental Consultants

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Ordnance Survey Map with
the permission of the
controller of Her Majesty's
Stationery Office. Crown
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Scale: NTS

Figure: 1



134 Station Road, Wombwell
Site Plan

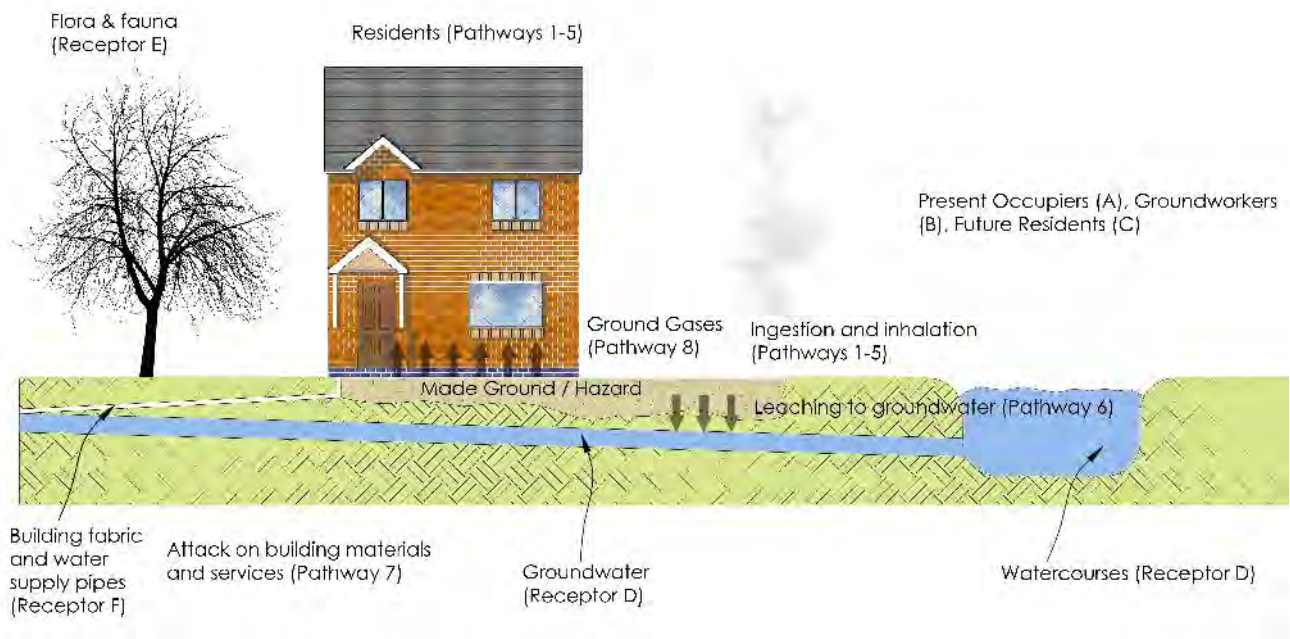
Michael D Joyce Associates LLP
Geotechnical and Geoenvironmental Consultants

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Scale: NTS

Figure: 2



Pathways

1. Ingestion of contaminated soil/dust
2. Ingestion of contaminated food
3. Ingestion of contaminated water
4. Inhalation of contaminated vapours
5. Dermal contact with contaminated soil/dust or water
6. Pollution of controlled water and off site migration
7. Attack on building materials and services
8. Migration of landfill gases and radon

Receptors

- A. Present site occupiers
- B. Site development personnel
- C. Future residents
- D. Controlled waters
- E. Flora and fauna
- F. Building and services

Schematic Representation of Conceptual Site Model

Schematic Representation of Conceptual Site Model

Michael D Joyce Associates LLP
Geotechnical and Geoenvironmental Consultants

Figure: 3



Michael D Joyce Associates LLP
6, South Parade,
Wakefield, WF1 1LR

GroundSure
Reference:

HMD-354-1155402

Your Reference:

134,STATION
ROAD,WOMBWELL,BARNSLE
Y S73 0BD

Report Date:

5 Nov 2013

Report Delivery
Method:

Email - pdf

Client Email:

mdja@geoenvironmental.co.uk

GroundSure EnviroInsight

**Address: 134,STATION ROAD,WOMBWELL,BARNSLEY, S73
0BD**

Dear Sir/Madam,

Thank you for placing your order with Michael D Joyce Associates LLP. Please find enclosed the GroundSure EnviroInsight as requested

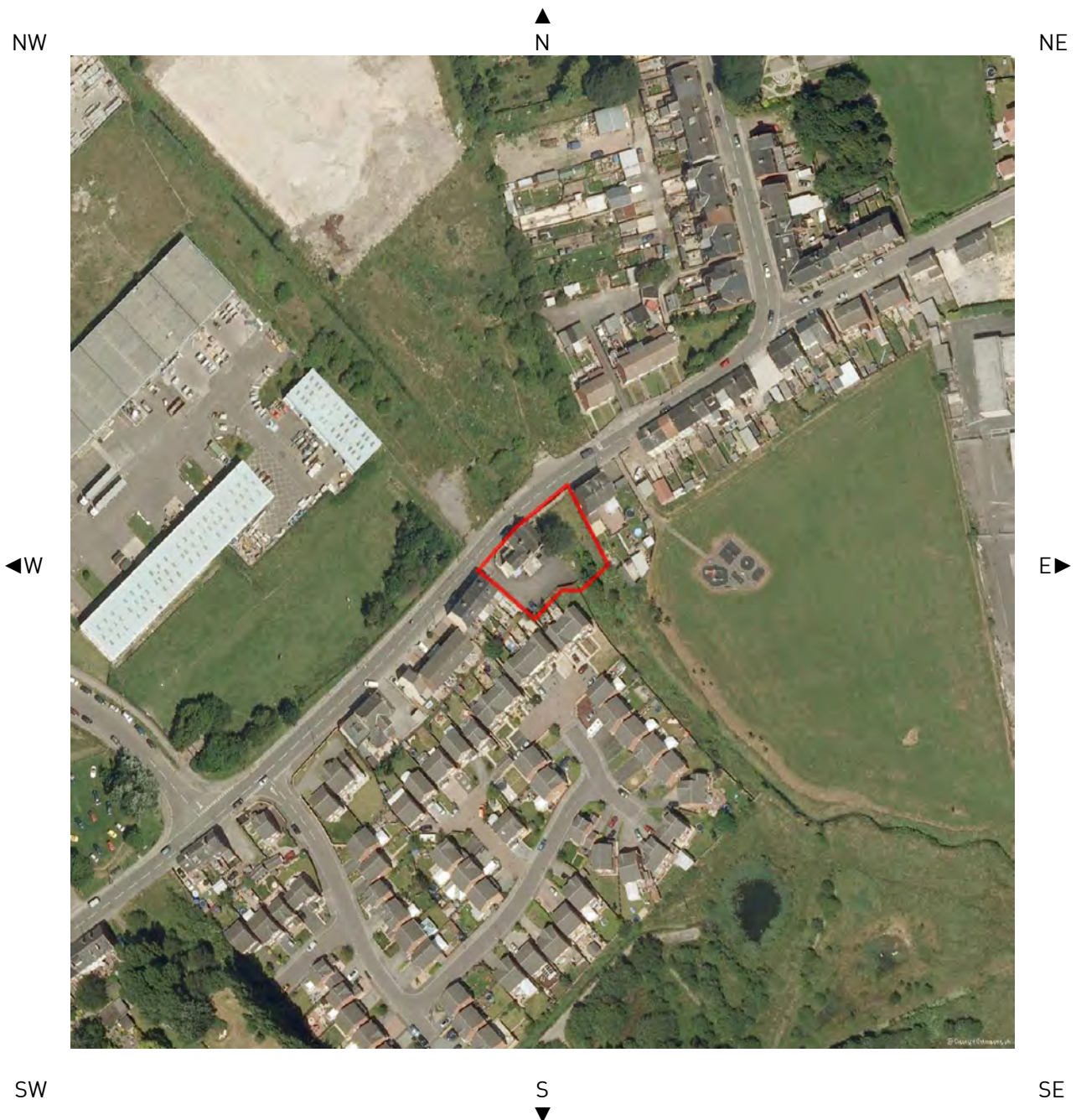
If you need any further assistance, please do not hesitate to contact our helpline on (0)1924 360458 quoting the above report reference number.

Yours faithfully,

Michael D Joyce Associates LLP

Enc.
GroundSure EnviroInsight

Aerial Photograph of Study Site



Aerial photography supplied by Getmapping PLC.
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Site Name: 134,STATION ROAD,WOMBWELL,BARNSLEY,
S73 0BD

Grid Reference: 440584,403471

Size of Site: 0.11 ha

[Report Reference: HMD-354-1155402](#)

If you would like any further assistance regarding this report then please contact
Michael D Joyce Associates LLP, (0)1924 360458

Overview of Findings

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

Report Section	Number of records found within (X) m of the study site boundary					
1. Environmental Permits, Incidents and Registers	on-site	0-50	51-250	251-500	501-1000	1000-1500
1.1 Industrial Sites Holding Environmental Permits and/or Authorisations						
Records of historic IPC Authorisations	0	0	0	0	-	-
Records of Part A(1) and IPPC Authorised Activities	0	0	0	0	-	-
Records of Water Industry Referrals (potentially harmful discharges to the public sewer)	0	0	1	0	-	-
Records of Red List Discharge Consents (potentially harmful discharges to controlled waters)	0	0	0	0	-	-
Records of List 1 Dangerous Substances Inventory sites	0	0	1	1	-	-
Records of List 2 Dangerous Substances Inventory sites	0	0	1	5	-	-
Records of Part A(2) and Part B Activities and Enforcements	0	0	1	0	-	-
Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	0	-	-
Records of Licensed Discharge Consents	0	0	0	50	-	-
Records of Planning Hazardous Substance Consents and Enforcements	0	0	0	0	-	-
1.2 Records of COMAH and NIHHS sites	0	0	0	0	-	-
1.3 Environment Agency Recorded Pollution Incidents						
National Incidents Recording System, List 2	0	1	9	-	-	-
National Incidents Recording System, List 1	0	0	0	-	-	-
1.4 Sites Determined as Contaminated Land under Part 2A EPA 1990	0	0	0	0	-	-
2. Landfill and Other Waste Sites	on-site	0-50	51-250	251-500	501-1000	1000-1500
2.1 Landfill Sites						
Environment Agency Registered Landfill Sites	0	0	0	1	0	-
Environment Agency Historic Landfill Sites	0	0	2	2	5	7
BGS/DoE Landfill Site Survey	0	0	0	1	0	0
GroundSure Local Authority Landfill Sites Data	0	0	0	0	0	0
2.2 Landfill and Other Waste Sites Findings						
Operational and Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	4	4	-	-
Environment Agency Licensed Waste Sites	0	0	1	1	3	4

3. Current Land Uses	on-site	0-50	51-250	251-500	501-1000	1000-1500
3.1 Current Industrial Sites Data	0	1	10	-	-	-
3.2 Records of Petrol and Fuel Sites	0	0	0	0	-	-
3.3 Underground High Pressure Oil and Gas Pipelines	0	0	0	0	-	-

4. Geology	Description
4.1 Are there any records of Artificial Ground and Made Ground present beneath the study site? *	Yes
4.2 Are there any records of Superficial Ground and Drift Geology present beneath the study site? *	Yes
4.3 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	

Source: Scale: 1:50,000 BGS Sheet 087

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

5. Hydrogeology and Hydrology	on-site	0-50	51-250	251-500	501-1000	1001-2000
5.1 Are there any records of Productive Strata in the Superficial Geology within 500m of the study site?				Yes		
5.2 Are there any records of Productive Strata in the Bedrock Geology within 500m of the study site?				Yes		
5.3 Groundwater Abstraction Licences (within 2000m of the study site).	0	0	0	0	0	0
5.4 Surface Water Abstraction Licences (within 2000m of the study site).	0	0	0	0	0	2
5.5 Potable Water Abstraction Licences (within 2000m of the study site).	0	0	0	0	0	0
5.6 Are there any Source Protection Zones within 500m of the study site?				No		
5.7 River Quality	on-site	0-50	51-250	251-500	501-1000	1001-1500
Is there any Environment Agency information on river quality within 1500m of the study site?	No	No	No	Yes	No	Yes
5.8 Detailed River Network entries within 500m of the site	1	0	7	3	-	-
5.9 Surface water features within 250m of the study site	Yes	No	No	-	-	-

6. Flooding	
6.1 Are there any Environment Agency indicative Zone 2 floodplains within 250m of the study site?	Yes
6.2 Are there any Environment Agency indicative Zone 3 floodplains within 250m of the study site?	Yes
6.3 Are there any Flood Defences within 250m of the study site?	No
6.4 Are there any areas benefiting from Flood Defences within 250m of the study site?	No
6.5 Are there any areas used for Flood Storage within 250m of the study site?	No
6.6 What is the maximum BGS Groundwater Flooding susceptibility within 50m of the study site?	Very High
6.7 What is the BGS confidence rating for the Groundwater Flooding susceptibility areas?	Moderate

7. Designated Environmentally Sensitive Sites	on-site	0-50	51-250	251-500	501-1000	1001-2000
7.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	0	0	0	0
7.2 Records of National Nature Reserves (NNR)	0	0	0	0	0	0

7.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	0	0	0	0
7.3 Records of Local Nature Reserves (LNR)	0	0	0	0	0	0
7.4 Records of Special Areas of Conservation (SAC)	0	0	0	0	0	0
7.5 Records of Special Protection Areas (SPA)	0	0	0	0	0	0
7.6 Records of Ramsar sites	0	0	0	0	0	0
7.7 Records of World Heritage Sites	0	0	0	0	0	0
7.8 Records of Environmentally Sensitive Areas	0	0	0	0	0	0
7.9 Records of Areas of Outstanding Natural Beauty (AONB)	0	0	0	0	0	0
7.10 Records of National Parks	0	0	0	0	0	0
7.11 Records of Nitrate Sensitive Areas	0	0	0	0	0	0
7.12 Records of Nitrate Vulnerable Zones	1	0	0	0	1	0
7.13 Records of Ancient Woodlands	0	0	0	0	0	0

8. Natural Hazards

8.1 What is the maximum risk of natural ground subsidence? Moderate

9. Mining

9.1 Are there any coal mining areas within 75m of the study site? Yes

9.2 What is the risk of subsidence relating to shallow mining within 150m of the study site? Low-Moderate

9.3 Are there any brine affected areas within 75m of the study site? No

Using this Report

The following report is designed by Environmental Consultants for Environmental Professionals bringing together the most up-to-date market leading environmental data. This report is provided under and subject to the Terms & Conditions agreed between GroundSure and the Client. The document contains the following sections:

1. Environmental Permits, Incidents and Registers

Provides information on Regulated Industrial Activities and Pollution Incidents as recorded by Regulatory Authorities, and sites determined as Contaminated Land. This search is conducted using radii up to 500m.

2. Landfills and Other Waste Sites

Provides information on landfills and other waste sites that may pose a risk to the study site. This search is conducted using radii up to 1500m.

3. Current Land Uses

Provides information on current land uses that may pose a risk to the study site in terms of potential contamination from activities or processes. These searches are conducted using radii of up to 500m. This includes information on potentially contaminative industrial sites, petrol stations and fuel sites as well as high pressure underground oil and gas pipelines.

4. Geology

Provides information on artificial and superficial deposits and bedrock beneath the study site.

5. Hydrogeology and Hydrology

Provides information on productive strata within the bedrock and superficial geological layers, abstraction licenses, Source Protection Zones (SPZs) and river quality. These searches are conducted using radii of up to 2000m.

6. Flooding

Provides information on surface water flooding, flood defences, flood storage areas and groundwater flood areas. This search is conducted using radii of up to 250m.

7. Designated Environmentally Sensitive Sites

Provides information on the Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites, Local Nature Reserves (LNR), Areas of Outstanding Natural Beauty (AONB), National Parks (NP), Environmentally Sensitive Areas, Nitrate Sensitive Areas, Nitrate Vulnerable Zones and World Heritage Sites and Scheduled Ancient Woodland. These searches are conducted using radii of up to 2000m.

8. Natural Hazards

Provides information on a range of natural hazards that may pose a risk to the study site. These factors include natural ground subsidence.

9. Mining

Provides information on areas of coal and shallow mining.

10. Contacts

This section of the report provides contact points for statutory bodies and data providers that may be able to provide further information on issues raised within this report. Alternatively, GroundSure provide a free Technical Helpline (08444 159000) for further information and guidance.

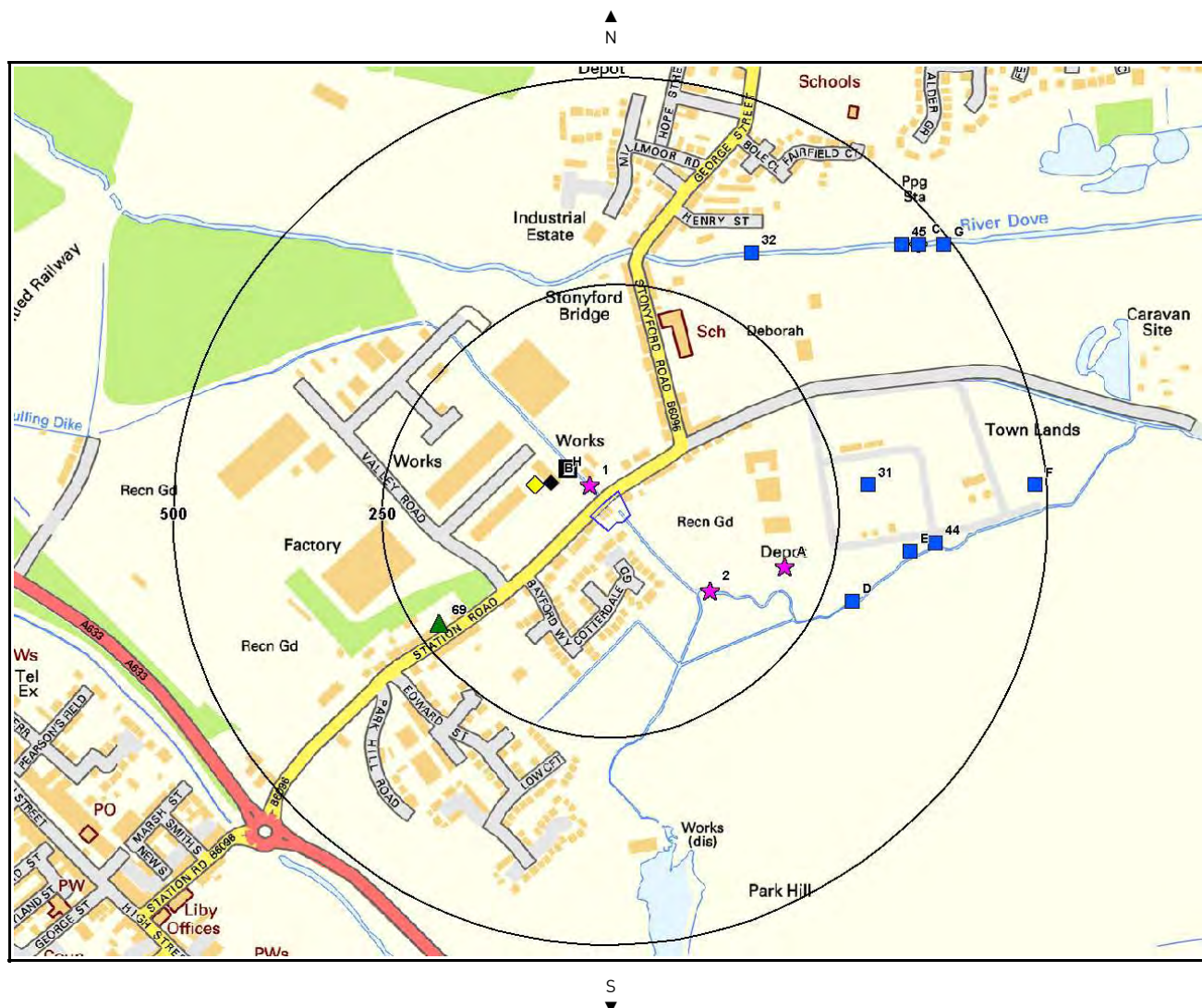
Note: Maps

Only certain features are placed on the maps within the report. All features represented on maps found within this search are given an identification number. This number identifies the feature on the mapping and correlates it to the additional information provided below. This identification number precedes all other information and takes the following format -Id: 1, Id: 2, etc. Where numerous features on the same map are in such close proximity that the numbers would obscure each other a letter identifier is used instead to represent the features. (e.g. Three features which overlap may be given the identifier "A" on the map and would be identified separately as features 1A, 3A, 10A on the data tables provided).

Where a feature is reported in the data tables to a distance greater than the map area, it is noted in the data table as "Not Shown".

All distances given in this report are in Metres (m). Directions are given as compass headings such as N: North, E: East, NE: North East from the nearest point of the study site boundary.

1. Environmental Permits, Incidents and Registers Map



Authorisations, Incidents and Registers Legend



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	Recorded Pollution Incident		RAS 3 & 4 Authorisations
	Dangerous Substances (List 1)		Part A(1) Authorised Processes and Historic IPC Authorisations
	Dangerous Substances (List 2)		Part A(2) and Part B Authorised Processes
	Water Industry Referrals		COMAH / NIHHS Sites
	Licenced Discharge Consents		Sites Determined as Contaminated Land
	Red List Discharge Consents		Hazardous Substance Consents and Enforcements
	Site Outline		
	Search Buffers (m)		

1.Environmental Permits, Incidents and Registers

1.1 Industrial Sites Holding Licences and/or Authorisations

Searches of information provided by the Environment Agency and Local Authorities reveal the following information:

Records of historic IPC Authorisations within 500m of the study site: 0

Database searched and no data found.

Records of Part A(1) and IPPC Authorised Activities within 500m of the study site: 0

Database searched and no data found.

Records of Water Industry Referrals (potentially harmful discharges to the public sewer) within 500m of the study site: 1

The following Water Industry Referral records are represented as points on the Authorisations, Incidents and Registers map:

ID	Distance [m]	Direction	Address	Permission reference	Local Authority	First Date Received	Last Date Received	Status
71 H	59.0	NW	Prestige Electro Plating, Unit 9,station Road Industrial Estate,wombwell, Barnsley, South Yorkshire, S73 0ah	BY8292	Sheffield City Council	06-01-2005	01-04-2008	Received

Records of Red List Discharge Consents (potentially harmful discharges to controlled waters) within 500m of the study site: 0

Database searched and no data found.

Records of List 1 Dangerous Substances Inventory Sites within 500m of the study site: 2

The following List 1 Dangerous Substance Inventory Site records are represented as points on the Authorisations, Incidents and Registers map:

ID	Distance	Direction	NGR	Details	
11B	62.0	NW	440520, 403502	Name: Prestige Electroplating Station Rd Barnsley S73 0ah Status: Active Receiving Water: -	Authorised Substances: Cadmium
12C	467.0	NE	440960, 403790	Name: Wombwell (new) Stw - Treated Sewage Status: Not Active Receiving Water: Any, Deve	Authorised Substances: -

Records of List 2 Dangerous Substance Inventory Sites within 500m of the study site: 6

Report Reference: [HMD-354-1155402](#)

The following List 2 Dangerous Substance Inventory Site records are represented as points on the Authorisations, Incidents and Registers map:

ID	Distance	Direction	NGR	Details	
13B	77.0	NW	440500, 403500	Name: Prestige Electroplating, Barnsley. Status: Not Active Receiving Water: -	Authorised Substances: Chromium, Copper, Cyanide, Lead, Nickel, Zinc
14C	467.0	NE	440960, 403790	Name: Barnsley Premier Leisure Hoyland Leisure Centre West Street Status: Not Active Receiving Water: None	Authorised Substances: -
15C	467.0	NE	440960, 403790	Name: Barnsley Premier Leisure Wombwell Swimming Pool Hough Lane, Status: Not Active Receiving Water: None	Authorised Substances: -
16C	467.0	NE	440960, 403790	Name: Watsons Anodising Ltd, Chambers Road Status: Active Receiving Water: -	Authorised Substances: Zinc
17C	467.0	NE	440960, 403790	Name: Wombwell Stw Status: Not Active Receiving Water: River Dearne	Authorised Substances: -
18C	467.0	NE	440960, 403790	Name: Wombwell (new) Stw - Treated Sewage Status: Active Receiving Water: Deve	Authorised Substances: Chromium, Copper, Lead, Nickel, Zinc

Records of Part A(2) and Part B Activities and Enforcements within 500m of the study site:

1

The following Part A(2) and Part B Activities are represented as points on the Authorisations, Incidents and Registers map:

ID	Distance	Direction	NGR	Details	
69	224.0	SW	440385, 403331	Address: A & A Motors, 71 Station Road, Wombwell, Barnsley, S73 0BJ Process: Waste Oil Burner Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified

Records of Category 3 or 4 Radioactive Substance Licences within 500m of the study site:

0

Database searched and no data found.

Records of Licensed Discharge Consents within 500m of the study site:

50

The following Licensed Discharge Consents records are represented as points on the Authorisations, Incidents and Registers map:

ID	Distance	Direction	NGR	Details	
19D	285.0	E	440880, 403360	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Stw Storm Overflow/storm Tank - Water Company Permit Number: WA 6273 Permit Version: 8	Receiving Water: River Dove And Bulling Dyke Status: Revised Consent, By Notice (section 37(1)) Issue date: 18/3/1996 Effective Date: 31/3/1996 Revocation Date: 30/5/1996
20D	285.0	E	440880, 403360	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Stw Storm Overflow/storm Tank - Water Company Permit Number: WA 6273 Permit Version: 15	Receiving Water: River Dove And Bulling Dyke Status: Modified - (wra 91 Sched 10 - As Amended By Env Act 1995) Issue date: 9/9/1998 Effective Date: - Revocation Date: 30/3/2008

21D	285.0	E	440880, 403360	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Stw Storm Overflow/storm Tank - Water Company Permit Number: WA 6273 Permit Version: 7	Receiving Water: River Dove And Bulling Dyke Status: Revised Consent, By Application (wra 91, Section 34(2)) Issue date: 6/3/1995 Effective Date: 6/3/1995 Revocation Date: 30/3/1996
22D	285.0	E	440880, 403360	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Stw Storm Overflow/storm Tank - Water Company Permit Number: WA 6273 Permit Version: 9	Receiving Water: River Dove And Bulling Dyke Status: Revised Consent, By Notice (section 37(1)) Issue date: 22/5/1996 Effective Date: 31/5/1996 Revocation Date: 30/6/1996
23D	285.0	E	440880, 403360	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Stw Storm Overflow/storm Tank - Water Company Permit Number: WA 6273 Permit Version: 13	Receiving Water: River Dove And Bulling Dyke Status: Varied By Application - (wra 91 Sched 10 - As Amended By Env Act 1995) Issue date: 8/4/1998 Effective Date: 8/4/1998 Revocation Date: 8/9/1998
24D	285.0	E	440880, 403360	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Stw Storm Overflow/storm Tank - Water Company Permit Number: WA 6273 Permit Version: 1	Receiving Water: River Dove And Bulling Dyke Status: Transferred From Water Act 1989 Issue date: - Effective Date: - Revocation Date: 5/3/1995
25D	285.0	E	440880, 403360	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Stw Storm Overflow/storm Tank - Water Company Permit Number: WA 6273 Permit Version: 18	Receiving Water: River Dove And Bulling Dyke Status: Modified - (wra 91 Sched 10 - As Amended By Env Act 1995) Issue date: 31/3/2009 Effective Date: 31/3/2009 Revocation Date: 31/3/2009
26D	285.0	E	440880, 403360	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Stw Storm Overflow/storm Tank - Water Company Permit Number: WA 6273 Permit Version: 16	Receiving Water: River Dove And Bulling Dyke Status: Modified - (wra 91 Sched 10 - As Amended By Env Act 1995) Issue date: 25/2/2005 Effective Date: 31/3/2008 Revocation Date: 30/3/2009
27D	285.0	E	440880, 403360	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Stw Storm Overflow/storm Tank - Water Company Permit Number: WA 6273 Permit Version: 19	Receiving Water: River Dove And Bulling Dyke Status: Modified - (wra 91 Sched 10 - As Amended By Env Act 1995) Issue date: - Effective Date: 1/4/2009 Revocation Date: -
28D	285.0	E	440880, 403360	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Stw Storm Overflow/storm Tank - Water Company Permit Number: WA 6273 Permit Version: 1	Receiving Water: River Dove And Bulling Dyke Status: Transferred From Water Act 1989 Issue date: - Effective Date: - Revocation Date: 5/3/1995
29D	285.0	E	440880, 403360	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Stw Storm Overflow/storm Tank - Water Company Permit Number: WA 6273 Permit Version: 10	Receiving Water: River Dove And Bulling Dyke Status: Revised Consent, By Notice (section 37(1)) Issue date: 22/5/1996 Effective Date: 1/7/1996 Revocation Date: 7/4/1998
30D	285.0	E	440880, 403360	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Stw Storm Overflow/storm Tank - Water Company Permit Number: WA 6273 Permit Version: 14	Receiving Water: River Dove And Bulling Dyke Status: Modified - (wra 91 Sched 10 - As Amended By Env Act 1995) Issue date: 9/9/1998 Effective Date: 9/9/1998 Revocation Date: -
31	287.0	E	440900, 403500	Address: Farm Gas Limited, Wombwell Sewage T, Reatment Works, Ings Road, Wombwe, LI Effluent Type: Trade Discharges - Unspecified Permit Number: WRA6753 Permit Version: 1	Receiving Water: - Status: Consent Revoked - Discharge Ceased (wra 91, Sched 10 & 6) Issue date: 25/9/1992 Effective Date: 25/9/1992 Revocation Date: 22/7/1993

32	329.0	NE	440760, 403780	Address: Gerorge Street Darfield No.1 Cso, George Street, Wombwell, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Sewer Storm Overflow - Water Company Permit Number: WRA9257 Permit Version: 1	Receiving Water: River Dove Status: New Consent (wra 91, 588 & Sched 10 As Amended By Env Act 1995) Issue date: 4/9/2007 Effective Date: 4/9/2007 Revocation Date: -
33E	338.0	E	440950, 403420	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Pumping Station - Water Company Permit Number: WA 6273 Permit Version: 15	Receiving Water: River Dove And Bulling Dyke Status: Modified - (wra 91 Sched 10 - As Amended By Env Act 1995) Issue date: 9/9/1998 Effective Date: - Revocation Date: 30/3/2008
34E	338.0	E	440950, 403420	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Pumping Station - Water Company Permit Number: WA 6273 Permit Version: 9	Receiving Water: River Dove And Bulling Dyke Status: Revised Consent, By Notice (section 37(1)) Issue date: 22/5/1996 Effective Date: 31/5/1996 Revocation Date: 30/6/1996
35E	338.0	E	440950, 403420	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Pumping Station - Water Company Permit Number: WA 6273 Permit Version: 18	Receiving Water: River Dove And Bulling Dyke Status: Modified - (wra 91 Sched 10 - As Amended By Env Act 1995) Issue date: 31/3/2009 Effective Date: 31/3/2009 Revocation Date: 31/3/2009
36E	338.0	E	440950, 403420	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Pumping Station - Water Company Permit Number: WA 6273 Permit Version: 13	Receiving Water: River Dove And Bulling Dyke Status: Varied By Application - (wra 91 Sched 10 - As Amended By Env Act 1995) Issue date: 8/4/1998 Effective Date: 8/4/1998 Revocation Date: 8/9/1998
37E	338.0	E	440950, 403420	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Pumping Station - Water Company Permit Number: WA 6273 Permit Version: 8	Receiving Water: River Dove And Bulling Dyke Status: Revised Consent, By Notice (section 37(1)) Issue date: 18/3/1996 Effective Date: 31/3/1996 Revocation Date: 30/5/1996
38E	338.0	E	440950, 403420	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Pumping Station - Water Company Permit Number: WA 6273 Permit Version: 7	Receiving Water: River Dove And Bulling Dyke Status: Revised Consent, By Application (wra 91, Section 34(2)) Issue date: 6/3/1995 Effective Date: 6/3/1995 Revocation Date: 30/3/1996
39E	338.0	E	440950, 403420	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Pumping Station - Water Company Permit Number: WA 6273 Permit Version: 14	Receiving Water: River Dove And Bulling Dyke Status: Modified - (wra 91 Sched 10 - As Amended By Env Act 1995) Issue date: 9/9/1998 Effective Date: 9/9/1998 Revocation Date: -
40E	338.0	E	440950, 403420	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Pumping Station - Water Company Permit Number: WA 6273 Permit Version: 16	Receiving Water: River Dove And Bulling Dyke Status: Modified - (wra 91 Sched 10 - As Amended By Env Act 1995) Issue date: 25/2/2005 Effective Date: 31/3/2008 Revocation Date: 30/3/2009
41E	338.0	E	440950, 403420	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Pumping Station - Water Company Permit Number: WA 6273 Permit Version: 19	Receiving Water: River Dove And Bulling Dyke Status: Modified - (wra 91 Sched 10 - As Amended By Env Act 1995) Issue date: - Effective Date: 1/4/2009 Revocation Date: -
42E	338.0	E	440950, 403420	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Pumping Station - Water Company Permit Number: WA 6273 Permit Version: 1	Receiving Water: River Dove And Bulling Dyke Status: Transferred From Water Act 1989 Issue date: - Effective Date: - Revocation Date: 5/3/1995

43E	338.0	E	440950, 403420	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Pumping Station - Water Company Permit Number: WA 6273 Permit Version: 10	Receiving Water: River Dove And Bulling Dyke Status: Revised Consent, By Notice (section 37(1)) Issue date: 22/5/1996 Effective Date: 1/7/1996 Revocation Date: 7/4/1998
44	367.0	E	440980, 403430	Address: Biwater Treatment Ltd, Wombwell Sth, Final, Barnsley - Groundwater &, Surface Water From Operations O, N Site Effluent Type: Trade Discharges - Site Drainage Permit Number: WRA7379 Permit Version: 1	Receiving Water: Dearne Status: Revoked (wra 91, S88 & Sched 10 As Amended By Env Act 1995) Issue date: - Effective Date: - Revocation Date: -
45	452.0	NE	440940, 403790	Address: Doveside Drive Sps, Doveside Drive, Low Valley, Darfield, Barnsley, WF10 1LD Effluent Type: Sewage Discharges - Pumping Station - Water Company Permit Number: WRA7001 Permit Version: 2	Receiving Water: River Dove Status: Modified - (wra 91 Sched 10 - As Amended By Env Act 1995) Issue date: 27/2/2003 Effective Date: 27/2/2003 Revocation Date: -
46C	467.0	NE	440960, 403790	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Stw Storm Overflow/storm Tank - Water Company Permit Number: WA 6273 Permit Version: 10	Receiving Water: River Dove And Bulling Dyke Status: Revised Consent, By Notice (section 37(1)) Issue date: 22/5/1996 Effective Date: 1/7/1996 Revocation Date: 7/4/1998
47C	467.0	NE	440960, 403790	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Stw Storm Overflow/storm Tank - Water Company Permit Number: WA 6273 Permit Version: 9	Receiving Water: River Dove And Bulling Dyke Status: Revised Consent, By Notice (section 37(1)) Issue date: 22/5/1996 Effective Date: 31/5/1996 Revocation Date: 30/6/1996
48C	467.0	NE	440960, 403790	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Final/treated Effluent - Water Company Permit Number: WA 6273 Permit Version: 7	Receiving Water: River Dove And Bulling Dyke Status: Revised Consent, By Application (wra 91, Section 34(2)) Issue date: 6/3/1995 Effective Date: 6/3/1995 Revocation Date: 30/3/1996
49C	467.0	NE	440960, 403790	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Final/treated Effluent - Water Company Permit Number: WA 6273 Permit Version: 8	Receiving Water: River Dove And Bulling Dyke Status: Revised Consent, By Notice (section 37(1)) Issue date: 18/3/1996 Effective Date: 31/3/1996 Revocation Date: 30/5/1996
50C	467.0	NE	440960, 403790	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Final/treated Effluent - Water Company Permit Number: WA 6273 Permit Version: 10	Receiving Water: River Dove And Bulling Dyke Status: Revised Consent, By Notice (section 37(1)) Issue date: 22/5/1996 Effective Date: 1/7/1996 Revocation Date: 7/4/1998
51C	467.0	NE	440960, 403790	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Final/treated Effluent - Water Company Permit Number: WA 6273 Permit Version: 9	Receiving Water: River Dove And Bulling Dyke Status: Revised Consent, By Notice (section 37(1)) Issue date: 22/5/1996 Effective Date: 31/5/1996 Revocation Date: 30/6/1996
52C	467.0	NE	440960, 403790	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Stw Storm Overflow/storm Tank - Water Company Permit Number: WA 6273 Permit Version: 7	Receiving Water: River Dove And Bulling Dyke Status: Revised Consent, By Application (wra 91, Section 34(2)) Issue date: 6/3/1995 Effective Date: 6/3/1995 Revocation Date: 30/3/1996
53C	467.0	NE	440960, 403790	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Final/treated Effluent - Water Company Permit Number: WA 6273 Permit Version: 1	Receiving Water: River Dove And Bulling Dyke Status: Transferred From Water Act 1989 Issue date: - Effective Date: - Revocation Date: 5/3/1995

54C	467.0	NE	440960, 403790	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Stw Storm Overflow/storm Tank - Water Company Permit Number: WA 6273 Permit Version: 8	Receiving Water: River Dove And Bulling Dyke Status: Revised Consent, By Notice (section 37(1)) Issue date: 18/3/1996 Effective Date: 31/3/1996 Revocation Date: 30/5/1996
55F	486.0	E	441100, 403500	Address: Wombwell Wpc Works Storm Tanks Effluent Type: Sewage Discharges - Stw Storm Overflow/storm Tank - Water Company Permit Number: E706(SS) Permit Version: 1	Receiving Water: Bulling Dyke Status: Revoked - Unspecified Issue date: - Effective Date: - Revocation Date: 4/11/1992
56F	486.0	E	441100, 403500	Address: Wombwell Wpc Works Storm Tanks Effluent Type: Sewage Discharges - Final/treated Effluent - Water Company Permit Number: E706 (SS) Permit Version: 1	Receiving Water: Bulling Dyke Status: Revoked - Unspecified Issue date: - Effective Date: - Revocation Date: 4/11/1992
57G	491.0	NE	440990, 403790	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Final/treated Effluent - Water Company Permit Number: WA 6273 Permit Version: 15	Receiving Water: River Dove And Bulling Dyke Status: Modified - (wra 91 Sched 10 - As Amended By Env Act 1995) Issue date: 9/9/1998 Effective Date: - Revocation Date: 30/3/2008
58G	491.0	NE	440990, 403790	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Stw Storm Overflow/storm Tank - Water Company Permit Number: WA 6273 Permit Version: 15	Receiving Water: River Dove And Bulling Dyke Status: Modified - (wra 91 Sched 10 - As Amended By Env Act 1995) Issue date: 9/9/1998 Effective Date: - Revocation Date: 30/3/2008
59G	491.0	NE	440990, 403790	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Final/treated Effluent - Water Company Permit Number: WA 6273 Permit Version: 18	Receiving Water: River Dove And Bulling Dyke Status: Modified - (wra 91 Sched 10 - As Amended By Env Act 1995) Issue date: 31/3/2009 Effective Date: 31/3/2009 Revocation Date: 31/3/2009
60G	491.0	NE	440990, 403790	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Stw Storm Overflow/storm Tank - Water Company Permit Number: WA 6273 Permit Version: 18	Receiving Water: River Dove And Bulling Dyke Status: Modified - (wra 91 Sched 10 - As Amended By Env Act 1995) Issue date: 31/3/2009 Effective Date: 31/3/2009 Revocation Date: 31/3/2009
61G	491.0	NE	440990, 403790	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Stw Storm Overflow/storm Tank - Water Company Permit Number: WA 6273 Permit Version: 19	Receiving Water: River Dove And Bulling Dyke Status: Modified - (wra 91 Sched 10 - As Amended By Env Act 1995) Issue date: - Effective Date: 1/4/2009 Revocation Date: -
62G	491.0	NE	440990, 403790	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Final/treated Effluent - Water Company Permit Number: WA 6273 Permit Version: 16	Receiving Water: River Dove And Bulling Dyke Status: Modified - (wra 91 Sched 10 - As Amended By Env Act 1995) Issue date: 25/2/2005 Effective Date: 31/3/2008 Revocation Date: 30/3/2009
63G	491.0	NE	440990, 403790	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Final/treated Effluent - Water Company Permit Number: WA 6273 Permit Version: 19	Receiving Water: River Dove And Bulling Dyke Status: Modified - (wra 91 Sched 10 - As Amended By Env Act 1995) Issue date: - Effective Date: 1/4/2009 Revocation Date: -
64G	491.0	NE	440990, 403790	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Stw Storm Overflow/storm Tank - Water Company Permit Number: WA 6273 Permit Version: 14	Receiving Water: River Dove And Bulling Dyke Status: Modified - (wra 91 Sched 10 - As Amended By Env Act 1995) Issue date: 9/9/1998 Effective Date: 9/9/1998 Revocation Date: -
65G	491.0	NE	440990, 403790	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Final/treated Effluent - Water Company Permit Number: WA 6273 Permit Version: 14	Receiving Water: River Dove And Bulling Dyke Status: Modified - (wra 91 Sched 10 - As Amended By Env Act 1995) Issue date: 9/9/1998 Effective Date: 9/9/1998 Revocation Date: -

66G	491.0	NE	440990, 403790	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Stw Storm Overflow/storm Tank - Water Company Permit Number: WA 6273 Permit Version: 16	Receiving Water: River Dove And Bulling Dyke Status: Modified - (wra 91 Sched 10 - As Amended By Env Act 1995) Issue date: 25/2/2005 Effective Date: 31/3/2008 Revocation Date: 30/3/2009
67G	491.0	NE	440990, 403790	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Final/treated Effluent - Water Company Permit Number: WA 6273 Permit Version: 13	Receiving Water: River Dove And Bulling Dyke Status: Varied By Application - (wra 91 Sched 10 - As Amended By Env Act 1995) Issue date: 8/4/1998 Effective Date: 8/4/1998 Revocation Date: 8/9/1998
68G	491.0	NE	440990, 403790	Address: Wombwell Wwtw, Ings Road, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Stw Storm Overflow/storm Tank - Water Company Permit Number: WA 6273 Permit Version: 13	Receiving Water: River Dove And Bulling Dyke Status: Varied By Application - (wra 91 Sched 10 - As Amended By Env Act 1995) Issue date: 8/4/1998 Effective Date: 8/4/1998 Revocation Date: 8/9/1998

Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site: 0

Database searched and no data found.

1.2 Dangerous or Hazardous Sites

Records of COMAH & NIHHS sites within 500m of the study site: 0

Database searched and no data found.

1.3 Environment Agency Recorded Pollution Incidents

Records of National Incidents Recording System, List 2 within 250m of the study site: 10

The following NIRS List 2 records are represented as points on the Authorisations, Incidents and Registers Map:

ID	Distance	Direction	NGR	Details	
1	28.0	NW	440565, 403500	Incident Date: 16/06/2001 Incident Identification: 9613 Pollutant: Oils and Fuel Pollutant Description: Mixed/Waste Oils	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
2	132.0	SE	440709, 403372	Incident Date: 24/03/2002 Incident Identification: 66258 Pollutant: Oils and Fuel Pollutant Description: Petrol	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
3A	194.0	E	440799, 403402	Incident Date: 30/04/2003 Incident Identification: 155143 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)
4A	194.0	E	440799, 403402	Incident Date: 30/04/2003 Incident Identification: 155143 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)
5A	194.0	E	440799, 403402	Incident Date: 30/04/2003 Incident Identification: 155143 Pollutant: Specific Waste Materials Pollutant Description: Other Specific Waste Material	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
6A	194.0	E	440799, 403402	Incident Date: 30/04/2003 Incident Identification: 155143 Pollutant: Specific Waste Materials Pollutant Description: Metal Wastes	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)

Report Reference: HMD-354-1155402

7A	194.0	E	440799, 403402	Incident Date: 30/04/2003 Incident Identification: 155143 Pollutant: Specific Waste Materials Pollutant Description: Tyres	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
8A	194.0	E	440799, 403402	Incident Date: 30/04/2003 Incident Identification: 155143 Pollutant: Specific Waste Materials Pollutant Description: Batteries	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
9A	194.0	E	440799, 403402	Incident Date: 30/04/2003 Incident Identification: 155143 Pollutant: Inert Materials and Wastes:Specific Waste Materials:Specific Waste Materials:Specific Waste Material Pollutant Description: Construction and Demolition Materials and Wastes:Asbestos:Batteries:Household Waste:Metal Wastes:Tyr	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
10A	194.0	E	440799, 403402	Incident Date: 30/04/2003 Incident Identification: 155143 Pollutant: Specific Waste Materials Pollutant Description: Asbestos	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)

Records of National Incidents Recording System, List 1 within 250m of the study site:

0

Database searched and no data found.

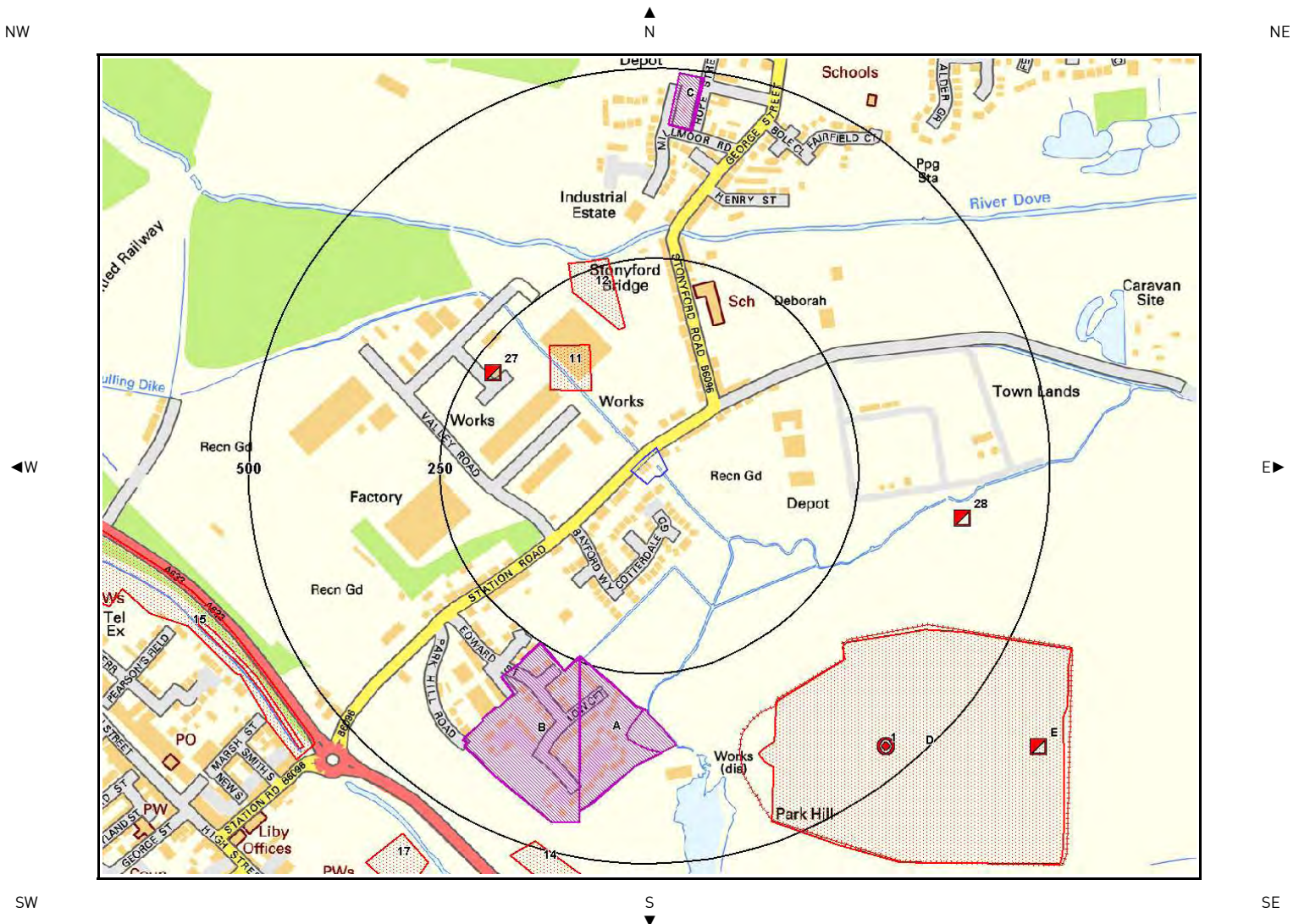
1.4 Sites Determined as Contaminated Land under Part 2A EPA 1990

How many records of sites determined as contaminated land under Section 78R of the Environmental Protection Act 1990 are there within 500m of the study site?

0

Database searched and no data found.

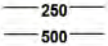
2. Landfill and Other Waste Sites Map



Landfill & Other Waste Sites Legend



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- | | | | | | |
|---|--------------------------|--|---------------------------|--|----------------------------------|
|  | Site Outline |  | E.A. Active Landfill |  | Historic and Planned Waste Sites |
|  | E.A. Historic Landfill |  | E.A. Licensed Waste Site | | |
|  | Local Authority Landfill |  | BGS / DoE Survey Landfill | | |
|  | Search Buffers (m) | | | | |

2. Landfill and Other Waste Sites

2.1 Landfill Sites

Records from Environment Agency landfill data within 1000m of the study site:

1

The following Environment Agency landfill records are represented as polygons on the Landfill and Other Waste Sites map:

ID	Distance	Direction	NGR	Details
2D	324.0	SE	441100, 403100	Address: Land / Premises At, Everill Gate Lane, Wombwell, Barnsley, South Yorkshire, S73 0DX Landfill Reference: 60604.0 Environmental Permitting Regulations (Waste) Reference: BDR009 Landfill Type: A4 : Household, Commercial & Industrial Waste Landfill Operator: B D R Waste Disposal Ltd Status: Issued IPPC Reference: EPR Reference:

Records of Environment Agency historic landfill sites within 1500m of the study site:

16

The following landfill records are represented as either points or polygons on the Landfill and Other Waste Sites map:

ID	Distance	Direction	NGR	Details
11	111.0	NW	440400, 403500	Site Address: Station Road Industrial Estate, Valley Road, Wombwell, Barnsley Waste Licence: Yes Site Reference: 4400/(125), WD20/B803 Waste Type: Inert, Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 19-Dec-1990 Licence Surrendered: 31-Dec-1993 Licence Hold Address: - Operator: -
12	163.0	N	440500, 403700	Site Address: Land North of Valley Road, Station Road, Industrial Estate, Wombwell, Barnsley Waste Licence: Yes Site Reference: 20B803(110), WD20 B803, 4400/B803 Waste Type: Inert, Commercial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 19-Dec-1990 Licence Surrendered: 28-Sep-1993 Licence Hold Address: Hangmanstone Depot, Birdwell, Barnsley Operator: Rafahart Limited
13D	327.0	SE	440900, 403000	Site Address: Parkhill Quarry, Everill Gate Lane, Wombwell, Barnsley Waste Licence: Yes Site Reference: 4400/B8, WD2 B8, WD2 B16, WD2 B24, 4400/B24, 4400/0410, 4400/0563 Waste Type: Inert, Industrial, Commercial, Household, Special, Liquid sludge Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 17-Nov-1976 Licence Surrendered: 31-Dec-1990 Licence Hold Address: Central Offices, Barnsley Operator: Barnsley Metropolitan Borough Council
14	492.0	S	440700, 402700	Site Address: Land To North of Wombwell Bypass, Wombwell, Barnsley Waste Licence: Yes Site Reference: WD20 B787, 4400/B787, 20B787(143) Waste Type: Inert, Commercial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 13-Jun-1991 Licence Surrendered: 10-Feb-1995 Licence Hold Address: Pontefract Road, Broom Hill, Wombwell, Barnsley Operator: VHE Construction Limited
15	543.0	SW	439900, 403200	Site Address: Disused canal between Station Road and Littlefield Road, Wombwell, Barnsley Waste Licence: Yes Site Reference: WD2 B19, WD20 B609, 4400/B609, 20B609(56) Waste Type: Inert, Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 26-Sep-1988 Licence Surrendered: 22-Apr-1993 Licence Hold Address: Stanney Mill Road, Little Stanney, Chester Operator: Barnsley Metropolitan Borough Council

16	557.0	SW	440000, 403100	Site Address: Disused Canal between Littlefield Lane and Station Road, Wombwell, Barnsley Waste Licence: Yes Site Reference: WD2 B17, 4400/B17 Waste Type: Inert, Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 02-Mar-1988 Licence Surrendered: Licence Hold Address: Public Services Department, Central Offices, Kendray Street, Barnsley Operator: -
17	560.0	SW	440200, 402900	Site Address: Rear of Catholic Club, 23 Park Street, Wombwell, Barnsley Waste Licence: - Site Reference: (145)B, WD20 B185, 4400/(125) Waste Type: - Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Hold Address: - Operator: P J Burke Limited
Not shown	829.0	W	439700, 403300	Site Address: North Ferriby Tip, Church Road, North Ferriby Waste Licence: Yes Site Reference: 55/30/10, 4400/41B61 Waste Type: Inert, Industrial, Commercial, Household Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 13-Jul-1995 Licence Surrendered: Licence Hold Address: - Operator: Humberside County Council
Not shown	899.0	S	440900, 402500	Site Address: Section of disused canal between Everill Gate Lane, Wombwell Bypass, Barnsley Waste Licence: - Site Reference: 2B25(111), WD2 B25, 4400/B25 Waste Type: Inert, Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Hold Address: Public Services Department, Kendray Street, Barnsley Operator: Barnsley Metropolitan Borough Council
Not shown	1066.0	NE	441600, 403900	Site Address: End Of Ings Road, Wombwell, Barnsley Waste Licence: - Site Reference: (123)B, 4400/(123) Waste Type: - Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Hold Address: - Operator: -
Not shown	1078.0	SE	441300, 402300	Site Address: Former Clay Pit, Wath Road, Wombwell Waste Licence: - Site Reference: (158)B, 4400/(158) Waste Type: - Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Hold Address: - Operator: British Rail
Not shown	1078.0	SE	441300, 402300	Site Address: V H E Construction Plc, Wath Road, Wombwell, Barnsley, South Yorkshire Waste Licence: Yes Site Reference: WD20/B786, 4400/B197, WD20/B197, 20B197, 4400/0574, NE4238 Waste Type: Inert, Commercial, Liquid sludge Environmental Permitting Regulations (Waste) Reference: YQ1/L/VHE001	Licence Issue: 11-Jan-1978 Licence Surrendered: 10-May-1999 Licence Hold Address: Eastern Region, British Rail, Sheaf House, Leadmill Road, Sheffield Operator: -
Not shown	1375.0	S	441000, 402100	Site Address: Brampton Road, Wombwell Waste Licence: - Site Reference: 4400/(112)B, (112)B Waste Type: - Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Hold Address: - Operator: -
Not shown	1451.0	SE	441500, 402100	Site Address: Land to East of A633 Road adjacent to Knoll Beck, Broomhill, Wombwell, Brampton, Barnsley Waste Licence: Yes Site Reference: WD20 B538, 4400/B538, 20B546(103), 20B538(103) Waste Type: Inert, Commercial Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 03-Nov-1986 Licence Surrendered: 11-Feb-1993 Licence Hold Address: - Operator: Wombwell Diesels Company Limited
Not shown	1454.0	SE	441500, 402200	Site Address: Wath Road, Rotherham, South Yorkshire Waste Licence: - Site Reference: - Waste Type: Commercial, Household Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Hold Address: - Operator: Rotherham Rural District Council

Not shown	1478.0	S	440700, 401200	Site Address: V H E Construction Plc - Former Cortonwood Colliery, Cortonwood Reclamation Scheme, Knollbeck Lane, Brampton, Barnsley, South Yorkshire Waste Licence: Yes Site Reference: WD20/R8544, 4400/R854, NE2165 Waste Type: Inert, Industrial Environmental Permitting Regulations (Waste) Reference: YQ1/L/VHE002	Licence Issue: 21-Dec-1992 Licence Surrendered: 19-Feb-2004 Licence Hold Address: Phoenix House, Hawthorn Park, Coal Road, Leeds, West Yorkshire Operator: V H E (Construction) Plc
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Records of BGS/DoE non-operational landfill sites within 1500m of the study site:

1

The following landfill records are represented as points on the Landfill and Other Waste Sites map:

ID	Distance	Direction	NGR	Details
1	462.0	SE	440900.0, 403100.0	Address: Park Hill Tip, Wombwell, S.Yorks BGS Number: 184.0 Risk: Risk to major aquifer Waste Type: N/A

Records of Local Authority landfill sites within 1500m of the study site:

0

Database searched and no data found.

2.2 Other Waste Sites

Records of waste treatment, transfer or disposal sites within 500m of the study site:

8

The following waste treatment, transfer or disposal sites records are represented as points on the Landfill and Other Waste Sites map:

ID	Distance [m]	Direction	Details
3A	242.0	S	Type of Site: Scrap Yard Site Address: N/A Planning Application Reference: N/A Date: 1981 Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
4B	243.0	S	Type of Site: Scrap Yard Site Address: N/A Planning Application Reference: N/A Date: 1994 Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
5A	244.0	S	Type of Site: Scrap Yard Site Address: N/A Planning Application Reference: N/A Date: 1993 Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
6B	244.0	S	Type of Site: Scrap Yard Site Address: N/A Planning Application Reference: N/A Date: 1981 Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
7C	419.0	N	Type of Site: Scrap Yard Site Address: N/A Planning Application Reference: N/A Date: 1993 Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
8C	419.0	N	Type of Site: Scrap Yard Site Address: N/A Planning Application Reference: N/A Date: 1994 Further Details: N/A Data Source: Historic Mapping Data Type: Polygon

9C	420.0	N	Type of Site: Scrap Yard Site Address: N/A	Planning Application Reference: N/A Date: 1981	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
10C	420.0	N	Type of Site: Scrap Yard Site Address: N/A	Planning Application Reference: N/A Date: 1981	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon

Records of Environment Agency licensed waste sites within 1500m of the study site:

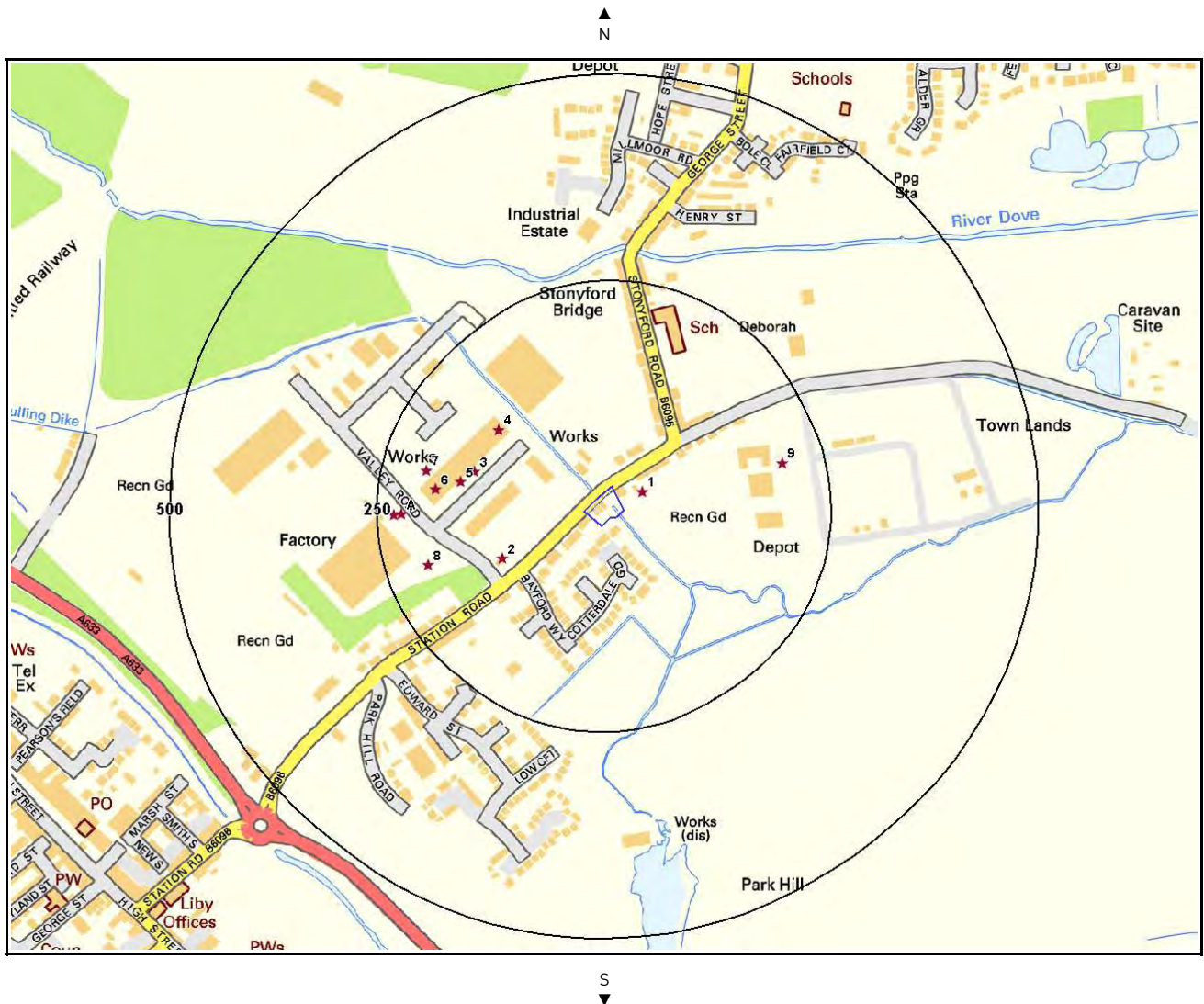
9

The following waste treatment, transfer or disposal sites records are represented as points on the Landfill and Other Waste Sites map:

ID	Distance	Direction	NGR	Details	
27	222.0	NW	440386, 403591	Site Address: Station Road Industrial Estate, Valley Road, Wombwell, Barnsley, South Yorkshire, S73 0BS Type: Metal recycling site Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: GIL048 EPR reference: EA/EPR/CB3032RL/A001 Operator: Gillott Alloys Limited Waste Management licence No: 103352 Annual Tonnage: 74999.0	Issue Date: 09/01/2012 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Gillott Alloys Ltd Correspondence Address: -, -
28	390.0	E	441000, 403400	Site Address: Wombwell Wwtw, Ings Lane, Wombwell, Barnsley, South Yorkshire, S73 0BP Type: Biological Treatment Facility Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: YOR035 EPR reference: EA/EPR/DP3292ZS/A001 Operator: Yorkshire Water Services Ltd Waste Management licence No: 65470 Annual Tonnage: 4999.0	Issue Date: 17/05/2006 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Wombwell Wwtw Correspondence Address: -, -
29E	606.0	SE	441100, 403100	Site Address: Land / Premises At, Everill Gate Lane, Wombwell, Barnsley, South Yorkshire, S73 0DX Type: Household, Commercial & Industrial Waste Landfill Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: BDR009 EPR reference: EA/EPR/JP3490ZK/A001 Operator: B D R Waste Disposal Ltd Waste Management licence No: 60604 Annual Tonnage: 5000.0	Issue Date: 31/03/1993 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Parkhill Landfill Site Correspondence Address: -, -
30E	606.0	SE	441100, 403100	Site Address: Everhill Gate Lane, Wombwell, Barnsley, S Yorks Type: Household, Commercial & Industrial Waste Landfill Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: BDR009 EPR reference: - Operator: B D R Waste Disposal Ltd Waste Management licence No: 60604 Annual Tonnage: 0.0	Issue Date: 31/03/1993 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Parkhill Landfill Site Correspondence Address: -, Thurcroft Heritage Centre, Thurcroft, Rotherham, South Yorkshire, S66 9AB
31E	606.0	SE	441100, 403100	Site Address: Everhill Gate Lane, Wombwell, Barnsley, S Yorks Type: Co-Disposal Landfill Site Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: BDR009 EPR reference: - Operator: B D R Waste Disposal Ltd Waste Management licence No: 60604 Annual Tonnage: 0.0	Issue Date: 31/03/1993 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Parkhill Landfill Site Correspondence Address: -, Thurcroft Heritage Centre, Thurcroft, Rotherham, South Yorkshire, S66 9AB

Not shown	1117.0	SE	441200, 402510	Site Address: Wath Road, Wombwell, Barnsley, S Yorks Type: Landfill taking Non-Biodegradable Wastes Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: VHE001 EPR reference: - Operator: V H E (Construction) Plc Waste Management licence No: 60590 Annual Tonnage: 0.0	Issue Date: 15/07/1993 Effective Date: - Modified: - Surrendered Date: 10/05/1999 Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: V H E Construction Plc Correspondence Address: -, Engine Lane, Shafton, Barnsley, S Yorks, S72 8SP
Not shown	1117.0	SE	441200, 402510	Site Address: Wath Road, Wombwell, Barnsley, S Yorks Type: Landfill taking Non-Biodegradable Wastes Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: VHE001 EPR reference: - Operator: V H E (Construction) Plc Waste Management licence No: 60590 Annual Tonnage: 0.0	Issue Date: 15/07/1993 Effective Date: - Modified: - Surrendered Date: 10/05/1999 Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: V H E Construction Plc Correspondence Address: -, Engine Lane, Shafton, Barnsley, S Yorks, S72 8SP
Not shown	1117.0	SE	441200, 402510	Site Address: Wath Road, Wombwell, Barnsley, South Yorkshire Type: Landfill taking Non-Biodegradable Wastes Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: VHE001 EPR reference: EA/EPR/YP3890ZG/S002 Operator: V H E Construction Plc Waste Management licence No: 60590 Annual Tonnage: 150000.0	Issue Date: 15/07/1993 Effective Date: - Modified: - Surrendered Date: 10/05/1999 Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: V H E Construction Plc Correspondence Address: -, -
Not shown	1495.0	SE	441900, 402700	Site Address: 88, Pontefract Road, Broomhill, Barnsley, South Yorkshire, S73 0YG Type: Metal Recycling Site (Vehicle Dismantler) Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: BRO003 EPR reference: EA/EPR/AP3590ZB/A001 Operator: Broomhill Motor Spares Waste Management licence No: 60552 Annual Tonnage: 5000.0	Issue Date: 21/12/1995 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Broomhill Motor Spares Correspondence Address: -, -

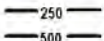
3. Current Land Use Map



Current Land Use Legend



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-  Site Outline
-  Current Industrial Sites
-  Petrol & Fuel Sites
-  Underground High Pressure Oil & Fuel Pipelines
-  Search Buffers (m)

3. Current Land Uses

3.1 Current Industrial Data

Records of potentially contaminative industrial sites within 250m of the study site:

11

The following records are represented as points on the Current Land Uses map.

ID	Distance	Direction	Company	Address	Activity	Category
1	30.0	NE	Electricity Sub Station	S73	Electrical Features	Infrastructure and Facilities
2	114.0	SW	Gas Governor	S73	Gas Features	Infrastructure and Facilities
3	141.0	W	Works	S73	Unspecified Works Or Factories	Industrial Features
4	143.0	NW	Adria Glass Ltd	Unit 5, Low Valley Industrial Estate, Wombwell, Barnsley, S73 8AG	Glass	Industrial Products
5	153.0	W	Works	S73	Unspecified Works Or Factories	Industrial Features
6	182.0	W	Works	S73	Unspecified Works Or Factories	Industrial Features
7	197.0	W	Works	S73	Unspecified Works Or Factories	Industrial Features
8	199.0	W	Electricity Sub Station	S73	Electrical Features	Infrastructure and Facilities
9	199.0	E	Depot	S73	Container and Storage	Transport, Storage and Delivery
10 A	221.0	W	Gas Governor	S73	Gas Features	Infrastructure and Facilities
11 A	230.0	W	Gas Governor Station	S73	Gas Features	Infrastructure and Facilities

3.2 Petrol and Fuel Sites

Records of petrol or fuel sites within 500m of the study site:

0

Database searched and no data found.

3.3 Underground High Pressure Oil and Gas Pipelines

Records of high pressure underground pipelines within 500m of the study site:

0

Database searched and no data found.

4. Geology

4.1 Artificial Ground and Made Ground

The database has been searched on site, including a 50m buffer.

LEX Code	Description	Rock Type
MGR-MGRD	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

(Derived from the BGS 1:50,000 Digital Geological Map of Great Britain)

4.2 Superficial Ground and Drift Geology

The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
ALV-CLSI	ALLUVIUM	CLAY AND SILT

(Derived from the BGS 1:50,000 Digital Geological Map of Great Britain)

4.3 Bedrock and Solid Geology

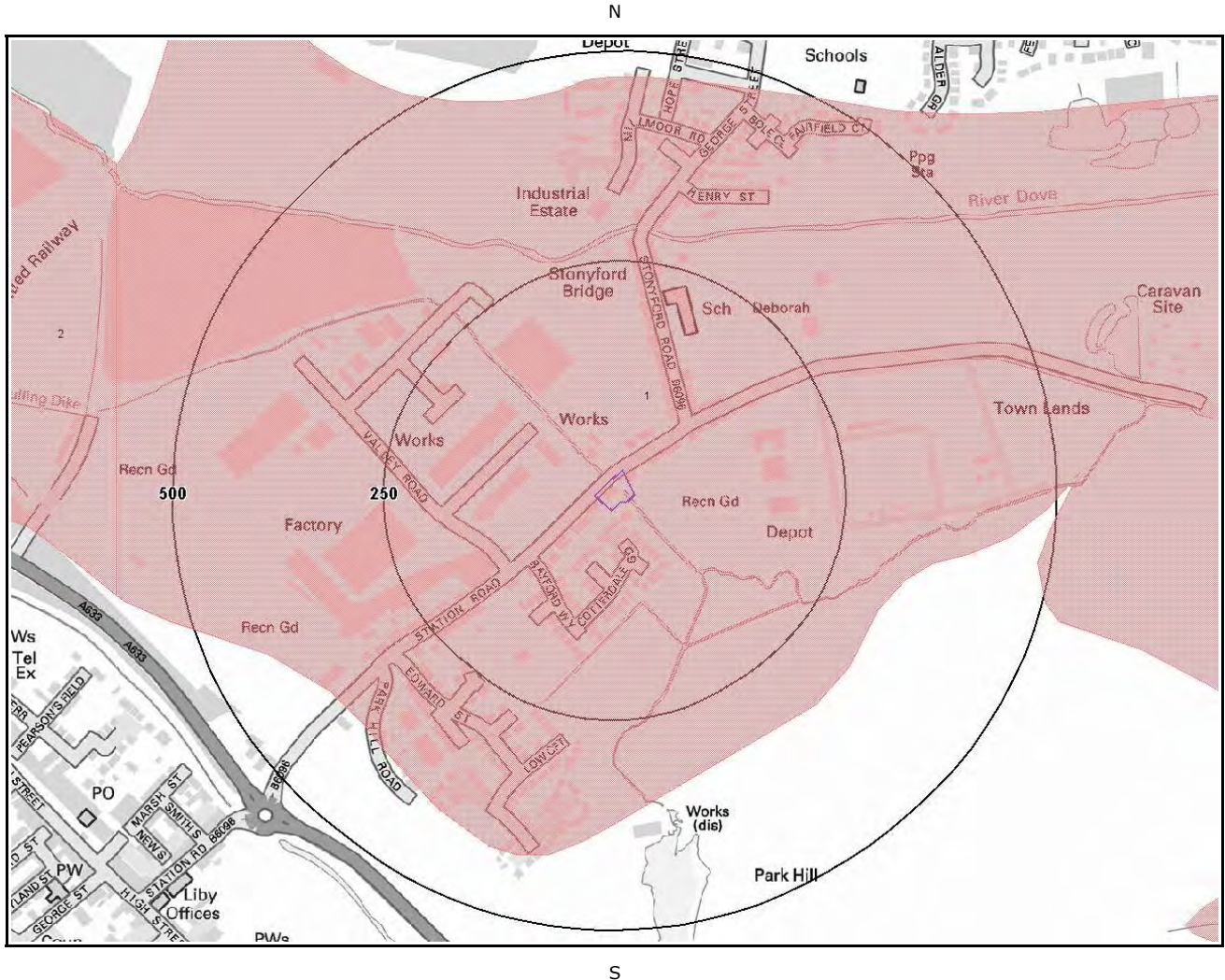
The database has been searched on site, including a 50m buffer.

LEX Code	Description	Rock Type
PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION	MUDSTONE, SILTSTONE AND SANDSTONE

(Derived from the BGS 1:50,000 Digital Geological Map of Great Britain)

For more detailed geological and ground stability data please refer to the "GroundSure GeoInsight". Available from our website.

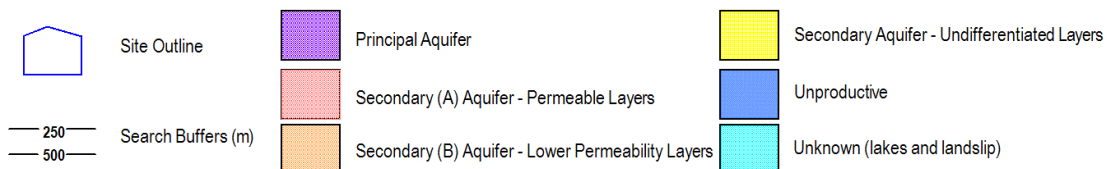
5a. Hydrogeology - Aquifer Within Superficial Geology



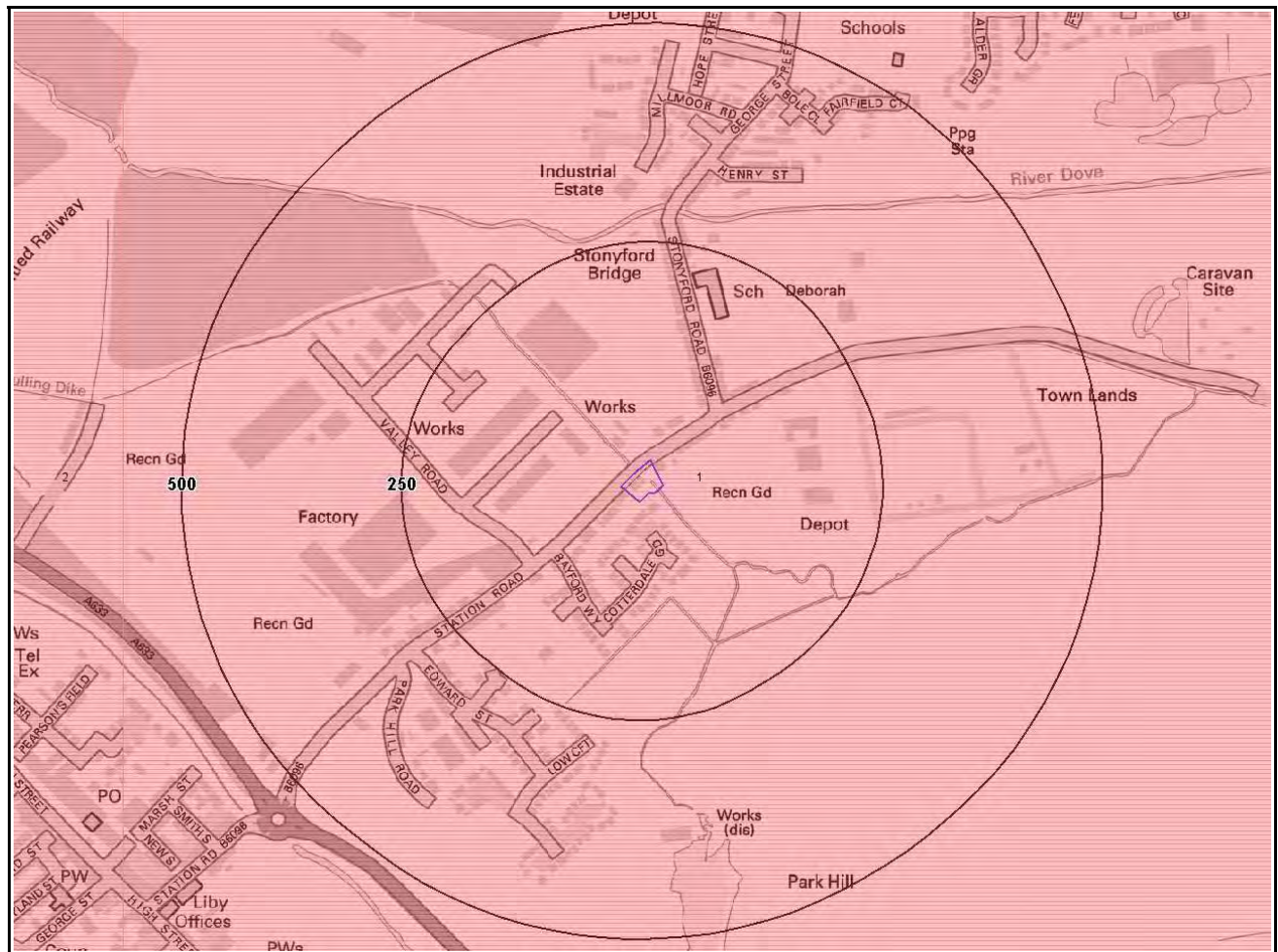
Aquifer Within Superficial Geology Legend



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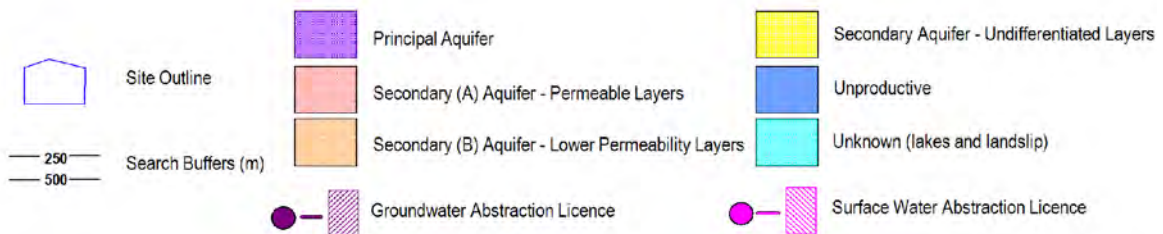
5b. Hydrogeology - Aquifer Within Bedrock Geology and Abstraction Licenses



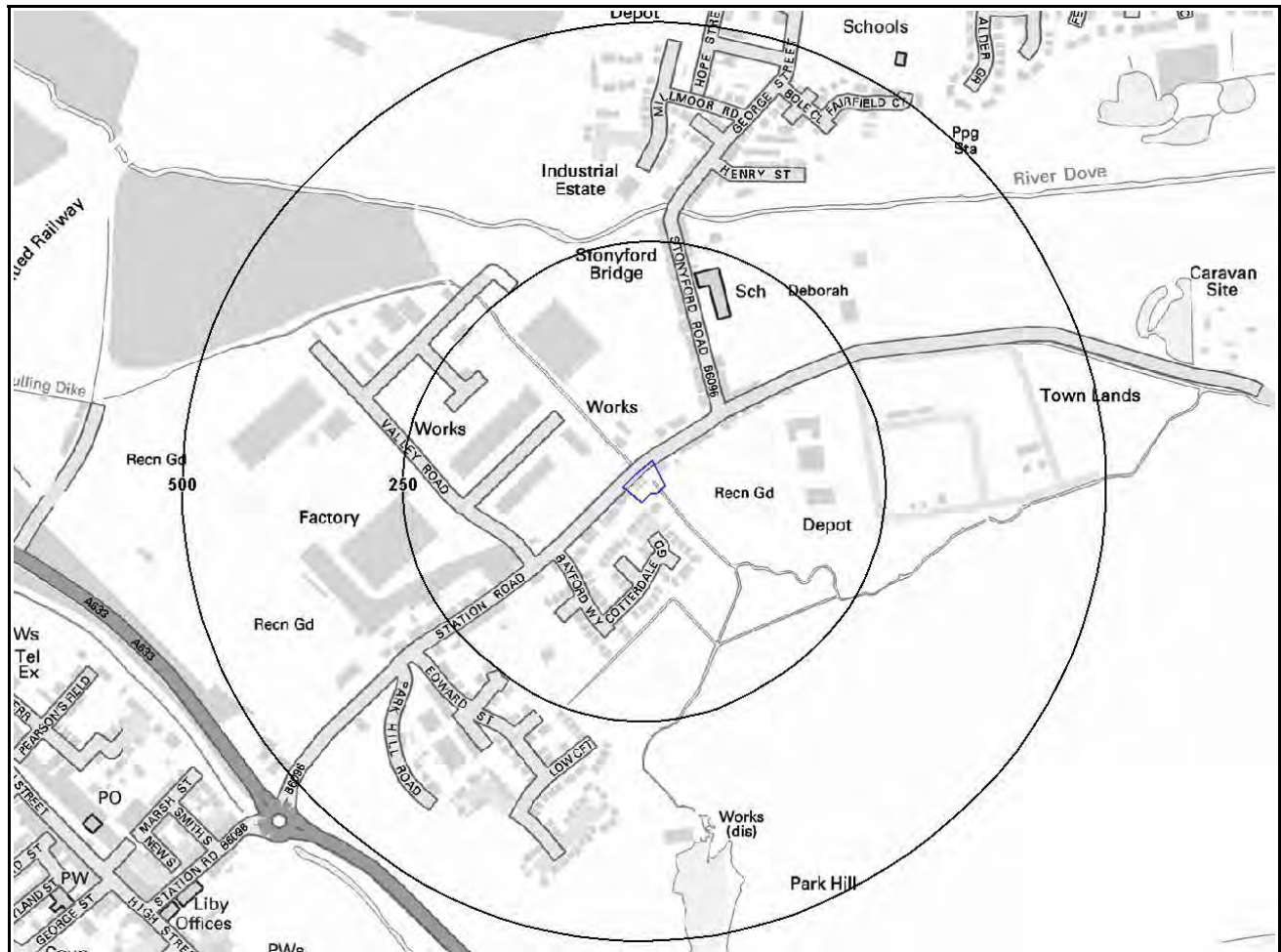
Aquifer Within Bedrock Geology Legend



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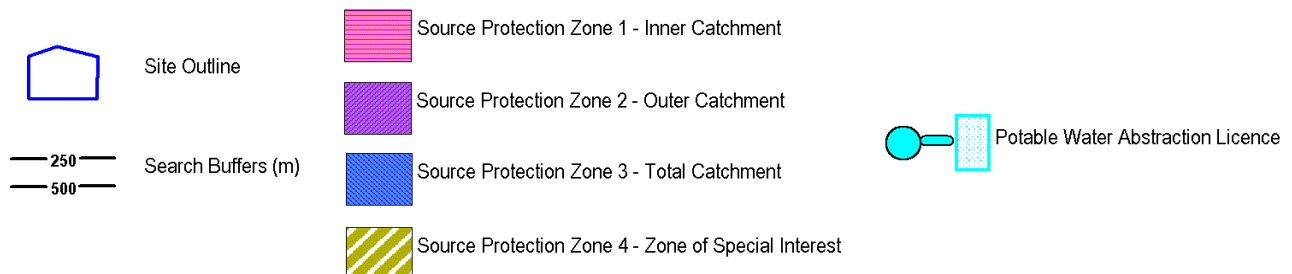
5c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licenses



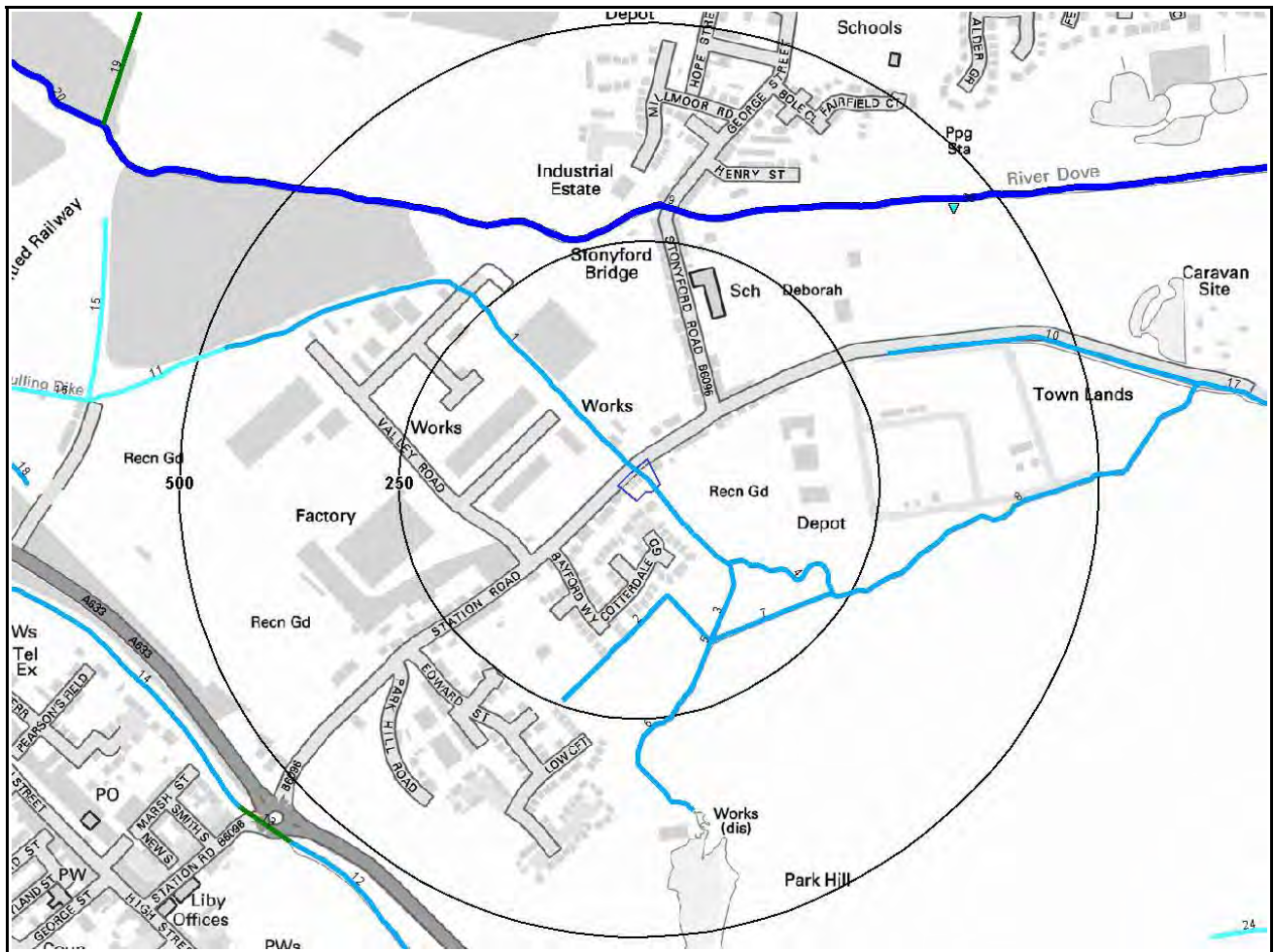
SPZ and Potable Water Abstraction Licenses
Legend



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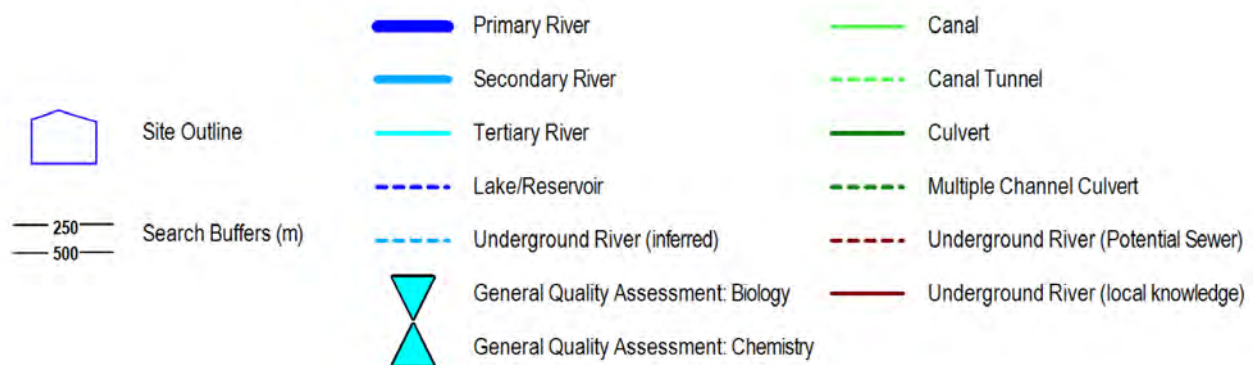
5d. Hydrology – Detailed River Network and River Quality



Hydrology Legend



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5. Hydrogeology and Hydrology

5.1 Aquifer within Superficial Deposits

Are there records of productive strata within the superficial geology at or in proximity to the property?

Yes

From 1 April 2010, the Environment Agency's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the GroundSure Enviroinsight User Guide.

The following aquifer records are shown on the Aquifer within Superficial Geology Map (5a):

ID	Distance [m]	Direction	Designation	Description
1	0.0	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

5.2 Aquifer within Bedrock Deposits

Are there records of productive strata within the bedrock geology at or in proximity to the property?

Yes

From 1 April 2010, the Environment Agency's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the GroundSure Enviroinsight User Guide.

The following aquifer records are shown on the Aquifer within Bedrock Geology Map (5b):

ID	Distance [m]	Direction	Designation	Description
1	0.0	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

5.3 Groundwater Abstraction Licences

Are there any Groundwater Abstraction Licences within 2000m of the study site?

No

Database searched and no data found.

5.4 Surface Water Abstraction Licences

Are there any Surface Water Abstraction Licences within 2000m of the study site?

Yes

The following Surface Water Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (5b):

ID	Distance	Direction	NGR	Details
----	----------	-----------	-----	---------

Not shown	1844.0	E	442400, 403000	Licence No: 2/27/08/119 Details: Lake & Pond Throughflow Direct Source: Surface Water Point: River Dearne - Old Moor Wetlands Reserve Data Type: Point	Annual Volume (m ³): - Max Daily Volume (m ³): - Application No: 6768 Original Start Date: 23/5/1997 Expiry Date: - Issue No: 100 Version Start Date: 10/11/1999 Version End Date:
Not shown	1844.0	E	442400, 403000	Licence No: 2/27/08/119 Details: Lake & Pond Throughflow Direct Source: Surface Water Point: River Dearne-old Moor Wetlands Reserve Data Type: Point	Annual Volume (m ³): 1103760 Max Daily Volume (m ³): 3024 Application No: 6768 Original Start Date: 23/5/1997 Expiry Date: - Issue No: 101 Version Start Date: 1/4/2003 Version End Date:

5.5 Potable Water Abstraction Licences

Are there any Potable Water Abstraction Licences within 2000m of the study site?

No

Database searched and no data found.

5.6 Source Protection Zones

Are there any Source Protection Zones within 500m of the study site?

No

Database searched and no data found.

5.7 River Quality

Is there any Environment Agency information on river quality within 1500m of the study site?

Yes

Biological Quality:

Biological Quality data describes water quality in terms of 83 groups of macroinvertebrates, some of which are pollution sensitive. The results are graded from A ('Very Good') to F ('Bad').

The following Biological Quality records are shown on the Hydrology Map (5d):

ID	Distance [m]	Direction	NGR	River Details	Biological Quality Grade				
					2005	2006	2007	2008	2009
39	453.0	NE	440950, 403780	River Name: Dove Reach: Blacker Dyke Wombwell Stw End/Start of Stretch: End of Stretch NGR	D	D	D	C	C
Not shown	1372.0	E	441969, 403683	River Name: Dearne Reach: River Dove Bulling Dike End/Start of Stretch: Start of Stretch NGR	D	D	D	D	D
Not shown	1372.0	E	441969, 403683	River Name: Dearne Reach: Billingley Dyke River Dove End/Start of Stretch: End of Stretch NGR	D	D	D	D	D

Not shown	1372.0	E	441969, 403683	River Name: Dove Reach: Wombwell Stw River Dearne End/Start of Stretch: End of Stretch NGR	D	D	D	C	C
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Chemical Quality:

Chemical quality data is based on the General Quality Assessment Headline Indicators scheme (GQAH). In England, each chemical sample is measured for ammonia and dissolved oxygen. In Wales, the samples are measured for biological oxygen demand (BOD), ammonia and dissolved oxygen. The results are graded from A ('Very Good') to F ('Bad').

The following Chemical Quality records are shown on the Hydrology Map (5d):

ID	Distance [m]	Direction	NGR	River Details	Chemical Quality Grade (Headline Indicator)				
					2005	2006	2007	2008	2009
Not shown	1232.0	E	441800, 403800	River Name: River Dove Reach: Wombwell Stw River Dearne End/Start of Stretch: Sample Point NGR	B	B	B	B	B
Not shown	1372.0	E	441969, 403683	River Name: River Dearne Reach: River Dove Bulling Dike End/Start of Stretch: Start of Stretch NGR	C	C	C	C	C
Not shown	1372.0	E	441969, 403683	River Name: River Dearne Reach: Billingley Dyke River Dove End/Start of Stretch: End of Stretch NGR	C	C	C	C	B
Not shown	1372.0	E	441969, 403683	River Name: River Dove Reach: Wombwell Stw River Dearne End/Start of Stretch: End of Stretch NGR	B	B	B	B	B

5.8 Detailed River Network

Are there any Detailed River Network entries within 500m of the study site?

Yes

The following Detailed River Network records are represented on the Hydrology Map (5d):

ID	Distance	Direction	Details
1	0.0	On Site	River Name: Bulling Dike Welsh River Name: - Alternative Name: - River Type: Secondary River Main River Status: Currently Undefined
2	115.0	S	River Name: Drain Welsh River Name: - Alternative Name: - River Type: Secondary River Main River Status: Currently Undefined
3	120.0	SE	River Name: Drain Welsh River Name: - Alternative Name: - River Type: Secondary River Main River Status: Currently Undefined
4	120.0	SE	River Name: Bulling Dike Welsh River Name: - Alternative Name: - River Type: Secondary River Main River Status: Currently Undefined
5	181.0	SE	River Name: - Welsh River Name: - Alternative Name: - River Type: Secondary River Main River Status: Currently Undefined
6	182.0	SE	River Name: - Welsh River Name: - Alternative Name: - River Type: Secondary River Main River Status: Currently Undefined
7	182.0	SE	River Name: - Welsh River Name: - Alternative Name: - River Type: Secondary River Main River Status: Currently Undefined
8	232.0	SE	River Name: Bulling Dike Welsh River Name: - Alternative Name: - River Type: Secondary River Main River Status: Currently Undefined

9	263.0	N	River Name: River Dove Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined
10	300.0	NE	River Name: Drain Welsh River Name: - Alternative Name: -	River Type: Secondary River Main River Status: Currently Undefined
11	475.0	W	River Name: Bulling Dike Welsh River Name: - Alternative Name: -	River Type: Tertiary River Main River Status: Currently Undefined

5.9 Surface Water Features

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

Yes

The following surface water records are not represented on mapping:

Distance to Surface Water (m)	on-site	0-50	51-250
Surface water features within 250m of the study site	Yes	No	No

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6. Environment Agency Flood Map

NW

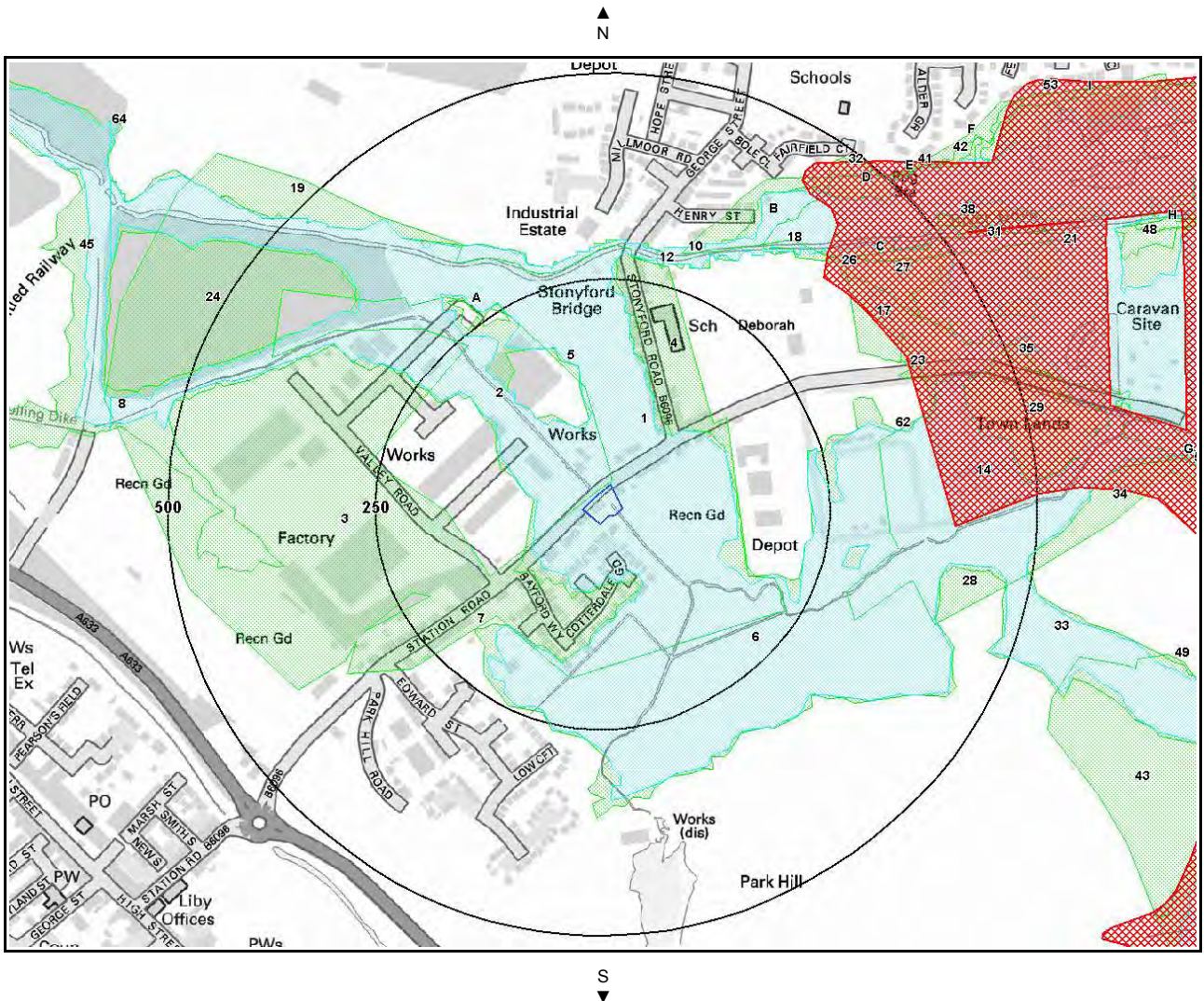
NE

W

E

SW

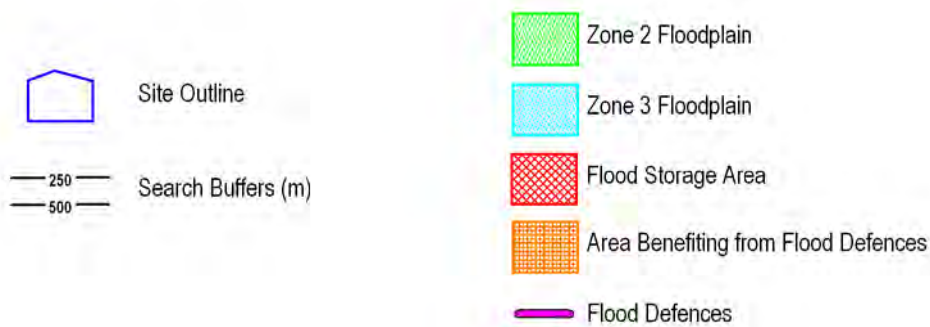
SE



Environment Agency Flood Legend



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6. Flooding

6.1 Zone 2 Flooding

Zone 2 floodplain estimates the annual probability of flooding as one in one thousand (0.1%) or greater from rivers and the sea but less than 1% from rivers or 0.5% from the sea. Alternatively, where information is available they may show the highest known flood level.

Is the site within 250m of an Environment Agency indicative Zone 2 floodplain?

Yes

The following floodplain records are represented as green shading on the Flood Map:

ID	Distance	Direction	Update	Type
1	0.0	On Site	09-Sep-2013	Zone 2 - (Fluvial Models and Fluvial Events)
2	3.0	NW	09-Sep-2013	Zone 2 - (Fluvial Models)
3	73.0	S	09-Sep-2013	Zone 2 - (Fluvial Events)
4	96.0	NE	09-Sep-2013	Zone 2 - (Fluvial Events)
5	132.0	N	09-Sep-2013	Zone 2 - (Fluvial Events)
6	166.0	SE	09-Sep-2013	Zone 2 - (Fluvial Models)
7	193.0	SW	09-Sep-2013	Zone 2 - (Fluvial Models and Fluvial Events)
8	234.0	NW	09-Sep-2013	Zone 2 - (Fluvial Models and Fluvial Events)
9	244.0	NW	09-Sep-2013	Zone 2 - (Fluvial Events)

6.2 Zone 3 Flooding

Zone 3 estimates the annual probability of flooding as one in one hundred (1%) or greater from rivers and a one in two hundred (0.5%) or greater from the sea. Alternatively, where information is available they may show the highest known flood level.

Is the site within 250m of an Environment Agency indicative Zone 3 floodplain?

Yes

The following floodplain records are represented as blue shading on the Flood Map:

ID	Distance	Direction	Update	Type
62	0.0	On Site	09-Sep-2013	Zone 3 - (Fluvial Models)

6.3 Flood Defences

Are there any Flood Defences within 250m of the study site?

No

6.4 Areas benefiting from Flood Defences

Are there any areas benefiting from Flood Defences within 250m of the study site?

No

6.5 Areas used for Flood Storage

Are there any areas used for Flood Storage within 250m of the study site?

No

6.6 Groundwater Flooding Susceptibility Areas

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

Yes

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

Very High

6.7 Groundwater Flooding Confidence Areas

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

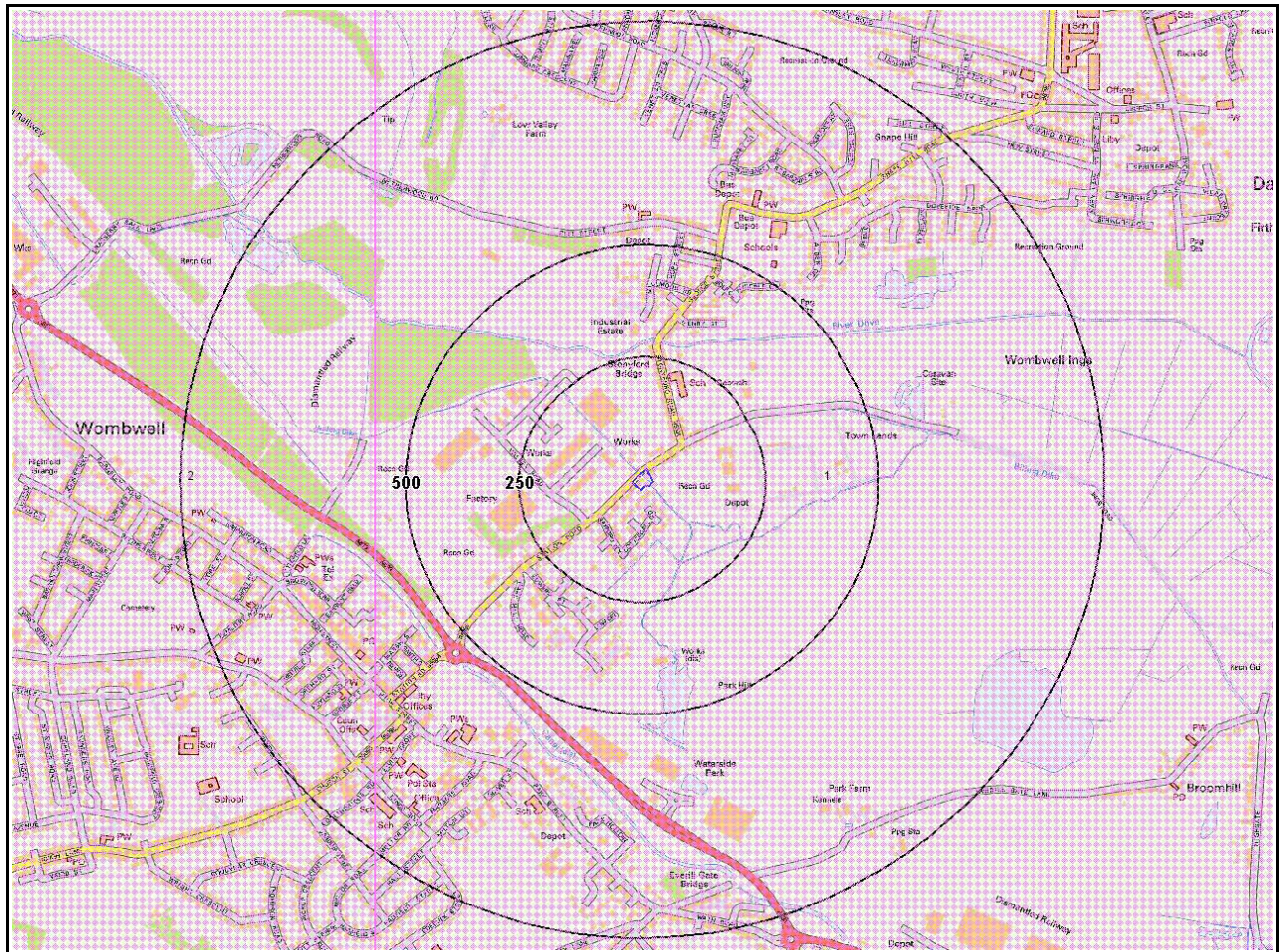
Moderate

Notes:

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

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

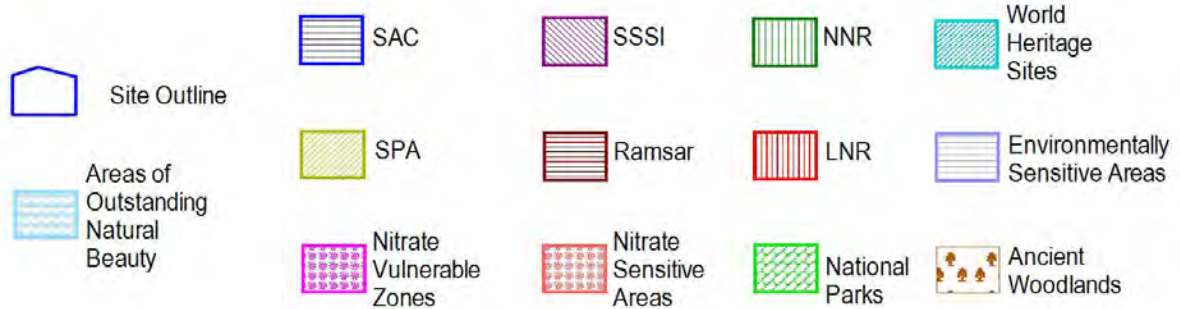
7.Designated Environmentally Sensitive Sites Map



Designated Environmentally Sensitive Sites Legend



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7. Designated Environmentally Sensitive Sites

Presence of Designated Environmentally Sensitive Sites within 2000m of the study site? **Yes**

Records of Sites of Special Scientific Interest (SSSI) within 2000m of the study site: **0**

Database searched and no data found.

Records of National Nature Reserves (NNR) within 2000m of the study site: **0**

Database searched and no data found.

Records of Special Areas of Conservation (SAC) within 2000m of the study site: **0**

Database searched and no data found.

Records of Special Protection Areas (SPA) within 2000m of the study site: **0**

Database searched and no data found.

Records of Ramsar sites within 2000m of the study site: **0**

Database searched and no data found.

Records of Local Nature Reserves (LNR) within 2000m of the study site: **0**

Database searched and no data found.

Records of World Heritage Sites within 2000m of the study site: **0**

Database searched and no data found.

Records of Environmentally Sensitive Areas within 2000m of the study site: **0**

Database searched and no data found.

Records of Areas of Outstanding Natural Beauty (AONB) within 2000m of the study site: **0**

Database searched and no data found.

Records of National Parks (NP) within 2000m of the study site: **0**

Database searched and no data found.

Report Reference: HMD-354-1155402

Records of Nitrate Sensitive Areas within 2000m of the study site: **0**

Database searched and no data found.

Records of Nitrate Vulnerable Zones within 2000m of the study site: **2**

The following Nitrate Vulnerable Zone records produced by DEFRA are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance	Direction	NVZ Type	Data Source
1	0.0	On Site	NVZ Area	DEFRA
2	567.0	W	NVZ Area	DEFRA

Records of Ancient Woodland within 2000m of the study site: **0**

Database searched and no data found.

8. Natural Hazards Findings

8.1 Detailed BGS GeoSure Data

BGS GeoSure Data has been searched to 50m. The data is included in tabular format. If you require further information on geology and ground stability, please obtain a GroundSure GeoInsight, available from our website. The following information has been found:

8.1.1 Shrink Swell

What is the maximum Shrink-Swell* hazard rating identified on the study site? **Low**

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Ground conditions predominantly medium plasticity. Do not plant trees with high soil moisture demands near to buildings. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a possible increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a possible increase in insurance risk, especially during droughts or where vegetation with high moisture demands is present.

8.1.2 Landslides

What is the maximum Landslide* hazard rating identified on the study site? **Very Low**

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.

8.1.3 Soluble Rocks

What is the maximum Soluble Rocks* hazard rating identified on the study site? **Null - Negligible**

Soluble rocks are not present in the search area. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.

8.1.4 Compressible Ground

What is the maximum Compressible Ground* hazard rating identified on the study site? **Moderate**

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard

Significant potential for compressibility problems. Avoid large differential loadings of ground. Do not drain or de-water ground near the property without technical advice. For new build consider possibility of compressible ground in ground investigation, construction and building design. Consider effects of groundwater changes. Extra construction costs are likely. For existing property possible increase in insurance risk from compressibility, especially if water conditions or loading of the ground change significantly.

8.1.5 Collapsible Rocks

What is the maximum Collapsible Rocks* hazard rating identified on the study site?

Negligible

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard

No indicators for collapsible deposits identified. No actions required to avoid problems due to collapsible deposits. No special ground investigation required, or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

8.1.6 Running Sand

What is the maximum Running Sand* hazard rating identified on the study site?

Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard

Possibility of running sand problems after major changes in ground conditions. Normal maintenance to avoid leakage of water-bearing services or water bodies (ponds, swimming pools) should reduce likelihood of problems due to running sand. For new build consider possibility of running sand into trenches or excavations if water table is high or sandy strata are exposed to water. Avoid concentrated water inputs to site. Unlikely to be an increase in construction costs due to potential for running sand. For existing property no significant increase in insurance risk due to running sand problems is likely.

* This indicates an automatically generated 50m buffer and site.

9. Mining

9.1 Coal Mining

Are there any coal mining areas within 75m of the study site?

Yes

The following coal mining information provided by the Coal Authority is not represented on Mapping:

Distance	Direction	Details
0.0	On Site	The study site is located within the specified search distance of an identified mining area. Further details concerning this can be obtained from the Coal Authority Helpline on 0845 762 6848.

9.2 Shallow Mining

What is the subsidence hazard relating to shallow mining on-site*?

Low-Moderate

*Please note this data is searched with a 150m buffer.

9.3 Brine Affected Areas

Are there any brine affected areas within 75m of the study site?

No

Guidance: No Guidance Required.

10. Contacts

e.Michael D Joyce Associates LLP

Telephone: (0)1924 360458
mdja@geoenvironmental.co.uk



British Geological Survey (England & Wales)

Kingsley Dunham Centre
Keyworth, Nottingham NG12 5GG
Tel: 0115 936 3143. Fax: 0115 936 3276. Email: enquiries@bgs.ac.uk
Web: www.bgs.ac.uk
BGS Geological Hazards Reports and general geological enquiries



Environment Agency

National Customer Contact Centre
PO Box 544
Rotherham
S60 1BY
Tel: 08708 506 506
Web: www.environment-agency.gov.uk
Email: enquiries@environment-agency.gov.uk



Public Health England

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



The Coal Authority

200 Lichfield Lane, Mansfield, Notts NG18 4RG
Tel: 0845 762 6848
DX 716176 Mansfield 5
Web: www.groundstability.com



Ordnance Survey

Romsey Road
Southampton SO16 4GU
Tel: 08456 050505



Local Authority

Authority: Barnsley Metropolitan Borough Council
Phone: 01226 770770
Web: www.barnsley.gov.uk/index.asp
Address: Town Hall, Barnsley, South Yorkshire, S70 2TA

Get Mapping PLC

Virginia Villas, High Street, Hartley Witney, Hampshire RG27 8NW
Tel: 01252 845444



Acknowledgements

Site of Special Scientific Interest, National Nature Reserve, Ramsar Site, Special Protection Area, Special Area of Conservation data is provided by, and used with the permission of, English Nature who retain the Copyright and Intellectual Property Rights for the data.

PointX © Database Right/Copyright, Thomson Directories Limited © Copyright Link Interchange Network Limited © Database Right/Copyright and Ordnance Survey © Crown Copyright and/or Database Right. All Rights Reserved. Licence Number [03421028]. This report has been prepared in accordance with the GroundSure Ltd standard Terms and Conditions of business for work of this nature.

Standard Terms and Conditions

1 Definitions

In these terms and conditions unless the context otherwise requires:

“Beneficiary” means the person or entity for whose benefit the Client has obtained the Services.

“Client” means the party or parties entering into a Contract with GroundSure.

“Commercial” means any building or property which is not Residential.

“Confidential Information” means the contents of this Contract and all information received from the Client as a result of, or in connection with, this Contract other than

(i) information which the Client can prove was rightfully in its possession prior to disclosure by GroundSure and

(ii) any information which is in the public domain (other than by virtue of a breach of this Contract).

“Support Services” means Support Services provided by GroundSure including, without limitation, interpreting third party and in-house environmental data, providing environmental support advice, undertaking environmental audits and assessments, Site investigation, Site monitoring and related items.

“Contract” means the contract between GroundSure and the Client for the provision of the Services, and which shall incorporate these terms and conditions, the Order, and the relevant User Guide.

“Third Party Data Provider” means any third party providing Third Party Content to GroundSure.

“Data Reports” means reports comprising factual data with no accompanying interpretation.

“Fees” has the meaning set out in clause 5.1.

“GroundSure” means GroundSure Limited, a company registered in England and Wales under number 03421028.

“GroundSure Materials” means all materials prepared by GroundSure and provided as part of the Services, including but not limited to Third Party Content, Data Reports, Mapping, and Risk Screening Reports.

“Intellectual Property” means any patent, copyright, design rights, trade or service mark, moral rights, data protection rights, know-how or trade mark in each case whether registered or not and including applications for the same or any other rights of a similar nature anywhere in the world.

“Mapping” means a map, map data or a combination of historical maps of various ages, time periods and scales.

“Order” means an electronic, written or other order form submitted by the Client requesting Services from GroundSure in respect of a specified Site.

“Ordnance Survey” means the Secretary of State for Business, Innovation and Skills, acting through Ordnance Survey, Adanac Drive, Southampton, SO16 0AS, UK.

“Order Website” means the online platform through which Orders may be placed by the Client and accepted by GroundSure.

“Report” means a Risk Screening Report or Data Report for Commercial or Residential property.

“Residential” means any building or property used as or intended to be used as a single dwelling.

“Risk Screening Report” means a risk screening report comprising factual data with an accompanying interpretation by GroundSure.

“Services” means any Report, Mapping and/or Support Services which GroundSure has agreed to provide by accepting an Order pursuant to clause 2.6.

“Site” means the area of land in respect of which the Client has requested GroundSure to provide the Services.

“Third Party Content” means data, database information or other information which is provided to GroundSure by a Third Party Data Provider.

“User Guide” means the user guide, as amended from time to time, available upon request from GroundSure and on the website (www.groundsure.com) and forming part of this Contract.

2 Scope of Services, terms and conditions, requests for insurance and quotations

2.1 GroundSure agrees to provide the Services in accordance with the Contract.

2.2 GroundSure shall exercise reasonable skill and care in the provision of the Services.

2.3 Subject to clause 7.3 the Client acknowledges that it has not relied on any statement or representation made by or on behalf of GroundSure which is not set out and expressly agreed in writing in the Contract and all such statements and representations are hereby excluded to the fullest extent permitted by law.

2.4 The Client acknowledges that terms and conditions appearing on a Client's order form, printed stationery or other communication, or any terms or conditions implied by custom, practice or course of dealing shall be of no effect, and that this Contract shall prevail over all others in relation to the Order.

2.5 If the Client or Beneficiary requests insurance in conjunction with or as a result of the Services, GroundSure shall use reasonable endeavours to recommend such insurance, but makes no warranty that such insurance shall be available from insurers or that it will be offered on reasonable terms. Any insurance purchased by the Client or Beneficiary shall be subject solely to the terms of the policy issued by insurers and GroundSure will have no liability therefor. In addition you acknowledge and agree that GroundSure does not act as an agent or broker for any insurance providers. The Client should take (and ensure that the Beneficiary takes) independent advice to ensure that the insurance policy requested or offered is suitable for its requirements.

2.6 GroundSure's quotations or proposals are valid for a period of 30 days only unless an alternative period of time is explicitly stipulated by GroundSure. GroundSure reserves the right to withdraw any quotation or proposal at any time before an Order is accepted by GroundSure. GroundSure's acceptance of an Order shall be binding only when made in writing and signed by GroundSure's authorised representative or when accepted through the Order Website.

3 The Client's obligations

3.1 The Client shall comply with the terms of this Contract and

(i) procure that the Beneficiary or any third party relying on the Services complies with and acts as if it is bound by the Contract and

(ii) be liable to GroundSure for the acts and omissions of the Beneficiary or any third party relying on the Services as if such acts and omissions were those of the Client.

3.2 The Client shall be solely responsible for ensuring that the Services are appropriate and suitable for its and/or the Beneficiary's needs.

3.3 The Client shall supply to GroundSure as soon as practicable and without charge all requisite information (and the Client warrants that such information is accurate, complete and appropriate), including without limitation any environmental information relating to the Site and shall give such assistance as GroundSure shall reasonably require in the provision of the Services including, without limitation, access to the Site, facilities and equipment.

3.4 Where the Client's approval or decision is required to enable GroundSure to carry out work in order to provide the Services, such approval or decision shall be given or procured in reasonable time and so as not to delay or disrupt the performance of the Services.

3.5 Save as expressly permitted by this Contract the Client shall not, and shall procure that the Beneficiary shall not, re-sell, alter, add to, or amend the GroundSure Materials, or use the GroundSure Materials in a manner for which they were not intended. The Client may make the GroundSure Materials available to a third party who is considering acquiring some or all of, or providing funding in relation to, the Site, but such third party cannot rely on the same unless expressly permitted under clause 4.

3.6 The Client is responsible for maintaining the confidentiality of its user name and password if using the Order Website and the Client acknowledges that GroundSure accepts no liability of any kind for any loss or damage suffered by the Client as a consequence of using the Order Website.

4 Reliance

4.1 The Client acknowledges that the Services provided by GroundSure consist of the presentation and analysis of Third Party Content and other content and that information obtained from a Third Party Data Provider cannot be guaranteed or warranted by GroundSure to be reliable.

4.2 In respect of Data Reports, Mapping and Risk Screening Reports, the following classes of person and no other are entitled to rely on their contents;

- (i) the Beneficiary,
- (ii) the Beneficiary's professional advisers, (iii) any person providing funding to the Beneficiary in relation to the Site (whether directly or as part of a lending syndicate),
- (iv) the first purchaser or first tenant of the Site, and
- (v) the professional advisers and lenders of the first purchaser or tenant of the Site.

4.3 In respect of Support Services, only the Client, Beneficiary and parties expressly named in a Report and no other parties are entitled to rely on its contents.

4.4 Save as set out in clauses 4.2 and 4.3 and unless otherwise expressly agreed in writing, no other person or entity of any kind is entitled to rely on any Services or Report issued or provided by GroundSure. Any party considering such Reports and Services does so at their own risk.

5 Fees and Disbursements

5.1 GroundSure shall charge and the Client shall pay fees at the rate and frequency specified in the written proposal, Order Website or Order acknowledgement form, plus (in the case of Support Services) all proper disbursements incurred by GroundSure. The Client shall in addition pay all value added tax or other tax payable on such fees and disbursements in relation to the provision of the Services (together "Fees").

5.2 The Client shall pay all outstanding Fees to GroundSure in full without deduction, counterclaim or set off within 30 days of the date of GroundSure's invoice or such other period as may be agreed in writing between GroundSure and the Client ("Payment Date"). Interest on late payments will accrue on a daily basis from the Payment Date until the date of payment (whether before or after judgment) at the rate of 8% per annum.

5.3 The Client shall be deemed to have agreed the amount of any invoice unless an objection is made in writing within 28 days of the date of the invoice. As soon as reasonably practicable after being notified of an objection, without prejudice to clause 5.2 a member of GroundSure's management team will contact the Client and the parties shall then use all reasonable endeavours to resolve the dispute within 15 days.

6 Intellectual Property and Confidentiality

6.1 Subject to

- (i) full payment of all relevant Fees and
- (ii) compliance with this Contract, the Client is granted (and is permitted to sub-licence to the Beneficiary) a royalty-free, worldwide, non-assignable and (save to the extent set out in this Contract) non-transferable licence to make use of the GroundSure Materials.

6.2 All Intellectual Property in the GroundSure Materials are and shall remain owned by GroundSure or GroundSure's licensors (including without limitation the Third Party Data Providers) the Client acknowledges, and shall procure acknowledgement by the Beneficiary of, such ownership. Nothing in this Contract purports to transfer or assign any rights to the Client or the Beneficiary in respect of such Intellectual Property.

6.3 Third Party Data Providers may enforce any breach of clauses 6.1 and 6.2 against the Client or Beneficiary.

6.4 The Client shall, and shall procure that any recipients of the GroundSure Materials shall:

- (i) not remove, suppress or modify any trade mark, copyright or other proprietary marking belonging to GroundSure or any third party from the Services;
- (ii) use the information obtained as part of the Services in respect of the subject Site only, and shall not store or reuse any information obtained as part of the Services provided in respect of adjacent or nearby sites;
- (iii) not create any product or report which is derived directly or indirectly from the Services (save that those acting in a professional capacity to the Beneficiary may provide advice based upon the Services);
- (iv) not combine the Services with or incorporate such Services into any other information data or service;

(v) not reformat or otherwise change (whether by modification, addition or enhancement), the Services (save that those acting for the Beneficiary in a professional capacity shall not be in breach of this clause 6.4(v) where such reformatting is in the normal course of providing advice based upon the Services);

(vi) where a Report and/or Mapping contains material belonging to Ordnance Survey, acknowledge and agree that such content is protected by Crown Copyright and shall not use such content for any purpose outside of receiving the Services; and

(vii) not copy in whole or in part by any means any map prints or run-on copies containing content belonging to Ordnance Survey (other than that contained within Ordnance Survey's OS Street Map) without first being in possession of a valid Paper Map Copying Licence from Ordnance Survey,

6.5 Notwithstanding clause 6.4, the Client may make reasonable use of the GroundSure Materials in order to advise the Beneficiary in a professional capacity. However, GroundSure shall have no liability in respect of any advice, opinion or report given or provided to Beneficiaries by the Client.

6.6 The Client shall procure that any person to whom the Services are made available shall notify GroundSure of any request or requirement to disclose, publish or disseminate any information contained in the Services in accordance with the Freedom of Information Act 2000, the Environmental Information Regulations 2004 or any associated legislation or regulations in force from time to time.

7. Liability: Particular Attention Should Be Paid To This Clause

7.1 This Clause 7 sets out the entire liability of GroundSure, including any liability for the acts or omissions of its employees, agents, consultants, subcontractors and Third Party Content, in respect of:

- (i) any breach of contract, including any deliberate breach of the Contract by GroundSure or its employees, agents or subcontractors;
- (ii) any use made of the Reports, Services, Materials or any part of them; and
- (iii) any representation, statement or tortious act or omission (including negligence) arising under or in connection with the Contract.

7.2 All warranties, conditions and other terms implied by statute or common law are, to the fullest extent permitted by law, excluded from the Contract.

7.3 Nothing in the Contract limits or excludes the liability of the Supplier for death or personal injury resulting from negligence, or for any damage or liability incurred by the Client or Beneficiary as a result of fraud or fraudulent misrepresentation.

7.4 GroundSure shall not be liable for

- (i) loss of profits;
- (ii) loss of business;
- (iii) depletion of goodwill and/or similar losses;
- (iv) loss of anticipated savings;
- (v) loss of goods;
- (vi) loss of contract;
- (vii) loss of use;
- (viii) loss or corruption of data or information;
- (ix) business interruption;
- (x) any kind of special, indirect, consequential or pure economic loss, costs, damages, charges or expenses;
- (xi) loss or damage that arise as a result of the use of all or part of the GroundSure Materials in breach of the Contract;
- (xii) loss or damage arising as a result of any error, omission or inaccuracy in any part of the GroundSure Materials where such error, omission or inaccuracy is caused by any Third Party Content or any reasonable interpretation of Third Party Content;
- (xiii) loss or damage to a computer, software, modem, telephone or other property; and
- (xiv) loss or damage caused by a delay or loss of use of GroundSure's internet ordering service.

7.5 GroundSure's total liability in relation to or under the Contract shall be limited to £10 million for any claim or claims.

7.6 GroundSure shall procure that the Beneficiary shall be bound by limitations and exclusions of liability in favour of GroundSure which accord with those detailed in clauses 7.4 and 7.5 (subject to clause 7.3) in respect of all claims which the Beneficiary may bring against GroundSure in relation to the Services or other matters arising pursuant to the Contract.

8 GroundSure's right to suspend or terminate

8.1 If GroundSure reasonably believes that the Client or Beneficiary has not provided the information or assistance required to enable the proper provision of the Services, GroundSure shall be entitled to suspend all further performance of the Services until such time as any such deficiency has been made good.

8.2 GroundSure shall be entitled to terminate the Contract immediately on written notice in the event that:

(i) the Client fails to pay any sum due to GroundSure within 30 days of the Payment Date; or

(ii) the Client (being an individual) has a bankruptcy order made against him or (being a company) shall enter into liquidation whether compulsory or voluntary or have an administration order made against it or if a receiver shall be appointed over the whole or any part of its property assets or undertaking or if the Client is struck off the Register of Companies or dissolved; or

(iii) the Client being a company is unable to pay its debts within the meaning of Section 123 of the Insolvency Act 1986 or being an individual appears unable to pay his debts within the meaning of Section 268 of the Insolvency Act 1986 or if the Client shall enter into a composition or arrangement with the Client's creditors or shall suffer distress or execution to be levied on his goods; or

(iv) the Client or the Beneficiary breaches any term of the Contract (including, but not limited to, the obligations in clause 4) which is incapable of remedy or if remediable, is not remedied within five days of notice of the breach.

9. Client's Right to Terminate and Suspend

9.1 Subject to clause 10.1, the Client may at any time upon written notice terminate or suspend the provision of all or any of the Services.

9.2 In any event, where the Client is a consumer (and not a business) he/she hereby expressly acknowledges and agrees that:

(i) the supply of Services under this Contract (and therefore the performance of this Contract) commences immediately upon GroundSure's acceptance of the Order; and

(ii) the Reports and/or Mapping provided under this Contract are
(a) supplied to the Client's specification(s) and in any event
(b) by their nature cannot be returned.

10 Consequences of Withdrawal, Termination or Suspension

10.1 Upon termination of the Contract:

(i) GroundSure shall take steps to bring to an end the Services in an orderly manner, vacate any Site with all reasonable speed and shall deliver to the Client and/or Beneficiary any property of the Client and/or Beneficiary in GroundSure's possession or control; and

(ii) the Client shall pay to GroundSure all and any Fees payable in respect of the performance of the Services up to the date of termination or suspension. In respect of any Support Services provided, the Client shall also pay GroundSure any additional costs incurred in relation to the termination or suspension of the Contract. 11 Anti-Bribery

11.1 The Client warrants that it shall:

(i) comply with all applicable laws, statutes and regulations relating to anti-bribery and anti-corruption including but not limited to the Bribery Act 2010;

(ii) comply with such of GroundSure's anti-bribery and anti-corruption policies as are notified to the Client from time to time; and

(iii) promptly report to GroundSure any request or demand for any undue financial or other advantage of any kind received by or on behalf of the Client in connection with the performance of this Contract.

11.2 Breach of this Clause 11 shall be deemed a material breach of this Contract.

12 General

12.1 The Mapping contained in the Services is protected by Crown copyright and must not be used for any purpose other than as part of the Services or as specifically provided in the Contract.

12.2 The Client shall be permitted to make one copy only of each Report or Mapping Order. Thereafter the Client shall be entitled to make unlimited copies of the Report or Mapping Order only in accordance with an Ordnance Survey paper map copy license available through GroundSure.

12.3 GroundSure reserves the right to amend or vary this Contract. No amendment or variation to this Contract shall be valid unless signed by an authorised representative of GroundSure.

12.4 No failure on the part of GroundSure to exercise, and no delay in exercising, any right, power or provision under this Contract shall operate as a waiver thereof.

12.5 Save as expressly provided in this Contract, no person other than the persons set out therein shall have any right under the Contract (Rights of Third Parties) Act 1999 to enforce any terms of the Contract.

12.6 The Secretary of State for Business, Innovation and Skills ("BIS") or BIS' successor body, as the case may be, acting through Ordnance Survey may enforce a breach of clause 6.4(vi) and clause 6.4(vii) of these terms and conditions against the Client in accordance with the provisions of the Contracts (Rights of Third Parties) Act 1999.

12.7 GroundSure shall not be liable to the Client if the provision of the Services is delayed or prevented by one or more of the following circumstances:

(i) the Client or Beneficiary's failure to provide facilities, access or information;

(ii) fire, storm, flood, tempest or epidemic;

(iii) Acts of God or the public enemy;

(iv) riot, civil commotion or war;

(v) strikes, labour disputes or industrial action;

(vi) acts or regulations of any governmental or other agency;

(vii) suspension or delay of services at public registries by Third Party Data Providers;

(viii) changes in law; or

(ix) any other reason beyond GroundSure's reasonable control.

In the event that GroundSure is prevented from performing the Services (or any part thereof) in accordance with this clause 12.6 for a period of not less than 30 days then GroundSure shall be entitled to terminate this Contract immediately on written notice to the Client.

12.8 Any notice provided shall be in writing and shall be deemed to be properly given if delivered by hand or sent by first class post, facsimile or by email to the address, facsimile number or email address of the relevant party as may have been notified by each party to the other for such purpose or in the absence of such notification the last known address.

12.9 Such notice shall be deemed to have been received on the day of delivery if delivered by hand, facsimile or email (save to the extent such day is not a working day where it shall be deemed to have been delivered on the next working day) and on the second working day after the day of posting if sent by first class post.

12.10 The Contract constitutes the entire agreement between the parties and shall supersede all previous arrangements between the parties relating to the subject matter hereof.

12.11 Each of the provisions of the Contract is severable and distinct from the others and if one or more provisions is or should become invalid, illegal or unenforceable, the validity and enforceability of the remaining provisions shall not in any way be tainted or impaired.

12.12 This Contract shall be governed by and construed in accordance with English law and any proceedings arising out of or connected with this Contract shall be subject to the exclusive jurisdiction of the English courts.

12.13 GroundSure is an executive member of the Council of Property Search Organisation (CoPSO) and has signed up to the Search Code administered by the Property Codes Compliance Board (PCCB). All Risk Screening Reports shall be supplied in accordance with the provisions of the Search Code.

12.14 If the Client or Beneficiary has a complaint about the Services, written notice should be given to the Compliance Officer at GroundSure who will respond in a timely manner.

12.15 The Client agrees that it shall, and shall procure that each Beneficiary shall, treat in confidence all Confidential Information and shall not, and shall procure that each Beneficiary shall not (i) disclose any Confidential Information to any third party other than in accordance with the terms of this Contract; and (ii) use Confidential Information for a purpose other than the exercise of its rights and obligations under this Contract. Subject to clause 6.6, nothing shall prevent the Client or any Beneficiary from disclosing Confidential Information to the extent required by law.

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Michael D Joyce Associates LLP
6, South Parade,
Wakefield, WF1 1LR

Report Reference:	HMD-354-1155403
Your Reference:	134,STATION ROAD,WOMBWELL ,BARNLEY S73 OBD
Report Date	5 Nov 2013
Report Delivery Method:	Email - pdf

GroundSure GeoInsight

Address: 134,STATION ROAD,WOMBWELL,BARNLEY, S73 OBD

Dear Sir/Madam,

Thank you for placing your order with GroundSure. Please find enclosed the **GroundSure GeoInsight** as requested.

If you need any further assistance, please do not hesitate to contact our helpline on (0)1924 360458 quoting the above report reference number.

Yours faithfully,

Michael D Joyce Associates LLP

Enc.
GroundSure GeoInsight

Aerial Photograph of Study Site



Site Name: 134, STATION ROAD, WOMBWELL, BARNSELY,
S73 0BD
Grid Reference: 440584,403471
Size of Site: 0.11 ha

Aerial photography supplied by Getmapping PLC.
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Overview of Findings

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

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

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

Report Section	Number of records found within (X) m of the study site boundary
1. Geology	Description
1.1 Artificial Ground,	
1.1.1 Is there any Artificial Ground /Made Ground present beneath the study site?*	Yes
1.1.2 Are there any records relating to permeability of artificial ground within the study site* boundary?	Yes
1.2 Superficial Geology & Landslips	
1.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site?*	Yes
1.2.2 Are there any records relating to permeability of superficial geology within the study site* boundary?	Yes
1.2.3 Are there any records of landslip within 500m of the study site boundary?	No
1.2.4 Are there any records relating to permeability of landslips within the study site* boundary?	No
1.3 Bedrock, Solid Geology & Faults	
1.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
1.3.2 Are there any records relating to permeability of bedrock within the study site* boundary?	Yes
1.3.3 Are there any records of faults within 500m of the study site boundary?	Yes
1.3.4 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The property is in a Radon Affected Area, as between 1 and 3% of properties are above the Action Level
1.3.5 Is the property in an area where Radon Protection Measures are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment?	No radon protective measures are necessary

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

Source:Scale 1:50,000 BGS Sheet No:087

Report Reference: HMD-354-1155403

If you would like any further assistance regarding this report then please contact Michael D Joyce Associates LLP, (0)1924 360458

2. Ground Workings	on-site	0-50	51-250	251-500	501-1000
2.1 Historical Surface Ground Working Features from Small Scale Mapping	0	0	5	-	-
2.2 Historical Underground Workings Features from Small Scale Mapping	0	0	0	5	1
2.3 Current Ground Workings	0	0	0	1	2

3. Mining, Extraction & Natural Cavities	on-site	0-50	51-250	251-500	501-1000
3.1 Historical Mining	0	0	0	5	1
3.2 Coal Mining	1	0	0	0	0
3.3 Johnson Poole and Bloomer Mining Area	0	0	0	0	0
3.4 Non-Coal Mining*	1	0	0	2	2
3.5 Non-Coal Mining Cavities	0	0	0	1	1
3.6 Natural Cavities	0	0	0	0	0
3.7 Brine Extraction	0	0	0	0	0
3.8 Gypsum Extraction	0	0	0	0	0
3.9 Tin Mining	0	0	0	0	0
3.10 Clay Mining	0	0	0	0	0

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

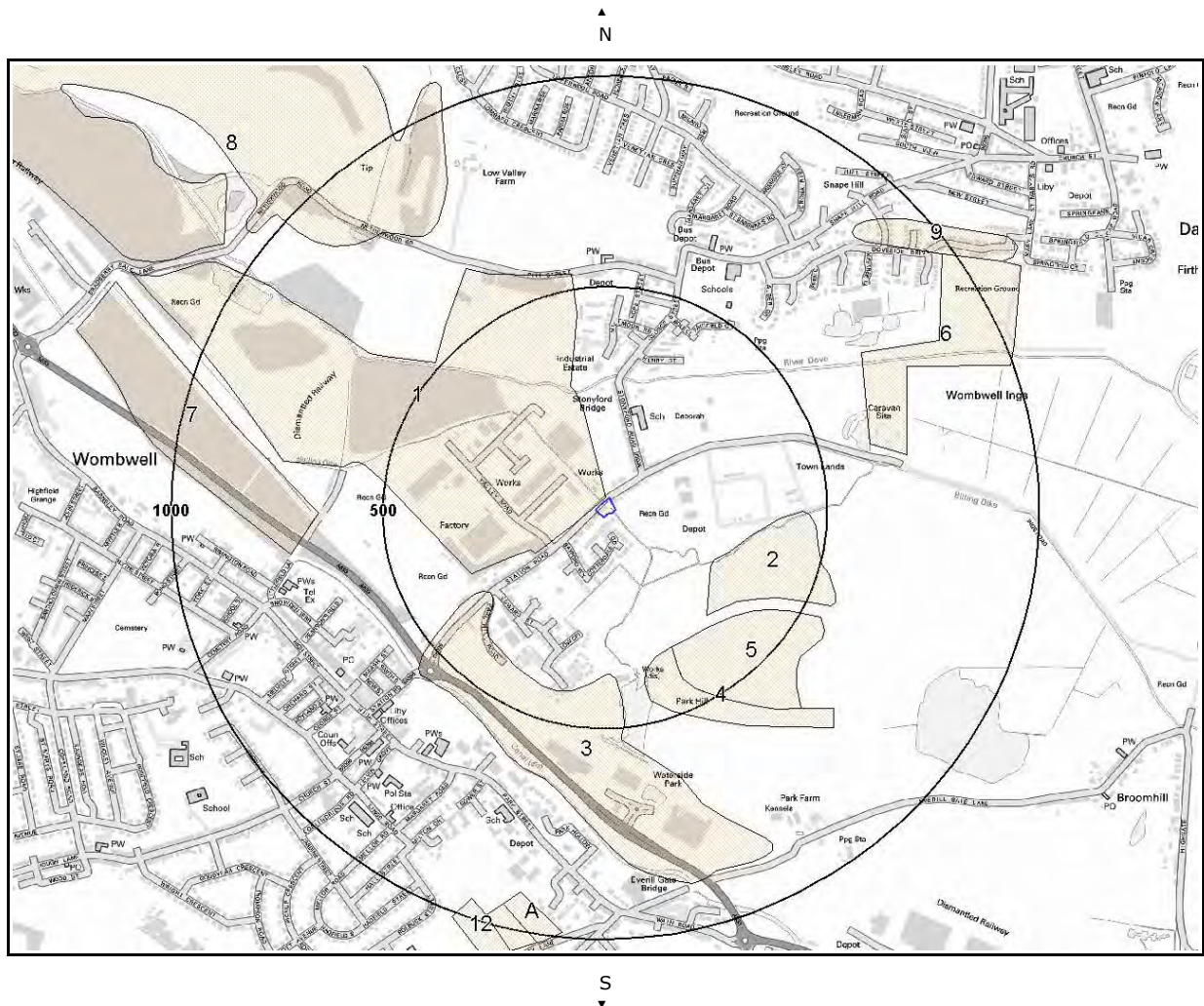
4. Natural Ground Subsidence	on-site*	0-50	51-250	251-500	501-1000
4.1 Shrink-Swell Clay	Low	-	-	-	-
4.2 Landslides	Very Low	-	-	-	-
4.3 Ground Dissolution of Soluble Rocks	Null	-	-	-	-
4.4 Compressible Deposits	Moderate	-	-	-	-
4.5 Collapsible Deposits	Negligible	-	-	-	-
4.6 Running Sand	Low	-	-	-	-

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

5. Borehole Records	on-site	0-50	51-250	251-500	501-1000
5.1 BGS Recorded Boreholes	0	1	21	-	-

6. Estimated Background Soil Chemistry	on-site	0-50	51-250	251-500	501-1000
6.1 Records of Background Soil Chemistry	1	0	0	-	-

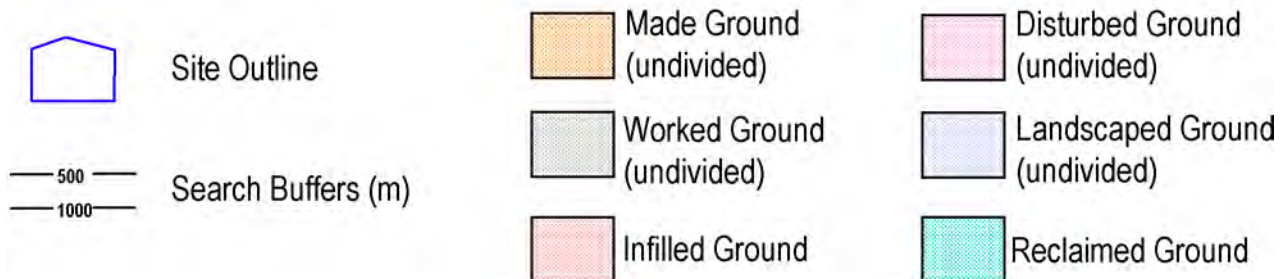
1.1 Artificial Ground Map



Artificial Ground Legend

Mapping sourced from **Ordnance Survey**

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

Report Reference: [HMD-354-1155403](#)

If you would like any further assistance regarding this report then please contact Michael D Joyce Associates LLP, (0)1924 360458

1.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No:087

1.1.1 Artificial/Made Ground

Are there any records of Artificial/Made Ground within 500m of the study site boundary? **Yes**

ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	6.0	NW	MGR-MGRD	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
2	261.0	SE	MGR-MGRD	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
3	315.0	SW	MGR-MGRD	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
4	345.0	SE	MGR-MGRD	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
5	345.0	SE	WMGR-MGRD	INFILLED GROUND	ARTIFICIAL DEPOSIT

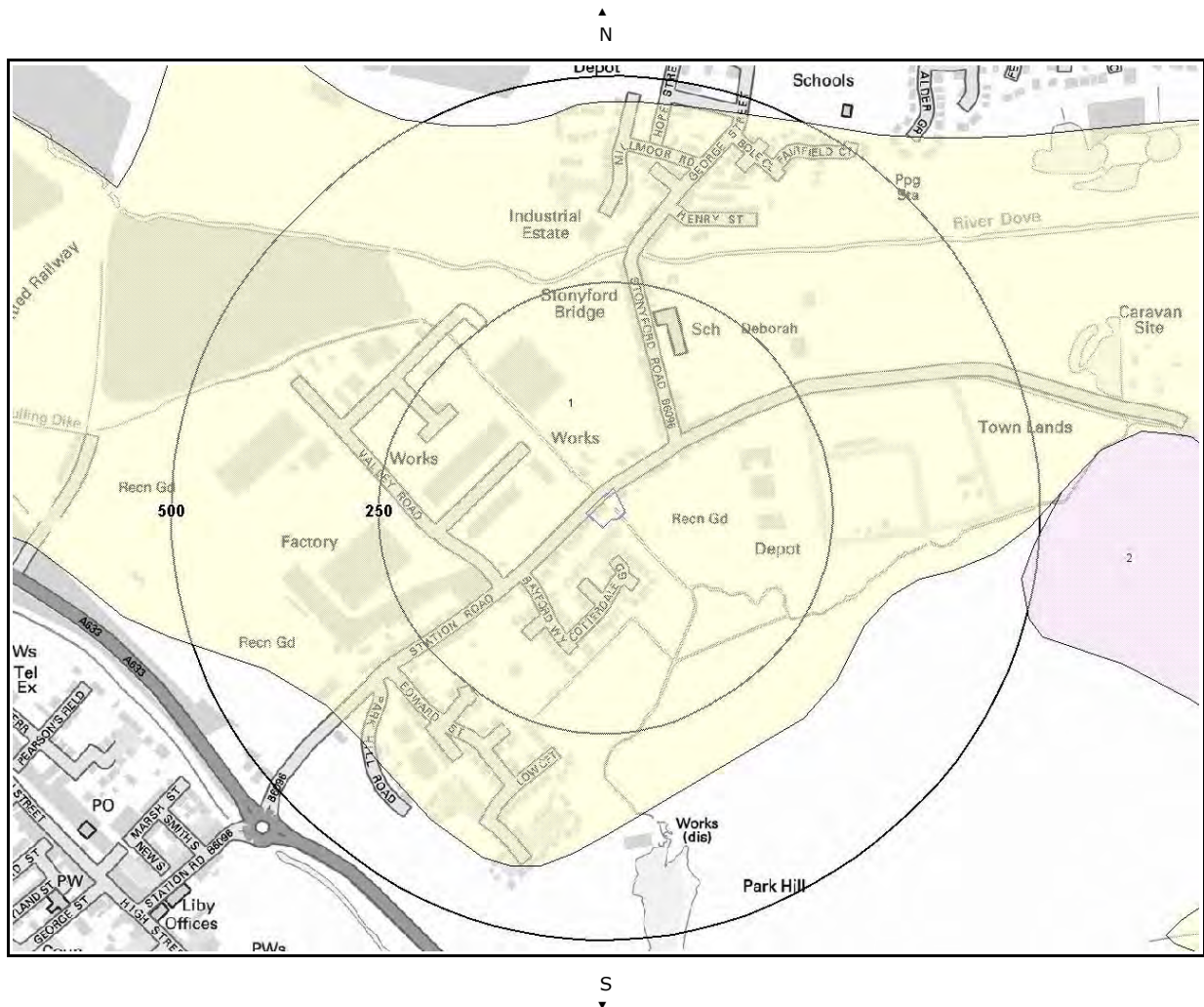
1.1.2 Permeability of Artificial Ground

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

Distance (m)	Direction	Flow type	Maximum Permeability	Minimum Permeability
6.0	NW	Intergranular	Very High	Very Low

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

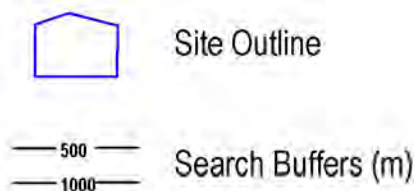
1.2 Superficial Deposits and Landslips Map



Superficial and Landslips Legend



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

Report Reference: HMD-354-1155403

If you would like any further assistance regarding this report then please contact
Michael D Joyce Associates LLP, (0)1924 360458

1.2 Superficial Deposits and Landslips

1.2.1 Superficial Deposits/Drift Geology

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

ID	Distance (m)	Direction	Lex Code	Description	Rock Description
1	0.0	On Site	ALV-CLSI	ALLUVIUM	CLAY AND SILT
2	484.0	E	GFDMP-SAGR	GLACIOFLUVIAL DEPOSITS, MID PLEISTOCENE	SAND AND GRAVEL

1.2.2 Permeability of Superficial Ground

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

Distance (m)	Direction	Flow type	Maximum Permeability	Minimum Permeability
0.0	On Site	Intergranular	Low	Very Low

1.2.3 Landslip

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

Database searched and no data found.

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

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

1.2.4 Landslip Permeability

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

Database searched and no data found.

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

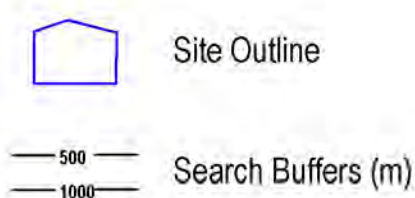
1.3 Bedrock and Faults Map



Bedrock & Faults Deposits Legend



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

Report Reference: [HMD-354-1155403](#)

If you would like any further assistance regarding this report then please contact Michael D Joyce Associates LLP, (0)1924 360458

1.3 Bedrock, Solid Geology & Faults

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No:087

1.3.1 Bedrock/Solid Geology

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

ID	Distance (m)	Direction	LEX Code	Rock Description	Rock Age
1	0.0	On Site	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsoviaian (westphalian C) / Duckmantian (westphalian B)
2	223.0	N	ACR-SDST	Ackton Rock - Sandstone	Bolsoviaian (westphalian C)
3	329.0	S	PMCM-SDST	Pennine Middle Coal Measures Formation - Sandstone	Bolsoviaian (westphalian C) / Duckmantian (westphalian B)
4	465.0	SW	OR-SDST	Oaks Rock - Sandstone	Duckmantian (westphalian B)

1.3.2 Permeability of Bedrock Ground

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

Distance (m)	Direction	Flow type	Maximum Permeability	Minimum Permeability
0.0	On Site	Fracture	Moderate	Low

1.3.3 Faults

Are there any records of Faults within 500m of the study site boundary? **Yes**

ID	Distance (m)	Direction	Category Description	Feature Description
9	83.0	SW	FOSSIL_HORIZON	Fossil horizon, marine band
10	464.0	SW	FAULT	Normal fault, inferred
11	465.0	SW	FAULT	Normal fault, inferred

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

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

1.3.4 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?

The property is in a Radon Affected Area, as between 1 and 3% of properties are above the Action Level

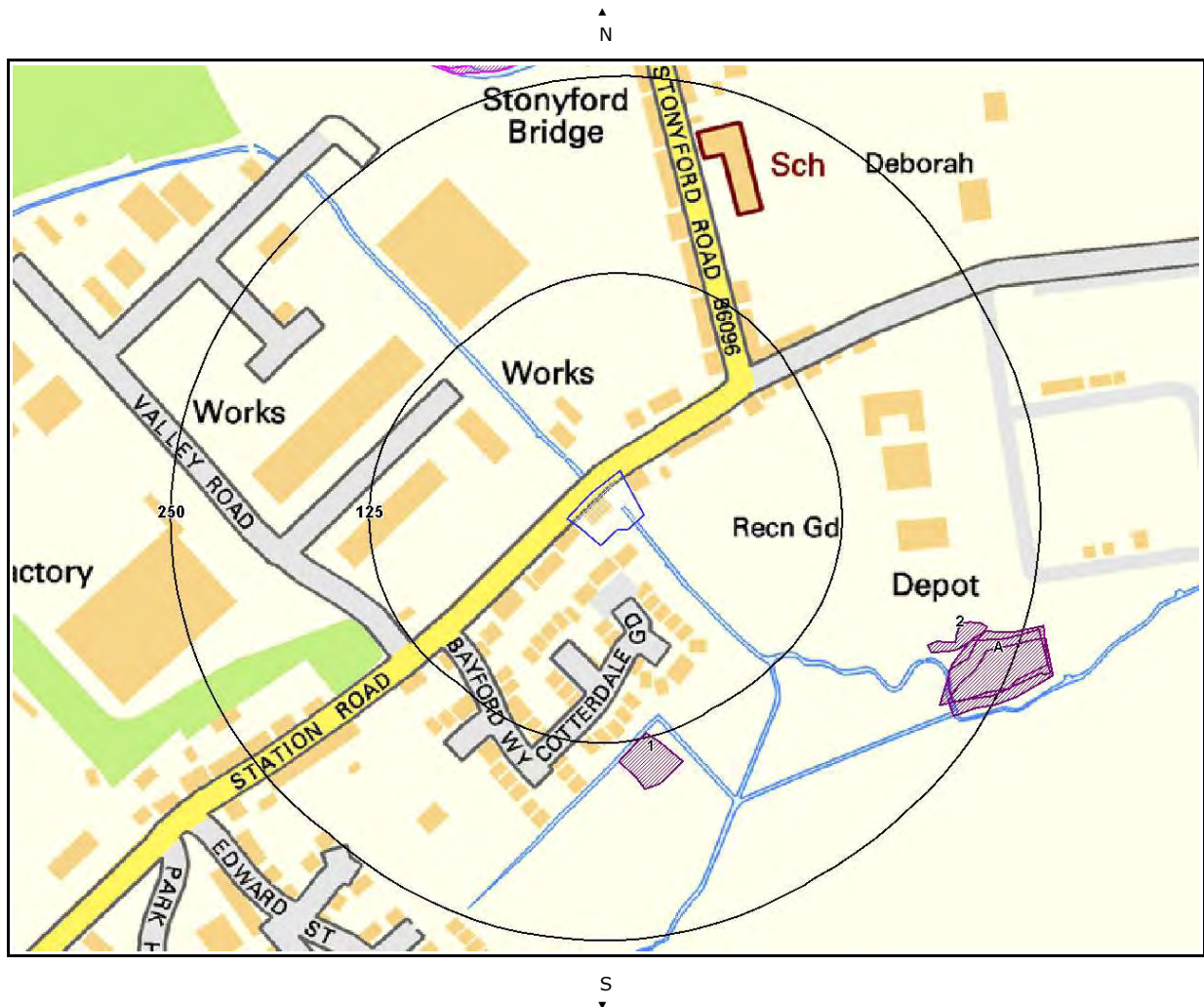
1.3.5 Radon Protection

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

Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment?

No radon protective measures are necessary

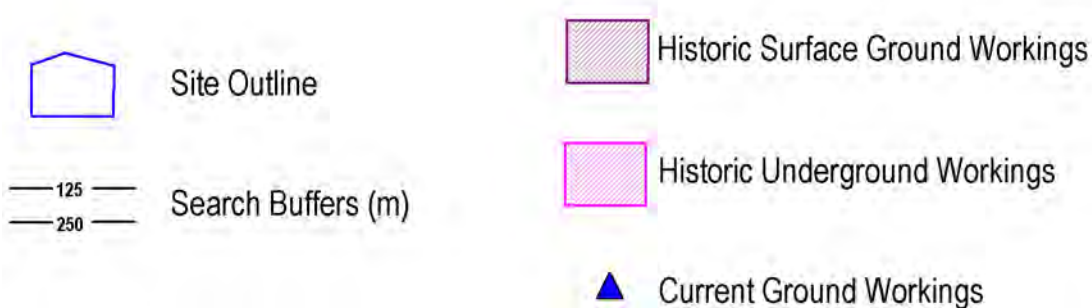
2. Ground Workings Map



Ground Workings Legend



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2. Ground Workings

2.1 Historical Surface Ground Working Features derived from Historical Mapping

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

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

The following Historical Surface Ground Working Features are provided by GroundSure:

ID	Distance (m)	Direction	NGR	Use	Date
1	122.0	S	440620,403308	Pond	1988
2	197.0	SE	440813,403387	Unspecified Pit	1904
3A	216.0	SE	440838,403370	Pond	1951
4A	216.0	SE	440836,403368	Pond	1904
5A	225.0	SE	440840,403362	Pond	1948

2.2 Historical Underground Workings Features derived from Historical Mapping

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

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

The following Historical Underground Working Features are provided by GroundSure:

ID	Distance (m)	Direction	NGR	Use	Date
6	265.0	N	440313,403939	Colliery	1977
7	273.0	N	440313,404008	Colliery	1948
Not shown	312.0	NW	440293,403957	Unspecified Mine	1967
Not shown	374.0	N	440276,404048	Colliery	1951
Not shown	459.0	NW	440140,403972	Colliery	1988
Not shown	695.0	NW	440144,404173	Colliery	1904

2.3 Current Ground Workings

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

Are there any BGS Current Ground Workings within 1000m of the study site boundary? **Yes**

The following Current Ground Workings information is provided by British Geological Society:

[Report Reference: HMD-354-1155403](#)

If you would like any further assistance regarding this report then please contact
 Michael D Joyce Associates LLP, (0)1924 360458

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	415.0	SE	4408 20,40 3100	Clay & Shale	Park Hill Brickworks	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	709.0	NW	4401 25,40 4020	Coal, Deep	Darfield Main Colliery	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	760.0	SW	4399 74,40 2986	Sandstone	Wombwell	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

3. Mining, Extraction & Natural Cavities Map



Mining, Extraction & Natural Cavities Legend

Mapping sourced from
Ordnance Survey

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3. Mining, Extraction & Natural Cavities

3.1 Historical Mining

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

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

Yes

The following Historical Mining information is provided by Groundsure :

ID	Distance (m)	Direction	NGR	Details	Date
8	265.0	N	440313,403 939	Colliery	1977
9	273.0	N	440313,404 008	Colliery	1948
10	312.0	NW	440293,403 957	Unspecified Mine	1967
11	374.0	N	440276,404 048	Colliery	1951
12	459.0	NW	440140,403 972	Colliery	1988
Not shown	695.0	NW	440144,404 173	Colliery	1904

3.2 Coal Mining

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

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

Yes

The following Coal Mining information provided by the Coal Authority is not represented on Mapping:

Distance (m)	Direction	Details
0.0	On Site	The study site is located within the specified search distance of an identified mining area. Further details concerning this can be obtained from the Coal Authority Helpline on 0845 762 6848.

3.3 Johnson Poole and Bloomer

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

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

No

The following information provided by JPB is not represented on Mapping:

Database searched. No results found.

3.4 Non – Coal Mining

Report Reference: HMD-354-1155403

If you would like any further assistance regarding this report then please contact
 Michael D Joyce Associates LLP, (0)1924 360458

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

Are there any Non-Coal Mining areas within 1000m of the study site boundary? **Yes**

The following non-coal mining information is provided by the BGS:

ID	Distance (m)	Direction	Name	Commodity	Assessment of likelihood
1	0.0	On Site	Not available	Iron Ore (Bedded)	Highly Unlikely - Localised small scale mining may have occurred but restricted in extent.
2	358.0	SW	Sheffield Area	Vein Mineral/Iron ore	Highly Unlikely - Localised small scale mining may have occurred but restricted in extent.
3	456.0	SW	Sheffield Area	Vein Mineral/Iron ore	Highly Unlikely - Localised small scale mining may have occurred but restricted in extent.
4	567.0	W	Not available	Iron Ore (Bedded)	Highly Unlikely - Localised small scale mining may have occurred but restricted in extent.
Not shown	973.0	NE	Sheffield Area	Iron Ore	Highly Unlikely - Localised small scale mining may have occurred but restricted in extent.

3.5 Non – Coal Mining Cavities

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

Are there any Non-Coal Mining cavities within 1000m of the study site boundary? **Yes**

The following Non-Coal Mining Cavities information provided by Peter Brett Associates:

ID	Distance (m)	Direction	NGR	Address	Superficial Deposits	Bedrock Deposits	Extracted Mineral
6	358.0	NW	440300, 403700	Darfield, South Yorkshire	-	-	Fireclay
Not shown	715.0	N	440500, 404200	Darfield, South Yorkshire	-	-	Fireclay

3.6 Natural Cavities

This dataset provides information based on Peter Brett Associates natural cavities database.

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

Database searched and no data found.

3.7 Brine Extraction

This dataset provides information from the Brine Compensation Board which has been discontinued and is now covered by the Coal Authority.

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

[Report Reference: HMD-354-1155403](#)

If you would like any further assistance regarding this report then please contact Michael D Joyce Associates LLP, (0)1924 360458

Database searched and no data found.

3.8 Gypsum Extraction

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

Are there any Gypsum Extraction areas within 1000m of the study site boundary?

No

Database searched and no data found.

3.9 Tin Mining

This dataset provides information on tin mining areas and is derived from tin mining records. This search is based upon postcode information to a sector level. More detailed information on potential Tin Mining may be found in Section 3.4 – Non-Coal Mining Hazards.

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

No

Database searched and no data found.

3.10 Clay Mining

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

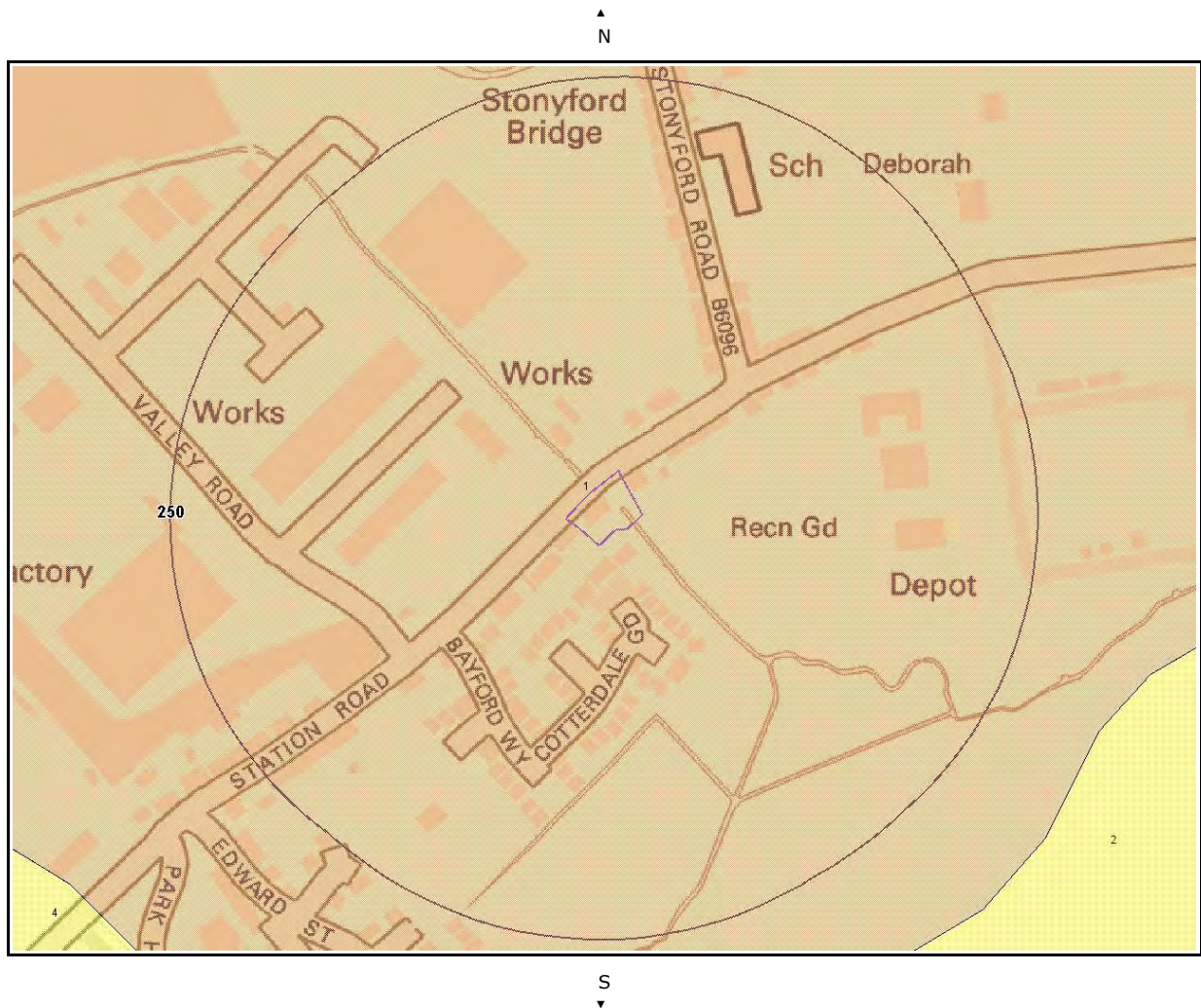
Are there any Clay Mining areas within 1000m of the study site boundary?

No

Database searched and no data found.

4. Natural Ground Subsidence

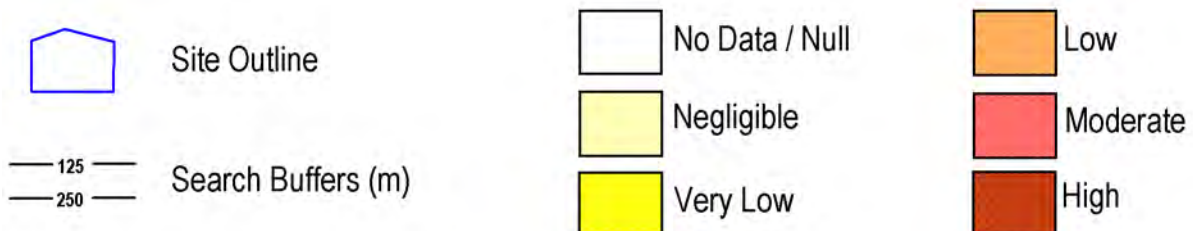
4.1 Shrink-Swell Clay Map



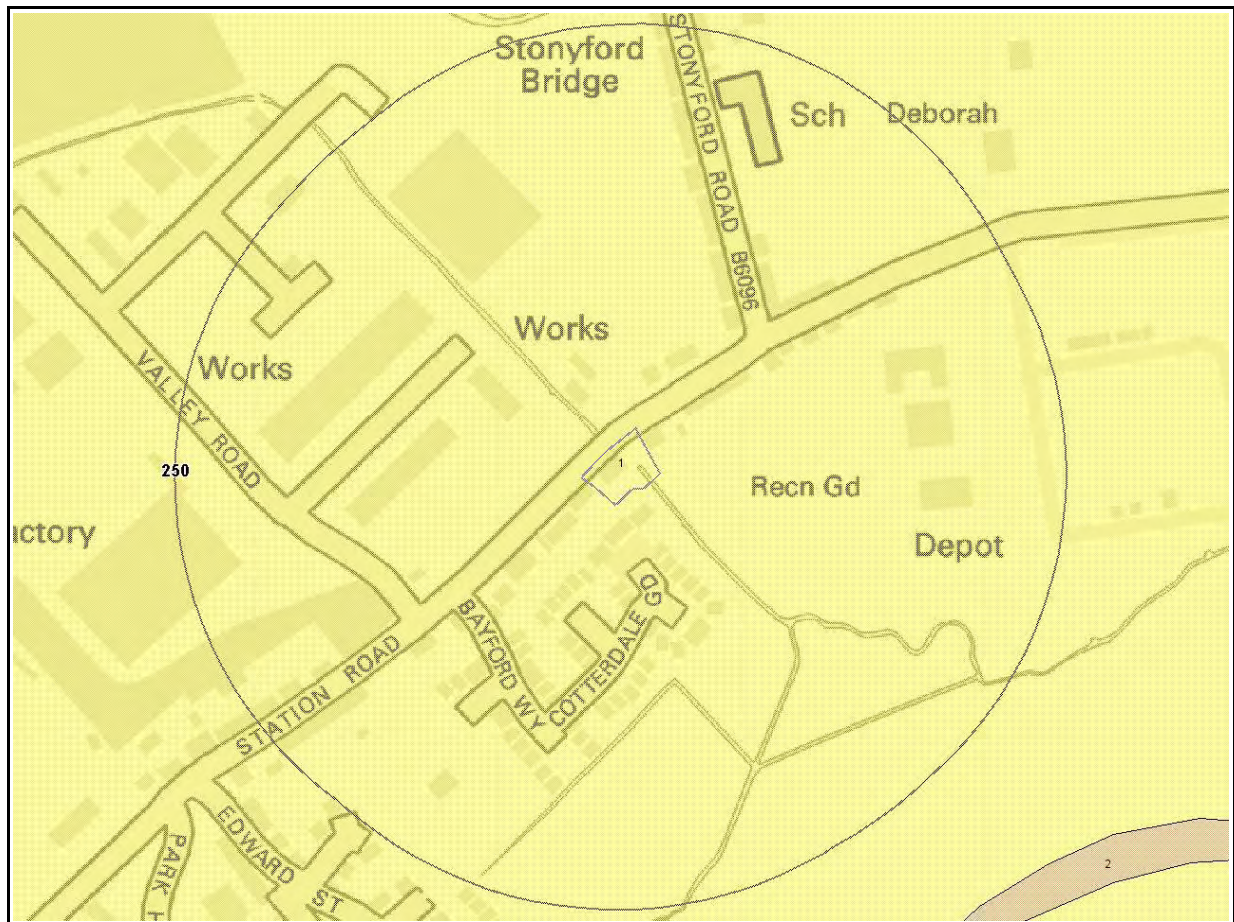
Shrink-Swell Clay Legend



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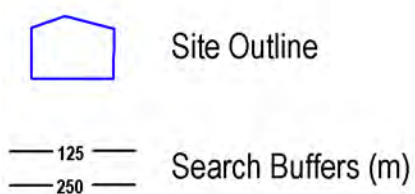
4.2 Landslides Map



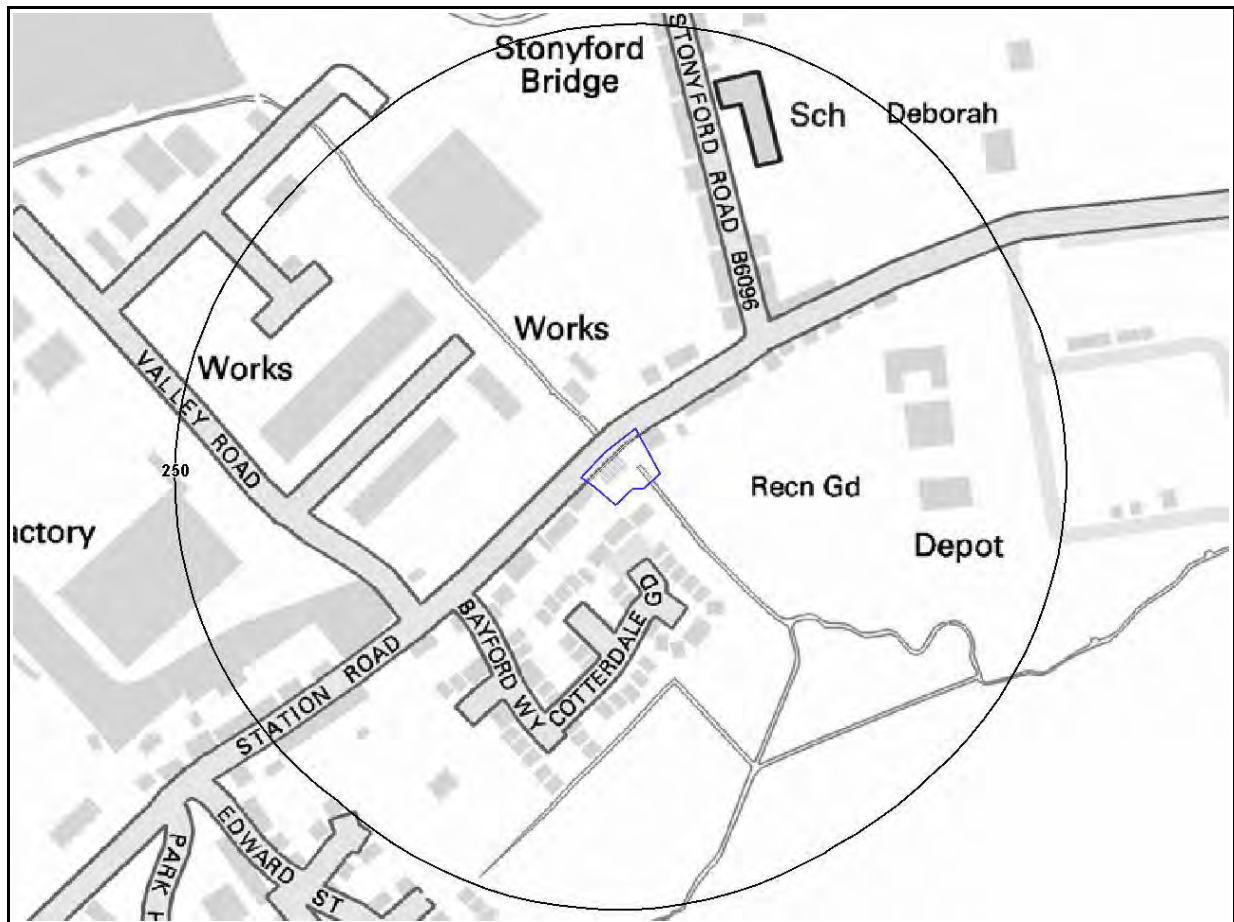
Landslides Legend



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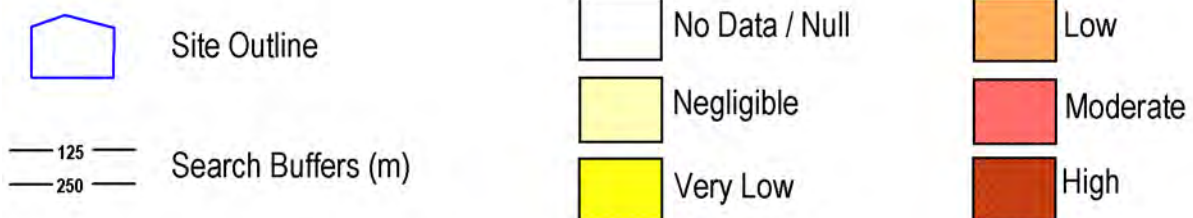
4.3 Ground Dissolution Soluble Rocks Map



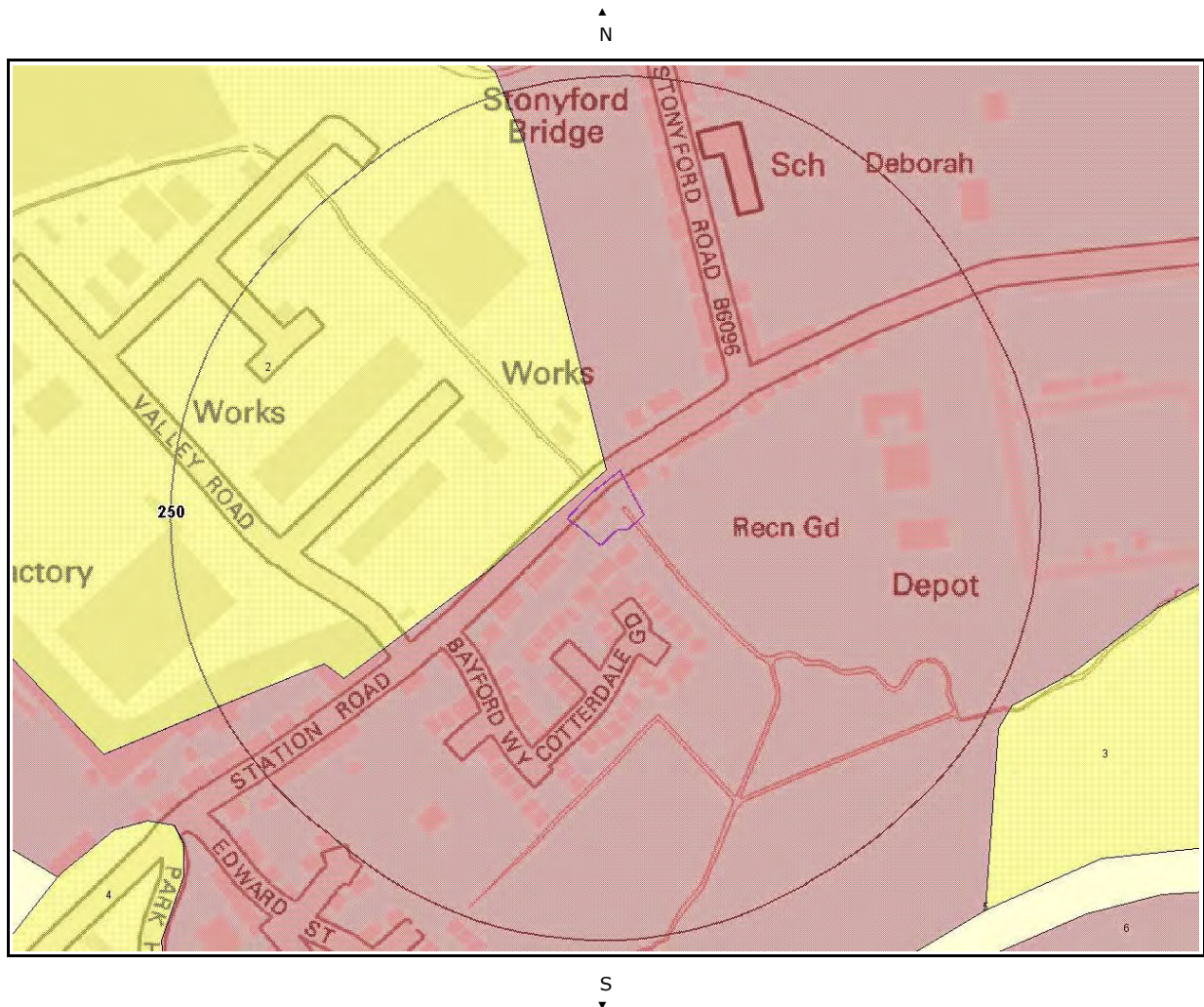
Ground Dissolution Soluble Rocks
Legend

Mapping
sourced from
**Ordnance
Survey**

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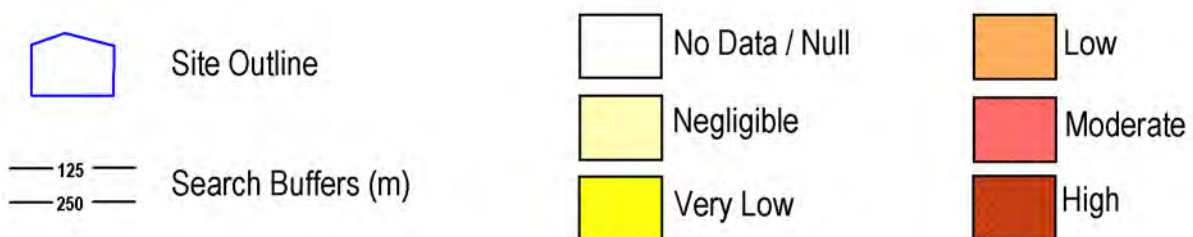
4.4 Compressible Deposits Map



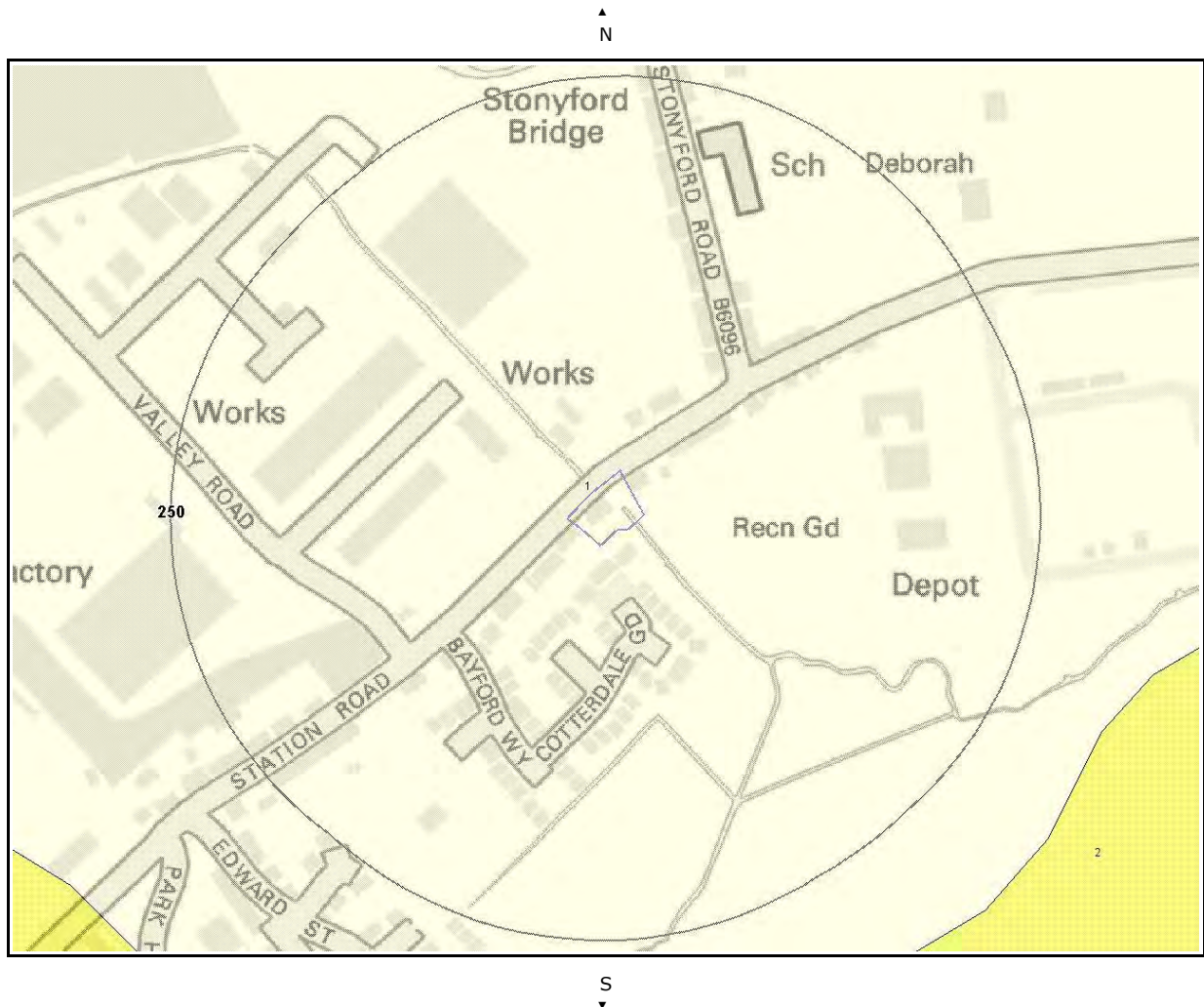
Compressible Deposits Legend



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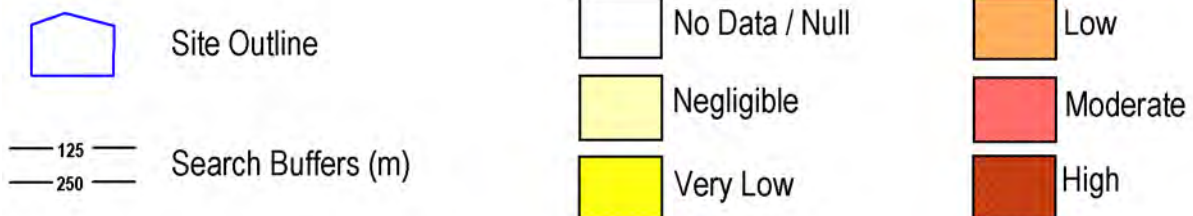
4.5 Collapsible Deposits Map



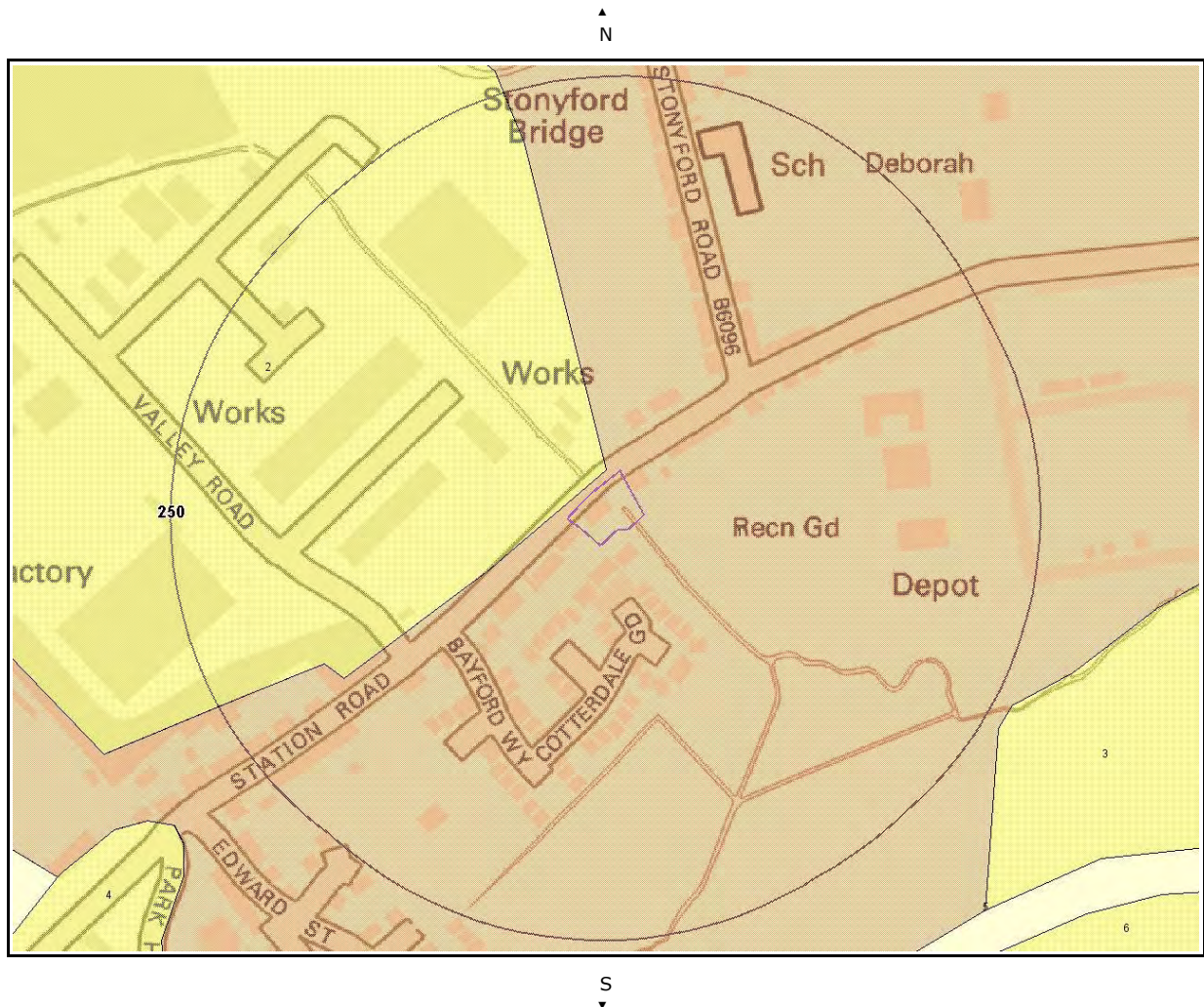
Collapsible Deposits Legend



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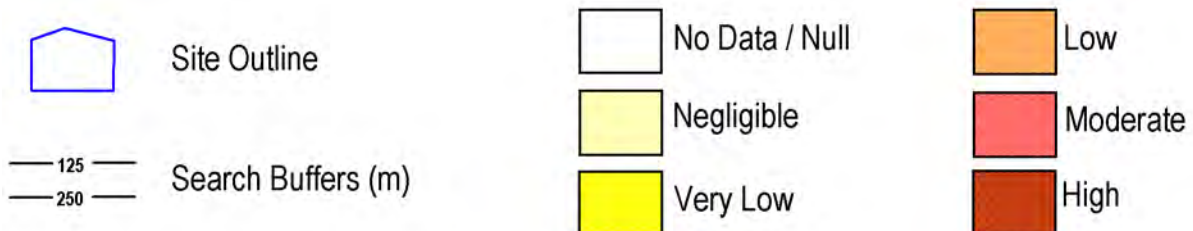
4.6 Running Sand Map



Running Sand Legend



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4. Natural Ground Subsidence

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

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

What is the maximum hazard rating of natural subsidence within the study site* boundary? **Moderate**

4.1 Shrink – Swell Clays

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

ID	Distance (m) *	Direction	Hazard Rating	Details
1	0.0	On Site	Low	Ground conditions predominantly medium plasticity. Do not plant trees with high soil moisture demands near to buildings. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a possible increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a possible increase in insurance risk, especially during droughts or where vegetation with high moisture demands is present.

4.2 Landslides

The following Landslides information provided by the British Geological Survey:

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

4.3 Ground Dissolution of Soluble Rocks

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

Distance (m)*	Direction	Hazard Rating	Details
0.0	On site	Null-Negligible	Soluble rocks are not present in the search area. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.

4.4 Compressible Deposits

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

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

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If you would like any further assistance regarding this report then please contact
 Michael D Joyce Associates LLP, (0)1924 360458

ID	Distance (m)*	Direction	Hazard Rating	Details
1	0.0	On Site	Moderate	Significant potential for compressibility problems. Avoid large differential loadings of ground. Do not drain or de-water ground near the property without technical advice. For new build - consider possibility of compressible ground in ground investigation, construction and building design. Consider effects of groundwater changes. Extra construction costs are likely. For existing property - possible increase in insurance risk from compressibility, especially if water conditions or loading of the ground change significantly.
2	6.0	NW	Very Low	Very low potential for compressible deposits to be present. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.

4.5 Collapsible Deposits

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

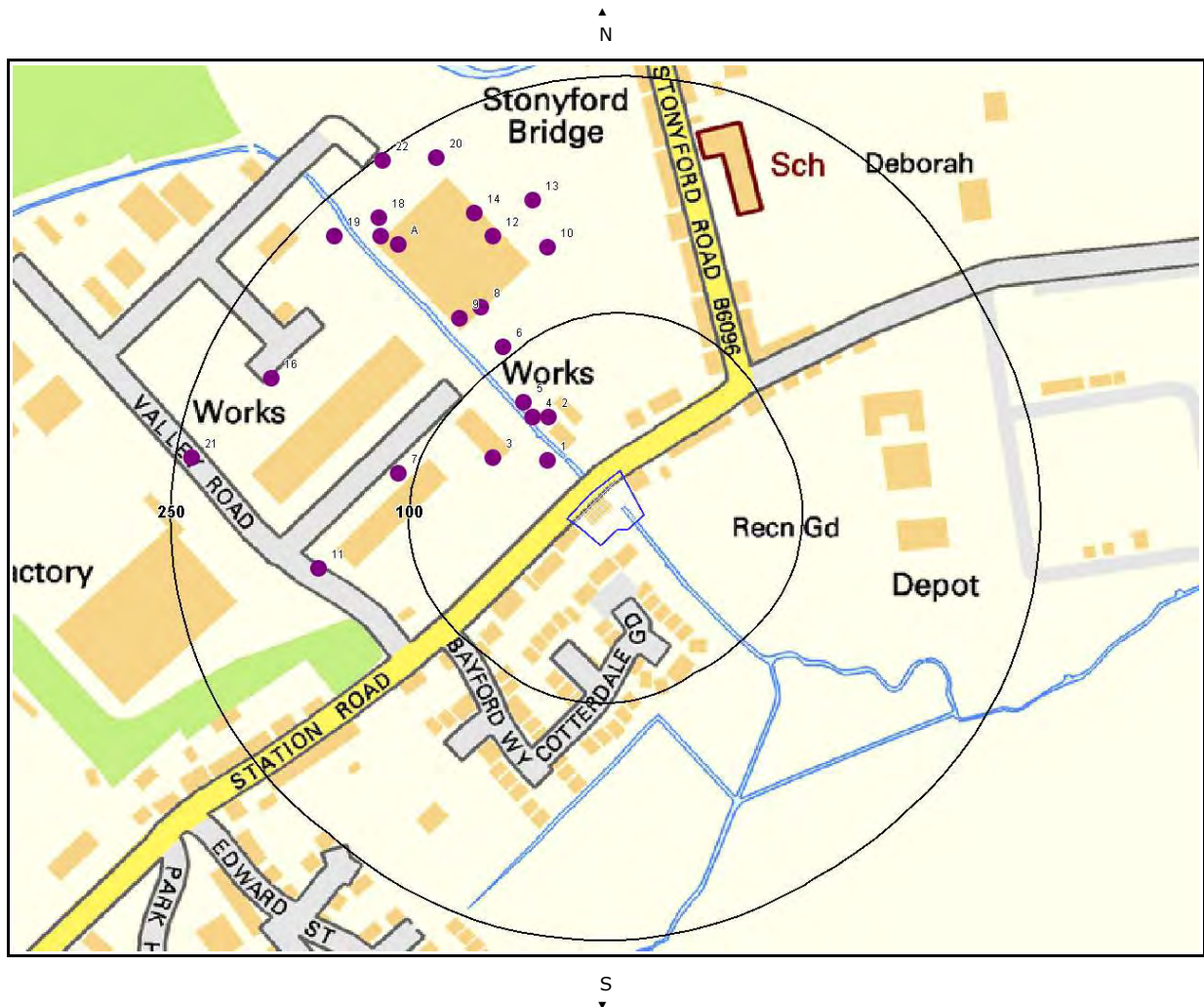
ID	Distance (m)*	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for collapsible deposits identified. No actions required to avoid problems due to collapsible deposits. No special ground investigation required, or increased construction costs or increased financial risk due to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

4.6 Running Sands

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

ID	Distance (m)*	Direction	Hazard Rating	Details
1	0.0	On Site	Low	Possibility of running sand problems after major changes in ground conditions. Normal maintenance to avoid leakage of water-bearing services or water bodies (ponds, swimming pools) should reduce likelihood of problems due to running sand. For new build consider possibility of running sand into trenches or excavations if water table is high or sandy strata are exposed to water. Avoid concentrated water inputs to site. Unlikely to be an increase in construction costs due to potential for running sand. For existing property no significant increase in insurance risk due to running sand problems is likely.
2	6.0	NW	Very Low	Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

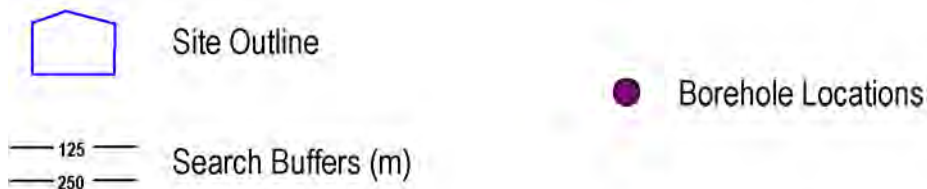
5. Borehole Records Map



Borehole Records Legend



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5. Borehole Records

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

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

22

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length (m)	Borehole Name
1	34.0	NW	440554,40 3498	SE40SW553	-1.0	STATION ROAD WOMBWELL 103
2	55.0	NW	440555,40 3526	SE40SW564	-1.0	STATION ROAD WOMBWELL TP119
3	60.0	NW	440520,40 3500	SE40SW222	11.35	BARNSELY-DONCASTER RD BH3
4	61.0	NW	440545,40 3526	SE40SW563	-1.0	STATION ROAD WOMBWELL TP118
5	72.0	NW	440539,40 3535	SE40SW562	-1.0	STATION ROAD WOMBWELL TP117
6	107.0	NW	440526,40 3570	SE40SW561	-1.0	STATION ROAD WOMBWELL TP116
7	111.0	W	440460,40 3490	SE40SW67/G	14.0	STATION ROAD WOMBWELL 7
8	135.0	NW	440512,40 3595	SE40SW568	-1.0	STATION ROAD WOMBWELL WS123
9	138.0	NW	440499,40 3588	SE40SW565	-1.0	STATION ROAD WOMBWELL WS120
10	148.0	N	440554,40 3633	SE40SW558	-1.0	STATION ROAD WOMBWELL TP113
11	160.0	W	440410,40 3430	SE40SW67/F	16.0	STATION ROAD WOMBWELL 6
12	168.0	NW	440520,40 3640	SE40SW67/J	15.5	STATION ROAD WOMBWELL 10
13	180.0	N	440545,40 3663	SE40SW559	-1.0	STATION ROAD WOMBWELL TP114
14	187.0	NW	440508,40 3655	SE40SW567	-1.0	STATION ROAD WOMBWELL WS122
15A	199.0	NW	440460,40 3635	SE40SW566	-1.0	STATION ROAD WOMBWELL WS121
16	207.0	NW	440380,40 3550	SE40SW67/E	20.0	STATION ROAD WOMBWELL 5
17A	210.0	NW	440449,40 3640	SE40SW569	-1.0	STATION ROAD WOMBWELL WS124
18	220.0	NW	440448,40 3652	SE40SW451	-1.0	LAND AT WOMBWELL BARNSELY 1
19	229.0	NW	440420,40 3640	SE40SW67/I	14.0	STATION ROAD WOMBWELL 9
20	229.0	NW	440484,40 3690	SE40SW455	-1.0	LAND AT WOMBWELL BARNSELY 5
21	240.0	W	440330,40 3500	SE40SW67/K	13.5	STATION ROAD WOMBWELL 11
22	247.0	NW	440450,40 3688	SE40SW454	-1.0	LAND AT WOMBWELL BARNSELY 4

Additional online information is available for the following boreholes listed above:

#3: scans.bgs.ac.uk/sobi_scans/boreholes/106385
 #7: scans.bgs.ac.uk/sobi_scans/boreholes/106223
 #11: scans.bgs.ac.uk/sobi_scans/boreholes/106222
 #12: scans.bgs.ac.uk/sobi_scans/boreholes/106226
 #16: scans.bgs.ac.uk/sobi_scans/boreholes/106221
 #19: scans.bgs.ac.uk/sobi_scans/boreholes/106225
 #21: scans.bgs.ac.uk/sobi_scans/boreholes/106227

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 Michael D Joyce Associates LLP, (0)1924 360458

6. Estimated Background Soil Chemistry

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

1

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

Distance (m)*	Direction	Sample Type	Estimated Geometric Mean Soil Concentrations (mg/kg)				
			Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Nickel (Ni)	Lead (Pb)
0.0	On Site	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	30 - 45 mg/kg	<150 mg/kg

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

7. Contacts

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mdja@geoenvironmental.co.uk



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Email: enquiries@bgs.ac.uk
Web: www.bgs.ac.uk
BGS Geological Hazards Reports and general geological enquiries



British Gypsum

British Gypsum Ltd, East Leake, Loughborough, Leicestershire, LE12 6HX
Tel: www.british-gypsum.com



The Coal Authority

200 Lichfield Lane, Mansfield, Notts NG18 4RG
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DX 716176 Mansfield 5 www.coal.gov.uk



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Acknowledgements

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Report Reference: HMD-354-1155403

If you would like any further assistance regarding this report then please contact
Michael D Joyce Associates LLP, (0)1924 360458

Standard Terms and Conditions

1 Definitions

In these terms and conditions unless the context otherwise requires:

"Beneficiary" means the person or entity for whose benefit the Client has obtained the Services.

"Client" means the party or parties entering into a Contract with GroundSure.

"Commercial" means any building or property which is not Residential.

"Confidential Information" means the contents of this Contract and all information received from the Client as a result of, or in connection with, this Contract other than

(i) information which the Client can prove was rightfully in its possession prior to disclosure by GroundSure and

(ii) any information which is in the public domain (other than by virtue of a breach of this Contract).

"Support Services" means Support Services provided by GroundSure including, without limitation, interpreting third party and in-house environmental data, providing environmental support advice, undertaking environmental audits and assessments, Site investigation, Site monitoring and related items.

"Contract" means the contract between GroundSure and the Client for the provision of the Services, and which shall incorporate these terms and conditions, the Order, and the relevant User Guide.

"Third Party Data Provider" means any third party providing Third Party Content to GroundSure.

"Data Reports" means reports comprising factual data with no accompanying interpretation.

"Fees" has the meaning set out in clause 5.1.

"GroundSure" means GroundSure Limited, a company registered in England and Wales under number 03421028.

"GroundSure Materials" means all materials prepared by GroundSure and provided as part of the Services, including but not limited to Third Party Content, Data Reports, Mapping, and Risk Screening Reports.

"Intellectual Property" means any patent, copyright, design rights, trade or service mark, moral rights, data protection rights, know-how or trade mark in each case whether registered or not and including applications for the same or any other rights of a similar nature anywhere in the world.

"Mapping" means a map, map data or a combination of historical maps of various ages, time periods and scales.

"Order" means an electronic, written or other order form submitted by the Client requesting Services from GroundSure in respect of a specified Site.

"Ordnance Survey" means the Secretary of State for Business, Innovation and Skills, acting through Ordnance Survey, Adanac Drive, Southampton, SO16 0AS, UK.

"Order Website" means the online platform through which Orders may be placed by the Client and accepted by GroundSure.

"Report" means a Risk Screening Report or Data Report for Commercial or Residential property.

"Residential" means any building or property used as or intended to be used as a single dwelling.

"Risk Screening Report" means a risk screening report comprising factual data with an accompanying interpretation by GroundSure.

"Services" means any Report, Mapping and/or Support Services which GroundSure has agreed to provide by accepting an Order pursuant to clause 2.6.

"Site" means the area of land in respect of which the Client has requested GroundSure to provide the Services.

"Third Party Content" means data, database information or other information which is provided to GroundSure by a Third Party Data Provider.

"User Guide" means the user guide, as amended from time to time, available upon request from GroundSure and on the website (www.groundsure.com) and forming part of this Contract.

2 Scope of Services, terms and conditions, requests for insurance and quotations

2.1 GroundSure agrees to provide the Services in accordance with the Contract.

2.2 GroundSure shall exercise reasonable skill and care in the provision of the Services.

2.3 Subject to clause 7.3 the Client acknowledges that it has not relied on any statement or representation made by or on behalf of GroundSure which is not set out and expressly agreed in writing in the Contract and all such statements and representations are hereby excluded to the fullest extent permitted by law.

2.4 The Client acknowledges that terms and conditions appearing on a Client's order form, printed stationery or other communication, or any terms or conditions implied by custom, practice or course of dealing shall be of no effect, and that this Contract shall prevail over all others in relation to the Order.

2.5 If the Client or Beneficiary requests insurance in conjunction with or as a result of the Services, GroundSure shall use reasonable endeavours to recommend such insurance, but makes no warranty that such insurance shall be available from insurers or that it will be offered on reasonable terms. Any insurance purchased by the Client or Beneficiary shall be subject solely to the terms of the policy issued by insurers and GroundSure will have no liability therefor. In addition you acknowledge and agree that GroundSure does not act as an agent or broker for any insurance providers. The Client should take (and ensure that the Beneficiary takes) independent advice to ensure that the insurance policy requested or offered is suitable for its requirements.

2.6 GroundSure's quotations or proposals are valid for a period of 30 days only unless an alternative period of time is explicitly stipulated by Groundsure. GroundSure reserves the right to withdraw any quotation or proposal at any time before an Order is accepted by GroundSure. GroundSure's acceptance of an Order shall be binding only when made in writing and signed by GroundSure's authorised representative or when accepted through the Order Website.

3 The Client's obligations

3.1 The Client shall comply with the terms of this Contract and

(i) procure that the Beneficiary or any third party relying on the Services complies with and acts as if it is bound by the Contract and

(ii) be liable to GroundSure for the acts and omissions of the Beneficiary or any third party relying on the Services as if such acts and omissions were those of the Client.

3.2 The Client shall be solely responsible for ensuring that the Services are appropriate and suitable for its and/or the Beneficiary's needs.

3.3 The Client shall supply to GroundSure as soon as practicable and without charge all requisite information (and the Client warrants that such information is accurate, complete and appropriate), including without limitation any environmental information relating to the Site and shall give such assistance as GroundSure shall reasonably require in the provision of the Services including, without limitation, access to the Site, facilities and equipment.

3.4 Where the Client's approval or decision is required to enable GroundSure to carry out work in order to provide the Services, such approval or decision shall be given or procured in reasonable time and so as not to delay or disrupt the performance of the Services.

3.5 Save as expressly permitted by this Contract the Client shall not, and shall procure that the Beneficiary shall not, re-sell, alter, add to, or amend the GroundSure Materials, or use the GroundSure Materials in a manner for which they were not intended. The Client may make the GroundSure Materials available to a third party who is considering acquiring some or all of, or providing funding in relation to, the Site, but such third party cannot rely on the same unless expressly permitted under clause 4.

3.6 The Client is responsible for maintaining the confidentiality of its user name and password if using the Order Website and the Client acknowledges that GroundSure accepts no liability of any kind for any loss or damage suffered by the Client as a consequence of using the Order Website.

4 Reliance

4.1 The Client acknowledges that the Services provided by GroundSure consist of the presentation and analysis of Third Party Content and other content and that information obtained from a Third Party Data Provider cannot be guaranteed or warranted by GroundSure to be reliable.

4.2 In respect of Data Reports, Mapping and Risk Screening Reports, the following classes of person and no other are entitled to rely on their contents;

- (i) the Beneficiary,
- (ii) the Beneficiary's professional advisers, (iii) any person providing funding to the Beneficiary in relation to the Site (whether directly or as part of a lending syndicate),
- (iv) the first purchaser or first tenant of the Site, and
- (v) the professional advisers and lenders of the first purchaser or tenant of the Site.

4.3 In respect of Support Services, only the Client, Beneficiary and parties expressly named in a Report and no other parties are entitled to rely on its contents.

4.4 Save as set out in clauses 4.2 and 4.3 and unless otherwise expressly agreed in writing, no other person or entity of any kind is entitled to rely on any Services or Report issued or provided by GroundSure. Any party considering such Reports and Services does so at their own risk.

5 Fees and Disbursements

5.1 GroundSure shall charge and the Client shall pay fees at the rate and frequency specified in the written proposal, Order Website or Order acknowledgement form, plus (in the case of Support Services) all proper disbursements incurred by GroundSure. The Client shall in addition pay all value added tax or other tax payable on such fees and disbursements in relation to the provision of the Services (together "Fees").

5.2 The Client shall pay all outstanding Fees to GroundSure in full without deduction, counterclaim or set off within 30 days of the date of GroundSure's invoice or such other period as may be agreed in writing between GroundSure and the Client ("Payment Date"). Interest on late payments will accrue on a daily basis from the Payment Date until the date of payment (whether before or after judgment) at the rate of 8% per annum.

5.3 The Client shall be deemed to have agreed the amount of any invoice unless an objection is made in writing within 28 days of the date of the invoice. As soon as reasonably practicable after being notified of an objection, without prejudice to clause 5.2 a member of GroundSure's management team will contact the Client and the parties shall then use all reasonable endeavours to resolve the dispute within 15 days.

6 Intellectual Property and Confidentiality

6.1 Subject to

- (i) full payment of all relevant Fees and
- (ii) compliance with this Contract, the Client is granted (and is permitted to sub-licence to the Beneficiary) a royalty-free, worldwide, non-assignable and (save to the extent set out in this Contract) non-transferable licence to make use of the GroundSure Materials.

6.2 All Intellectual Property in the GroundSure Materials are and shall remain owned by GroundSure or GroundSure's licensors (including without limitation the Third Party Data Providers) the Client acknowledges, and shall procure acknowledgement by the Beneficiary of, such ownership. Nothing in this Contract purports to transfer or assign any rights to the Client or the Beneficiary in respect of such Intellectual Property.

6.3 Third Party Data Providers may enforce any breach of clauses 6.1 and 6.2 against the Client or Beneficiary.

6.4 The Client shall, and shall procure that any recipients of the GroundSure Materials shall:

- (i) not remove, suppress or modify any trade mark, copyright or other proprietary marking belonging to GroundSure or any third party from the Services;
- (ii) use the information obtained as part of the Services in respect of the subject Site only, and shall not store or reuse any information obtained as part of the Services provided in respect of adjacent or nearby sites;
- (iii) not create any product or report which is derived directly or indirectly from the Services (save that those acting in a professional capacity to the Beneficiary may provide advice based upon the Services);
- (iv) not combine the Services with or incorporate such Services into any other information data or service;
- (v) not reformat or otherwise change (whether by modification, addition or enhancement), the Services (save that those acting for the Beneficiary in a professional capacity shall not be in breach of this clause 6.4(v) where such reformatting is in the normal course of providing advice based upon the Services);
- (vi) where a Report and/or Mapping contains material belonging to Ordnance Survey, acknowledge and agree that such content is protected by Crown Copyright and shall not use such content for any purpose outside of receiving the Services; and
- (vii) not copy in whole or in part by any means any map prints or run-on copies containing content belonging to Ordnance Survey (other than that

contained within Ordnance Survey's OS Street Map) without first being in possession of a valid Paper Map Copying Licence from Ordnance Survey,

6.5 Notwithstanding clause 6.4, the Client may make reasonable use of the GroundSure Materials in order to advise the Beneficiary in a professional capacity. However, GroundSure shall have no liability in respect of any advice, opinion or report given or provided to Beneficiaries by the Client.

6.6 The Client shall procure that any person to whom the Services are made available shall notify GroundSure of any request or requirement to disclose, publish or disseminate any information contained in the Services in accordance with the Freedom of Information Act 2000, the Environmental Information Regulations 2004 or any associated legislation or regulations in force from time to time.

7. Liability: Particular Attention Should Be Paid To This Clause

7.1 This Clause 7 sets out the entire liability of GroundSure, including any liability for the acts or omissions of its employees, agents, consultants, subcontractors and Third Party Content, in respect of:

- (i) any breach of contract, including any deliberate breach of the Contract by GroundSure or its employees, agents or subcontractors;
 - (ii) any use made of the Reports, Services, Materials or any part of them; and
 - (iii) any representation, statement or tortious act or omission (including negligence) arising under or in connection with the Contract.
- 7.2 All warranties, conditions and other terms implied by statute or common law are, to the fullest extent permitted by law, excluded from the Contract.
- 7.3 Nothing in the Contract limits or excludes the liability of the Supplier for death or personal injury resulting from negligence, or for any damage or liability incurred by the Client or Beneficiary as a result of fraud or fraudulent misrepresentation.

7.4 GroundSure shall not be liable for

- (i) loss of profits;
- (ii) loss of business;
- (iii) depletion of goodwill and/or similar losses;
- (iv) loss of anticipated savings;
- (v) loss of goods;
- (vi) loss of contract;
- (vii) loss of use;
- (viii) loss or corruption of data or information;
- (ix) business interruption;
- (x) any kind of special, indirect, consequential or pure economic loss, costs, damages, charges or expenses;
- (xi) loss or damage that arise as a result of the use of all or part of the GroundSure Materials in breach of the Contract;
- (xii) loss or damage arising as a result of any error, omission or inaccuracy in any part of the GroundSure Materials where such error, omission or inaccuracy is caused by any Third Party Content or any reasonable interpretation of Third Party Content;
- (xiii) loss or damage to a computer, software, modem, telephone or other property; and
- (xiv) loss or damage caused by a delay or loss of use of GroundSure's internet ordering service.

7.5 GroundSure's total liability in relation to or under the Contract shall be limited to £10 million for any claim or claims.

7.6 GroundSure shall procure that the Beneficiary shall be bound by limitations and exclusions of liability in favour of GroundSure which accord with those detailed in clauses 7.4 and 7.5 (subject to clause 7.3) in respect of all claims which the Beneficiary may bring against GroundSure in relation to the Services or other matters arising pursuant to the Contract.

8 GroundSure's right to suspend or terminate

8.1 If GroundSure reasonably believes that the Client or Beneficiary has not provided the information or assistance required to enable the proper provision of the Services, GroundSure shall be entitled to suspend all further performance of the Services until such time as any such deficiency has been made good.

8.2 GroundSure shall be entitled to terminate the Contract immediately on written notice in the event that:

- (i) the Client fails to pay any sum due to GroundSure within 30 days of the Payment Date; or
- (ii) the Client (being an individual) has a bankruptcy order made against him or (being a company) shall enter into liquidation whether compulsory or voluntary or have an administration order made against it or if a receiver shall be appointed over the whole or any part of its property assets or undertaking or if the Client is struck off the Register of Companies or dissolved; or
- (iii) the Client being a company is unable to pay its debts within the meaning of Section 123 of the Insolvency Act 1986 or being an individual appears unable to pay his debts within the meaning of Section 268 of the Insolvency Act 1986 or if the Client shall enter into a composition or arrangement with the Client's creditors or shall suffer distress or execution to be levied on his goods; or

(iv) the Client or the Beneficiary breaches any term of the Contract (including, but not limited to, the obligations in clause 4) which is incapable of remedy or if remediable, is not remedied within five days of notice of the breach.

9. Client's Right to Terminate and Suspend

9.1 Subject to clause 10.1, the Client may at any time upon written notice terminate or suspend the provision of all or any of the Services.

9.2 In any event, where the Client is a consumer (and not a business) he/she hereby expressly acknowledges and agrees that:

- (i) the supply of Services under this Contract (and therefore the performance of this Contract) commences immediately upon GroundSure's acceptance of the Order; and
- (ii) the Reports and/or Mapping provided under this Contract are
 - (a) supplied to the Client's specification(s) and in any event
 - (b) by their nature cannot be returned.

10 Consequences of Withdrawal, Termination or Suspension

10.1 Upon termination of the Contract:

(i) GroundSure shall take steps to bring to an end the Services in an orderly manner, vacate any Site with all reasonable speed and shall deliver to the Client and/or Beneficiary any property of the Client and/or Beneficiary in GroundSure's possession or control; and

(ii) the Client shall pay to GroundSure all and any Fees payable in respect of the performance of the Services up to the date of termination or suspension. In respect of any Support Services provided, the Client shall also pay GroundSure any additional costs incurred in relation to the termination or suspension of the Contract. 11 Anti-Bribery

11.1 The Client warrants that it shall:

- (i) comply with all applicable laws, statutes and regulations relating to anti-bribery and anti-corruption including but not limited to the Bribery Act 2010;
- (ii) comply with such of GroundSure's anti-bribery and anti-corruption policies as are notified to the Client from time to time; and
- (iii) promptly report to GroundSure any request or demand for any undue financial or other advantage of any kind received by or on behalf of the Client in connection with the performance of this Contract.

11.2 Breach of this Clause 11 shall be deemed a material breach of this Contract.

12 General

12.1 The Mapping contained in the Services is protected by Crown copyright and must not be used for any purpose other than as part of the Services or as specifically provided in the Contract.

12.2 The Client shall be permitted to make one copy only of each Report or Mapping Order. Thereafter the Client shall be entitled to make unlimited copies of the Report or Mapping Order only in accordance with an Ordnance Survey paper map copy license available through GroundSure.

12.3 GroundSure reserves the right to amend or vary this Contract. No amendment or variation to this Contract shall be valid unless signed by an authorised representative of GroundSure.

12.4 No failure on the part of GroundSure to exercise, and no delay in exercising, any right, power or provision under this Contract shall operate as a waiver thereof.

12.5 Save as expressly provided in this Contract, no person other than the persons set out therein shall have any right under the Contract (Rights of Third Parties) Act 1999 to enforce any terms of the Contract.

12.6 The Secretary of State for Business, Innovation and Skills ("BIS") or BIS' successor body, as the case may be, acting through Ordnance Survey may enforce a breach of clause 6.4(vi) and clause 6.4(vii) of these terms and conditions against the Client in accordance with the provisions of the Contracts (Rights of Third Parties) Act 1999.

12.7 GroundSure shall not be liable to the Client if the provision of the Services is delayed or prevented by one or more of the following circumstances:

- (i) the Client or Beneficiary's failure to provide facilities, access or information;
- (ii) fire, storm, flood, tempest or epidemic;
- (iii) Acts of God or the public enemy;
- (iv) riot, civil commotion or war;
- (v) strikes, labour disputes or industrial action;
- (vi) acts or regulations of any governmental or other agency;
- (vii) suspension or delay of services at public registries by Third Party Data Providers;
- (viii) changes in law; or
- (ix) any other reason beyond GroundSure's reasonable control.

In the event that GroundSure is prevented from performing the Services (or any part thereof) in accordance with this clause 12.6 for a period of not less than 30 days then GroundSure shall be entitled to terminate this Contract immediately on written notice to the Client.

12.8 Any notice provided shall be in writing and shall be deemed to be properly given if delivered by hand or sent by first class post, facsimile or by email to the address, facsimile number or email address of the relevant

party as may have been notified by each party to the other for such purpose or in the absence of such notification the last known address.

12.9 Such notice shall be deemed to have been received on the day of delivery if delivered by hand, facsimile or email (save to the extent such day is not a working day where it shall be deemed to have been delivered on the next working day) and on the second working day after the day of posting if sent by first class post.

12.10 The Contract constitutes the entire agreement between the parties and shall supersede all previous arrangements between the parties relating to the subject matter hereof.

12.11 Each of the provisions of the Contract is severable and distinct from the others and if one or more provisions is or should become invalid, illegal or unenforceable, the validity and enforceability of the remaining provisions shall not in any way be tainted or impaired.

12.12 This Contract shall be governed by and construed in accordance with English law and any proceedings arising out of or connected with this Contract shall be subject to the exclusive jurisdiction of the English courts.

12.13 GroundSure is an executive member of the Council of Property Search Organisation (CoPSO) and has signed up to the Search Code administered by the Property Codes Compliance Board (PCCB). All Risk Screening Reports shall be supplied in accordance with the provisions of the Search Code.

12.14 If the Client or Beneficiary has a complaint about the Services, written notice should be given to the Compliance Officer at GroundSure who will respond in a timely manner.

12.15 The Client agrees that it shall, and shall procure that each Beneficiary shall, treat in confidence all Confidential Information and shall not, and shall procure that each Beneficiary shall not (i) disclose any Confidential Information to any third party other than in accordance with the terms of this Contract; and (ii) use Confidential Information for a purpose other than the exercise of its rights and obligations under this Contract. Subject to clause 6.6, nothing shall prevent the Client or any Beneficiary from disclosing Confidential Information to the extent required by law.

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Site Details:

134, STATION
ROAD, WOMBWELL, BARNSELY
, S73 0BD

Client Ref: 134, STATION ROAD, WOMBWELL, BARNSELY S7
Report Ref: HMD-354-1155401
Grid Ref: 440584, 403471

Map Name: MasterMap

Map date: 2012

Scale: 1:1,250

Printed at: 1:2,500

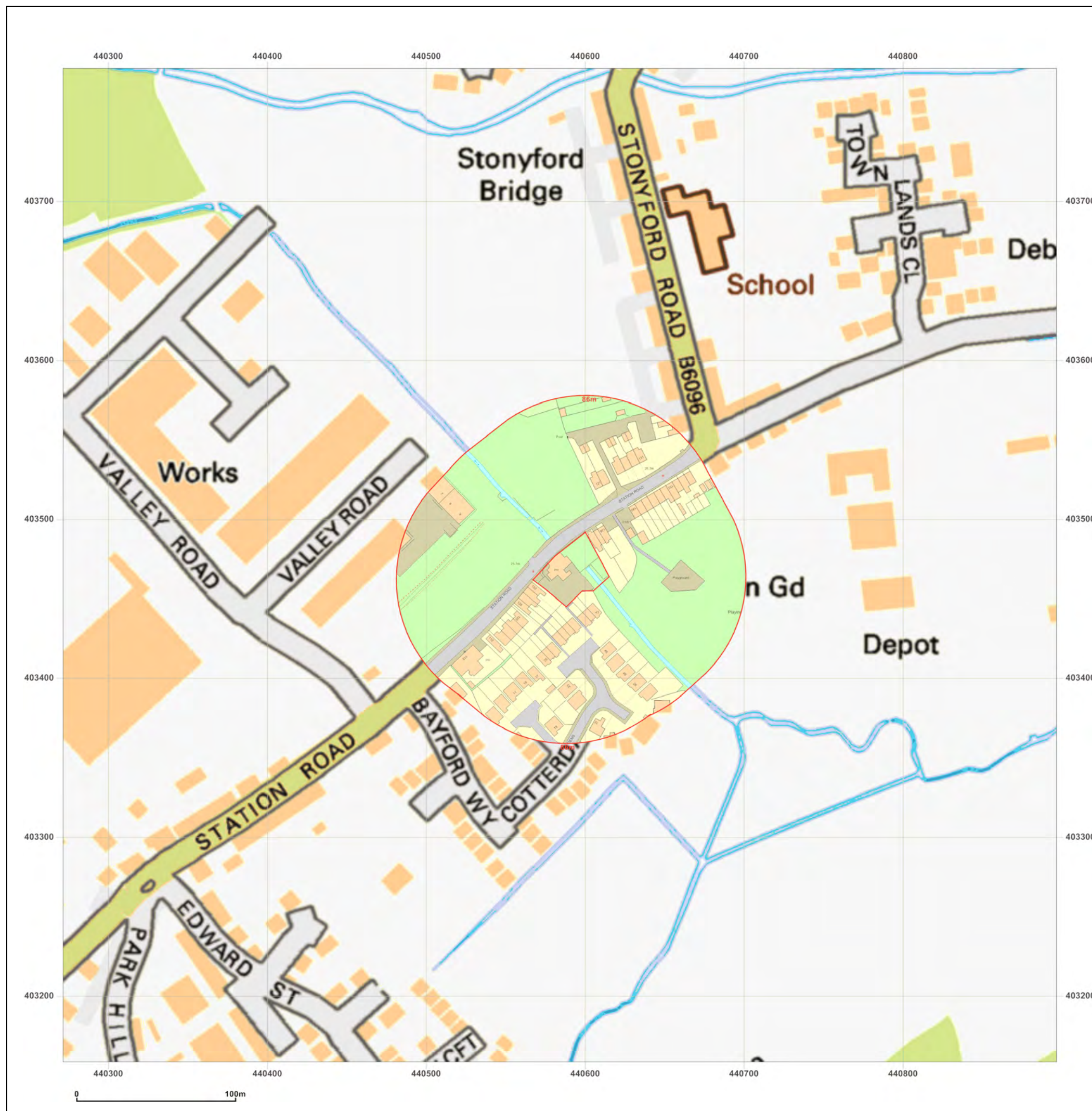


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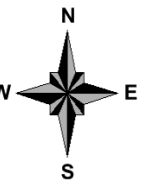
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Report Ref: HMD-354-1155401
Grid Ref: 440584, 403471

Map Name: National Grid

Map date: 1993-1994

Scale: 1:1,250

Printed at: 1:2,500



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

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

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

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1993
Levelled N/A

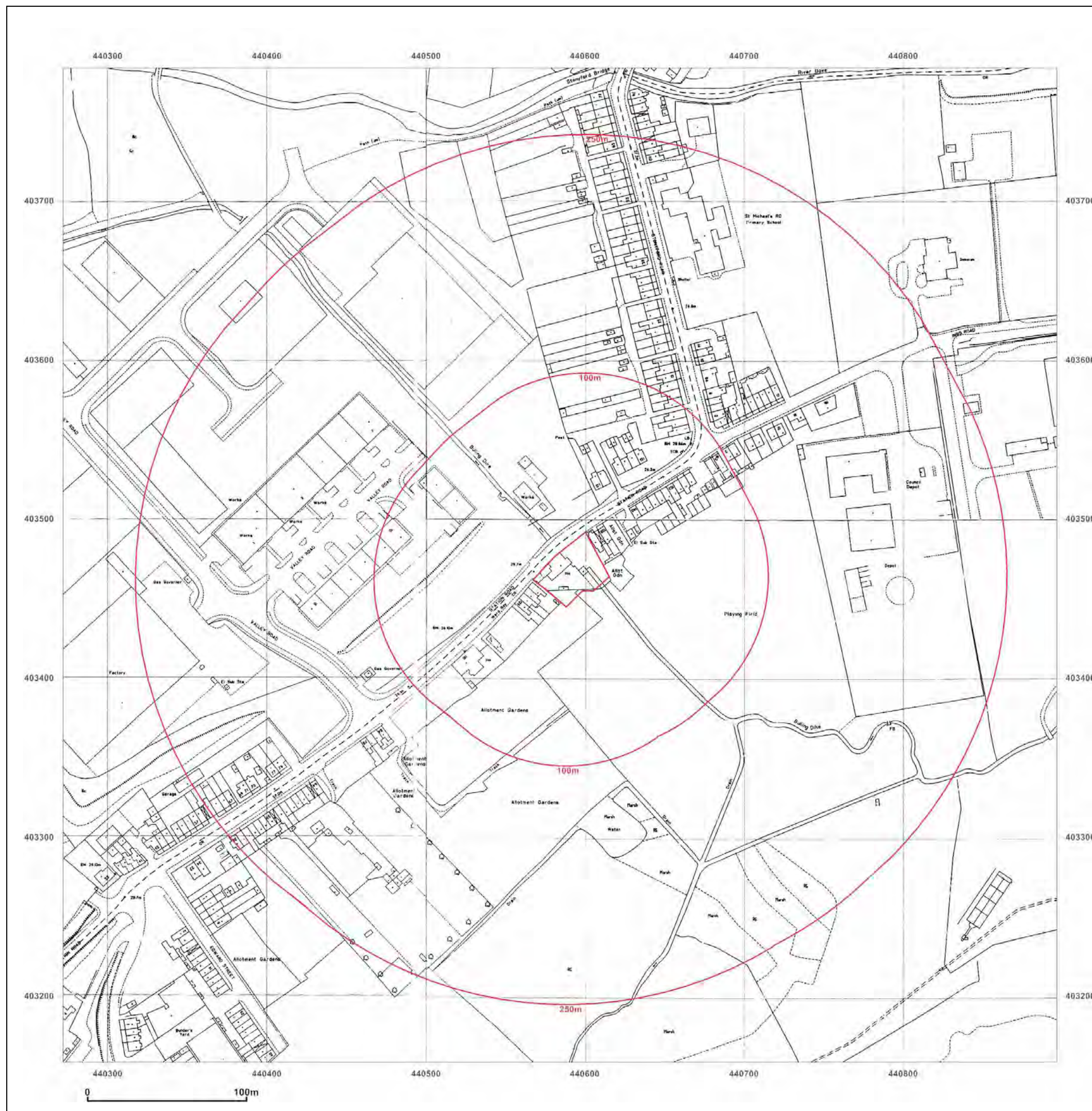


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Client Ref: 134, STATION ROAD, WOMBWELL, BARNSELEY S7
Report Ref: HMD-354-1155401
Grid Ref: 440584, 403471

Map Name: National Grid

Map date: 1994

Scale: 1:1,250

Printed at: 1:2,500



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Edition N/A
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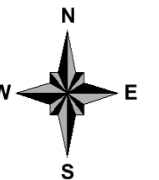
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Grid Ref: 440584, 403471

Map Name: National Grid

Map date: 1991-1993

Scale: 1:1,250

Printed at: 1:2,500



Surveyed N/A
Revised N/A
Edition N/A
Copyright 1993
Levelled N/A

Surveyed 1981
Revised 1981
Edition N/A
Copyright 1991
Levelled 1964

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1993
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1993
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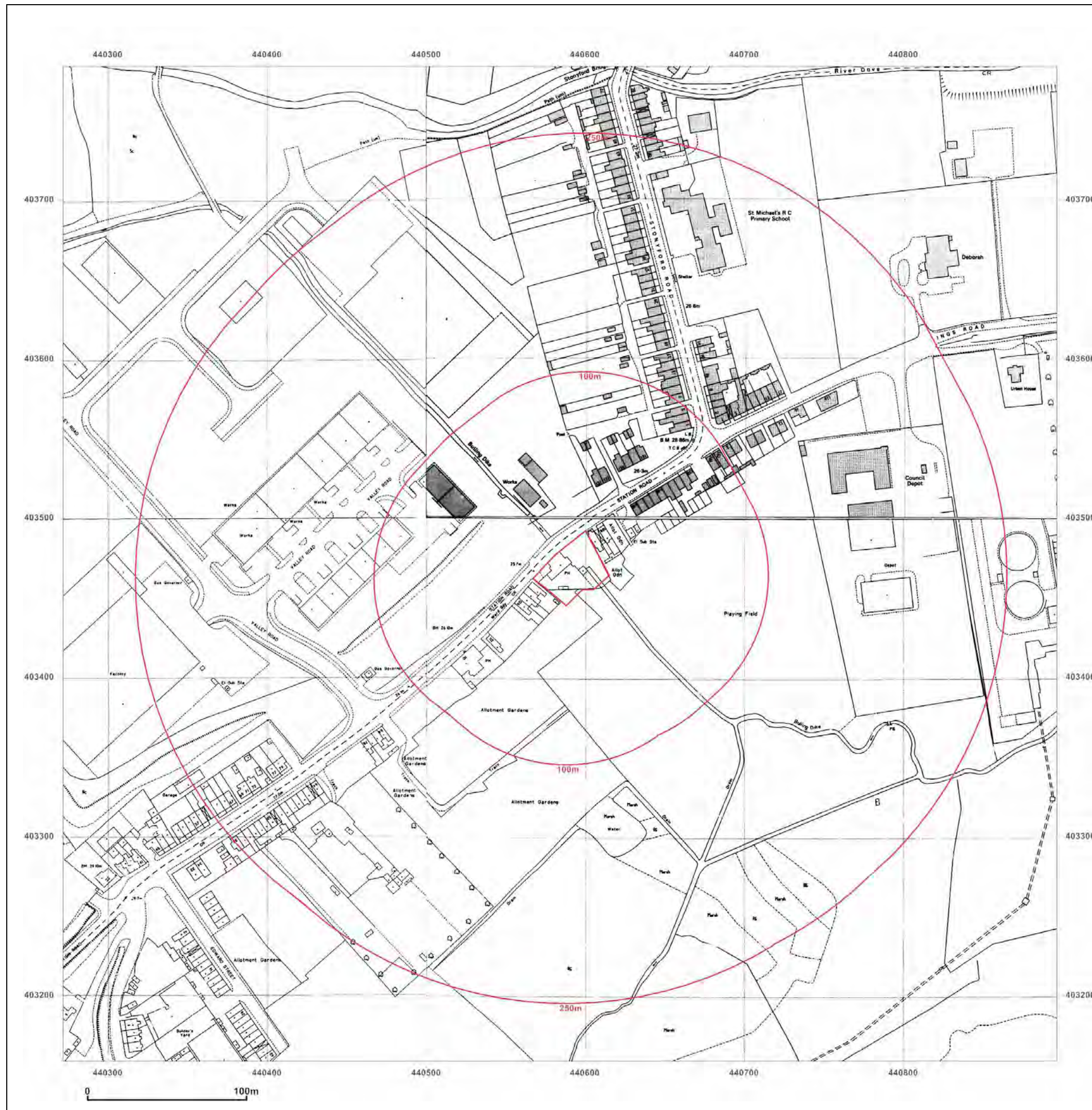


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Client Ref: 134, STATION ROAD, WOMBWELL, BARNSELY S7
Report Ref: HMD-354-1155401
Grid Ref: 440584, 403471

Map Name: National Grid

Map date: 1991-1993

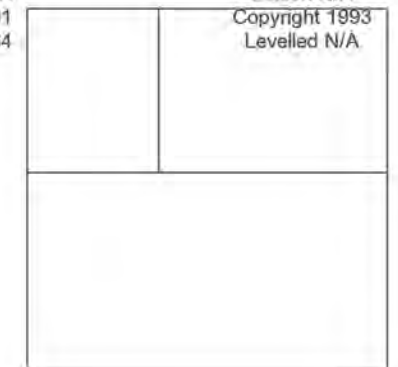
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Printed at: 1:2,500



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Edition N/A
Copyright 1991
Levelled 1964

Surveyed N/A
Revised N/A
Edition N/A
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Client Ref: 134,STATION ROAD,WOMBWELL,BARNSLEY S7
Report Ref: HMD-354-1155401
Grid Ref: 440584, 403471

Map Name: National Grid

Map date: 1982

Scale: 1:1,250

Printed at: 1:2,500



Surveyed 1981
Revised 1981
Edition N/A
Copyright 1982
Levelled 1964

Surveyed 1981
Revised 1981
Edition N/A
Copyright 1982
Levelled 1964

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Revised 1981
Edition N/A
Copyright 1982
Levelled 1964

Surveyed 1981
Revised 1981
Edition N/A
Copyright 1982
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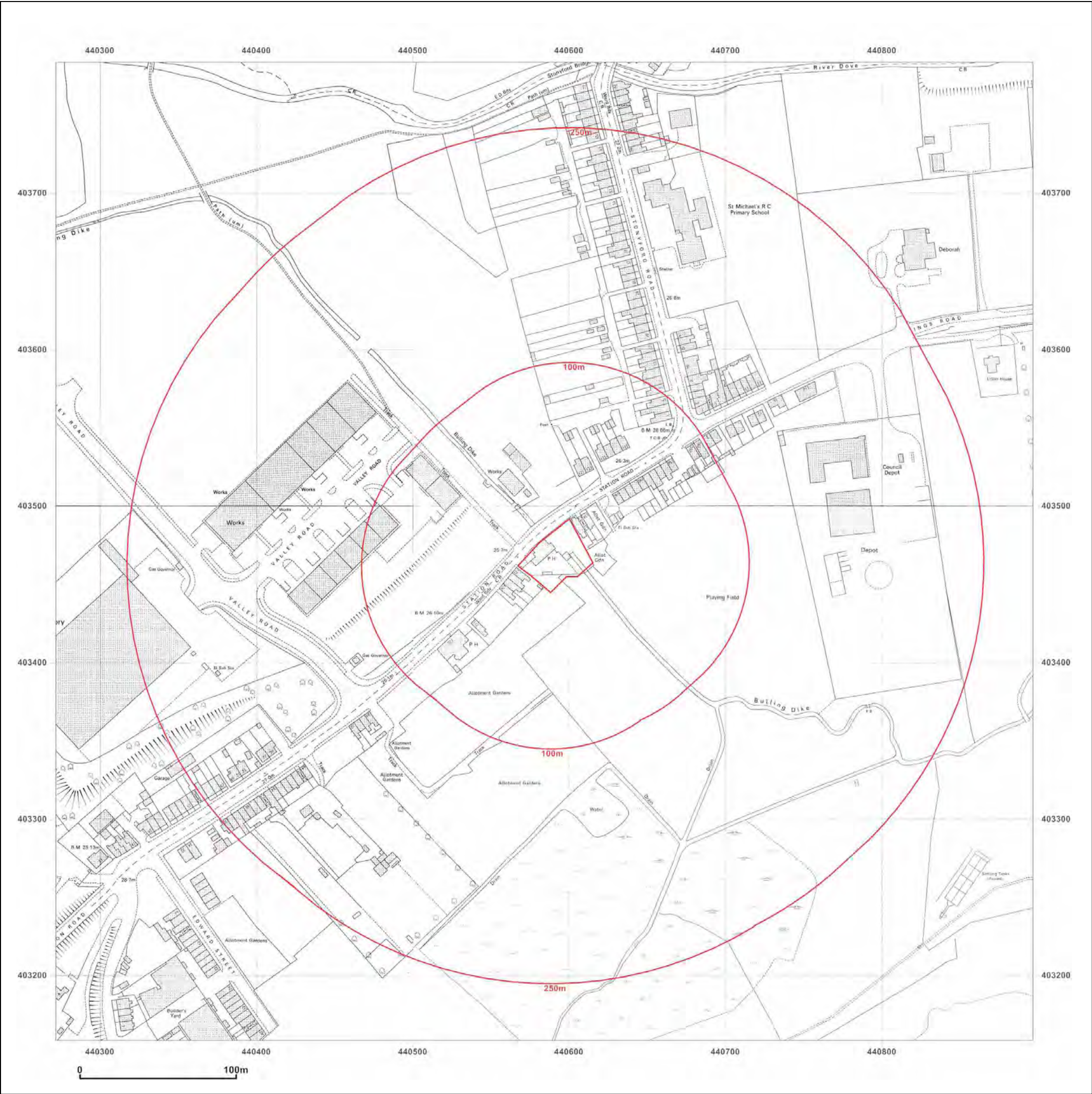


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Client Ref: 134, STATION ROAD, WOMBWELL, BARNLEY S73 0BD
Report Ref: HMD-354-1155401
Grid Ref: 440584, 403471

Map Name: National Grid

Map date: 1961

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1961
Revised 1961
Edition N/A
Copyright 1962
Levelled 1959

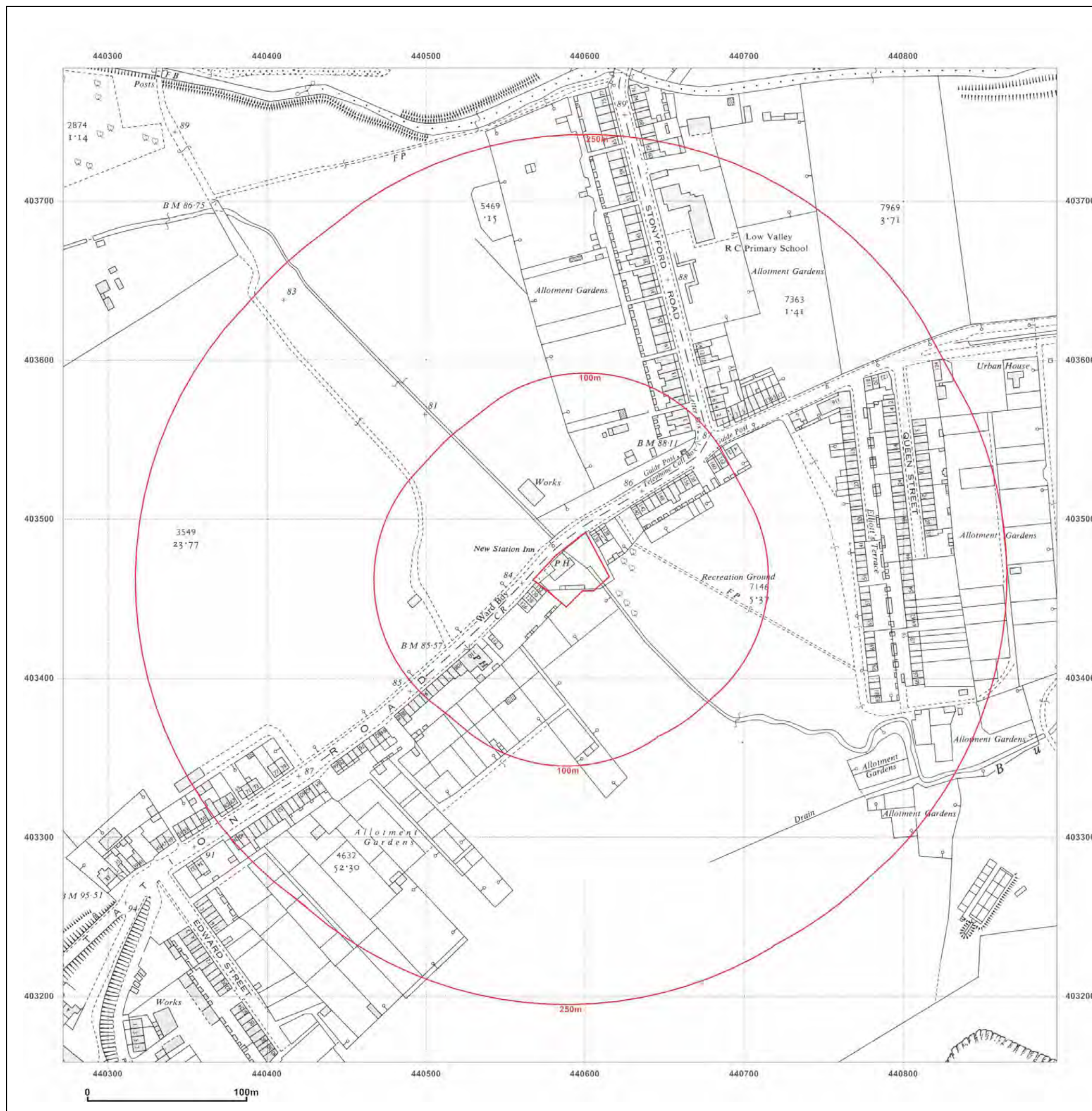


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Client Ref: 134, STATION ROAD, WOMBWELL, BARNSELY S73 0BD
Report Ref: HMD-354-1155401
Grid Ref: 440584, 403471

Map Name: County Series

Map date: 1931

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1931
 Revised 1931
 Edition N/A
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 Levelled N/A

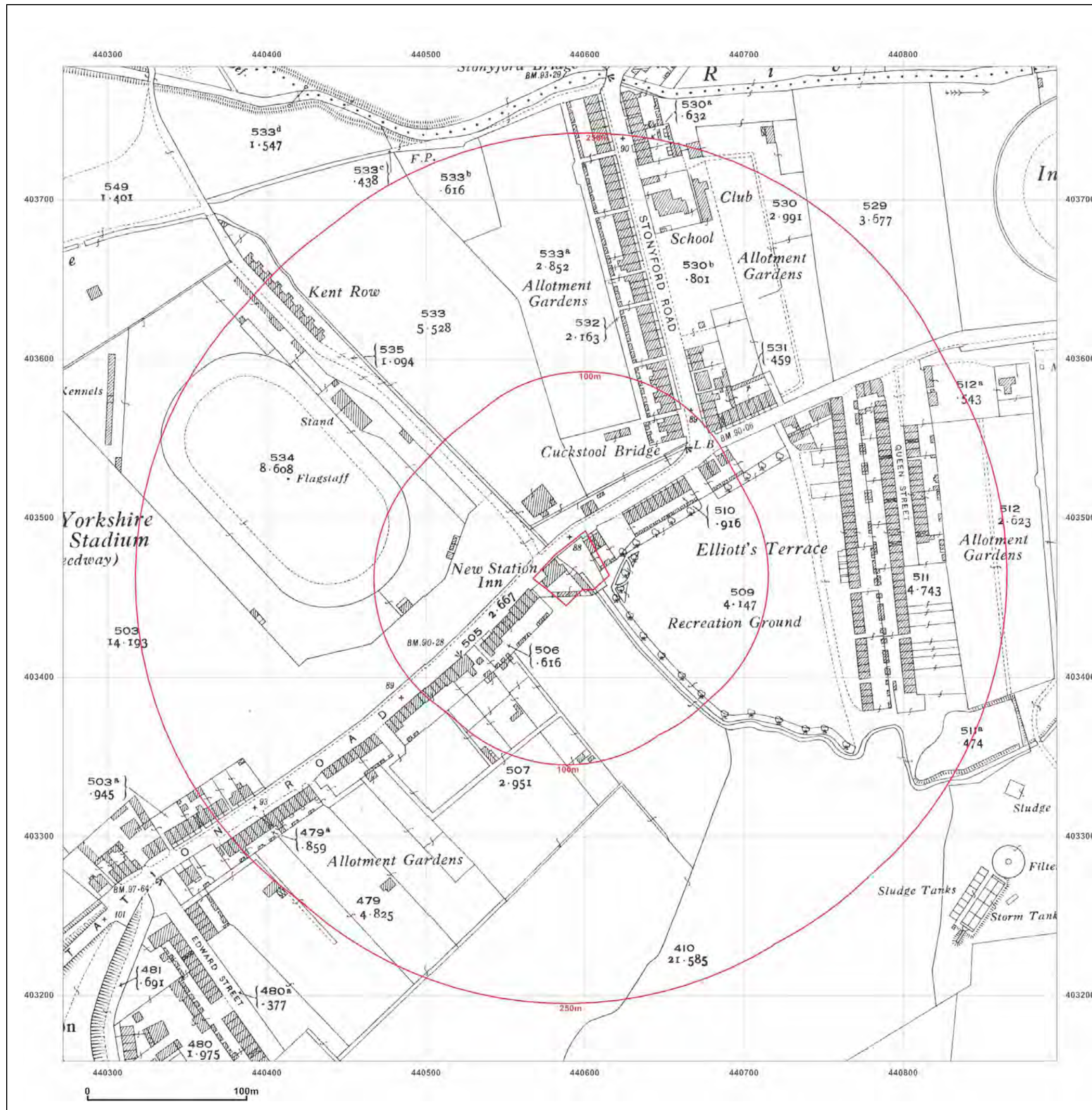


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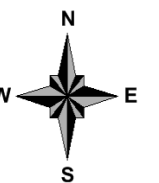
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Grid Ref: 440584, 403471

Map Name: County Series

Map date: 1906

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1906
Revised 1908
Edition N/A
Copyright N/A
Levelled N/A

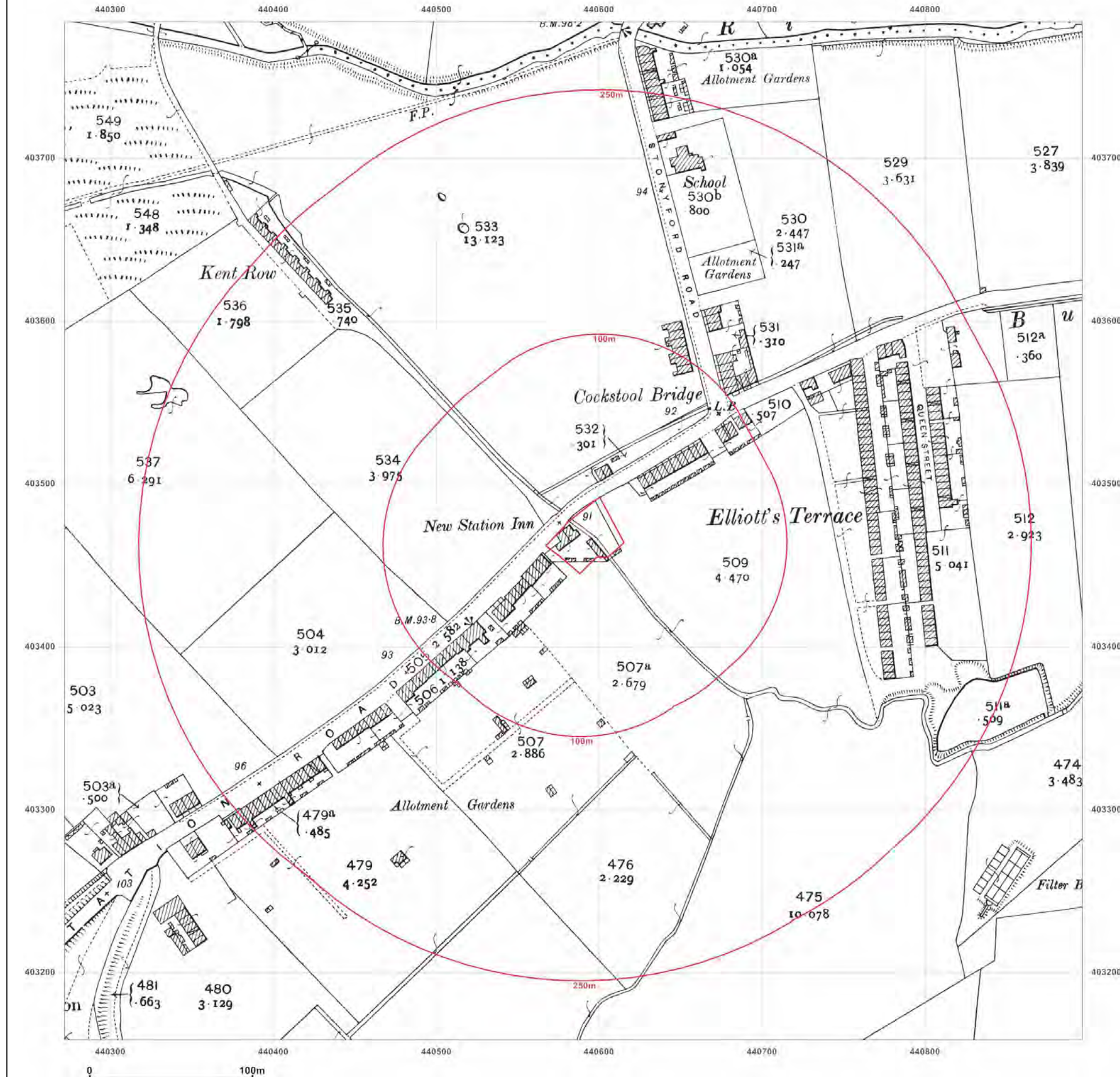


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Client Ref: 134, STATION ROAD, WOMBWELL, BARNSELY S7
Report Ref: HMD-354-1155401
Grid Ref: 440584, 403471

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

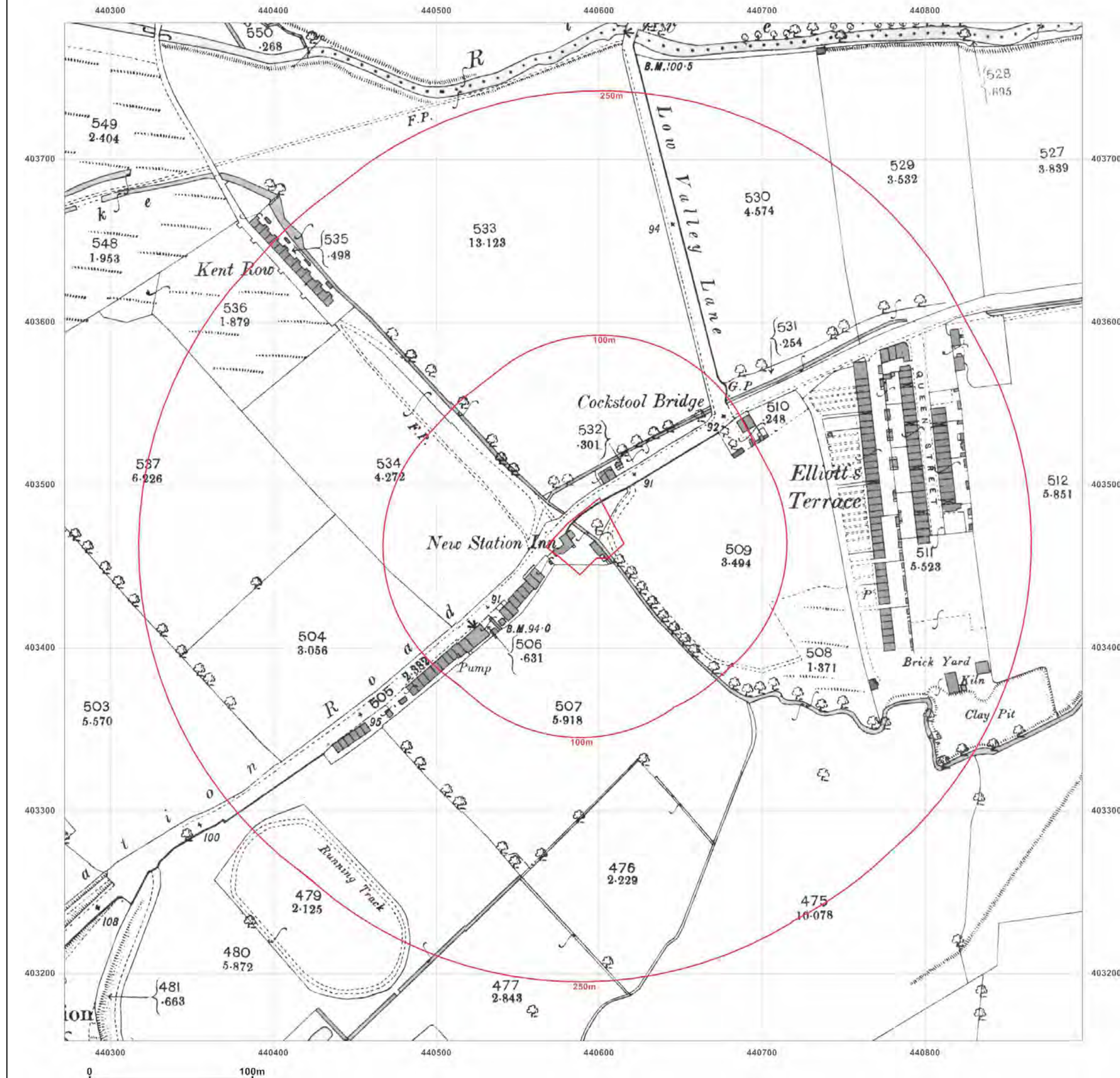


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Client Ref: 134, STATION ROAD, WOMBWELL, BARNSELY S73 0BD
Report Ref: HMD-354-1155401
Grid Ref: 440584, 403471

Map Name: National Grid

Map date: 2012

Scale: 1:10,000

Printed at: 1:10,000

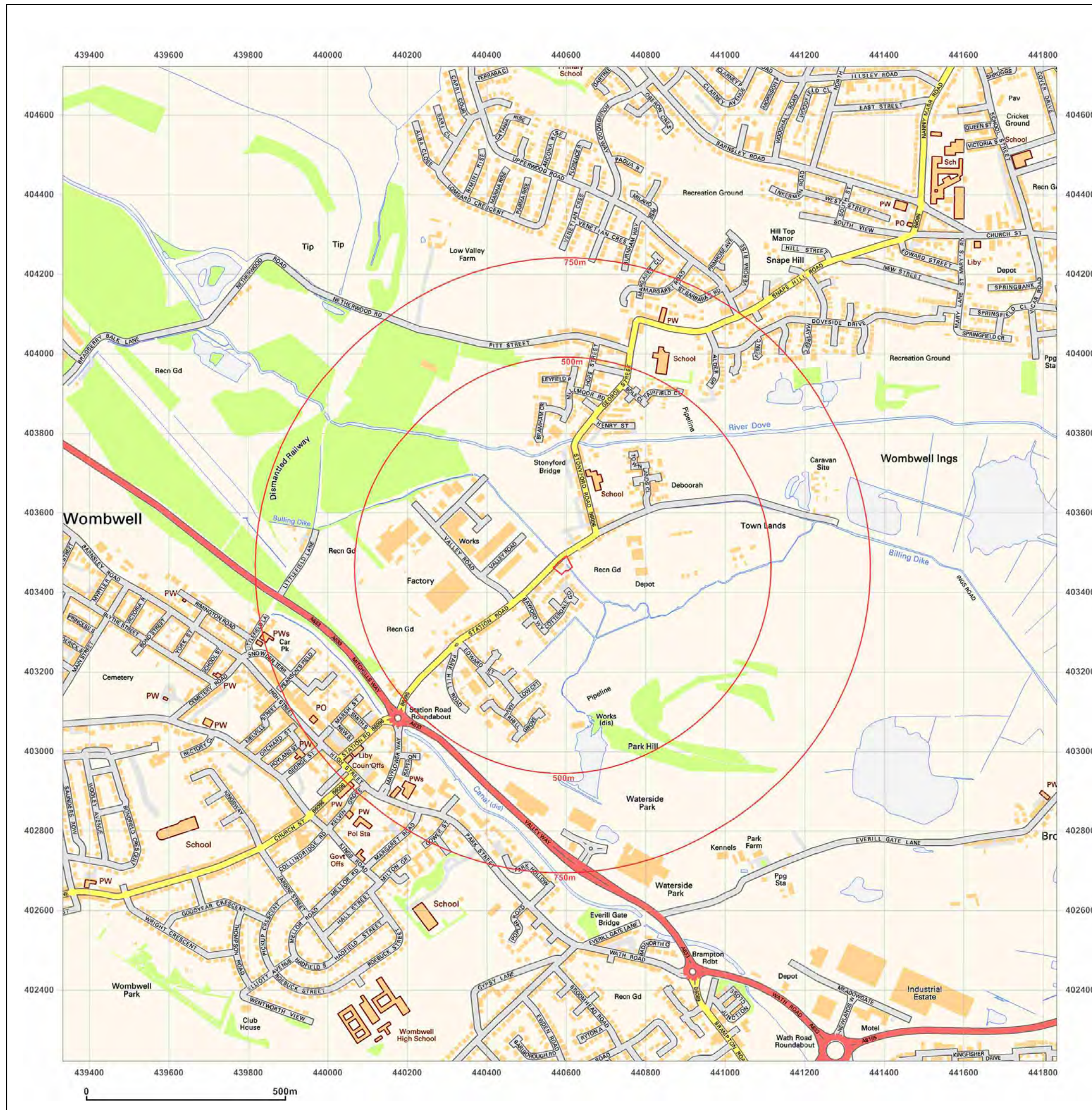


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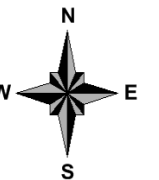
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Report Ref: HMD-354-1155401
Grid Ref: 440584, 403471

Map Name: 1:10,000 Raster

Map date: 2002

Scale: 1:10,000

Printed at: 1:10,000

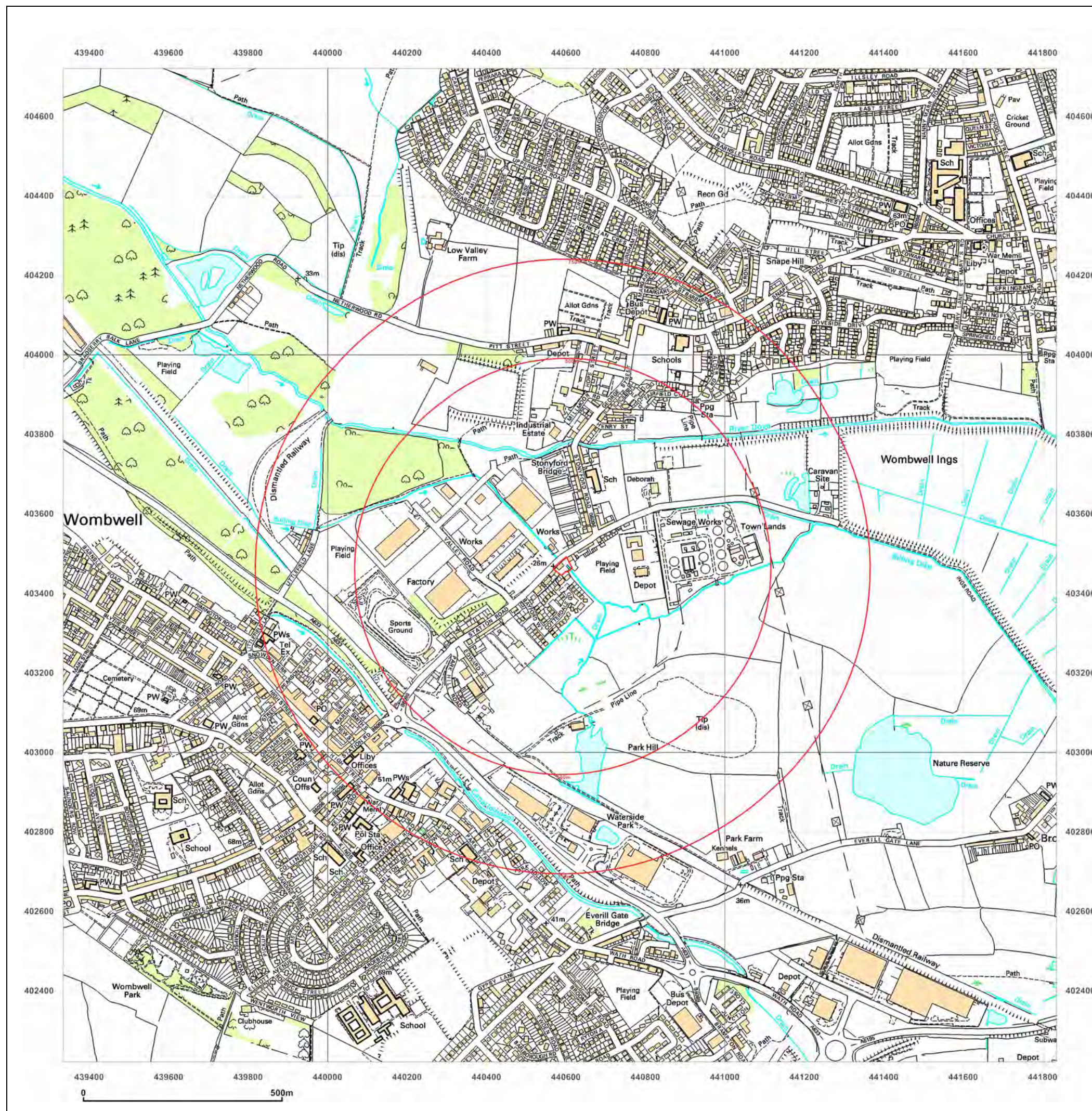


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Client Ref: 134, STATION ROAD, WOMBWELL, BARNSELY S7
Report Ref: HMD-354-1155401
Grid Ref: 440584, 403471

Map Name: National Grid

Map date: 1987-1988

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1986
Revised 1987
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1983
Revised 1988
Edition N/A
Copyright N/A
Levelled N/A

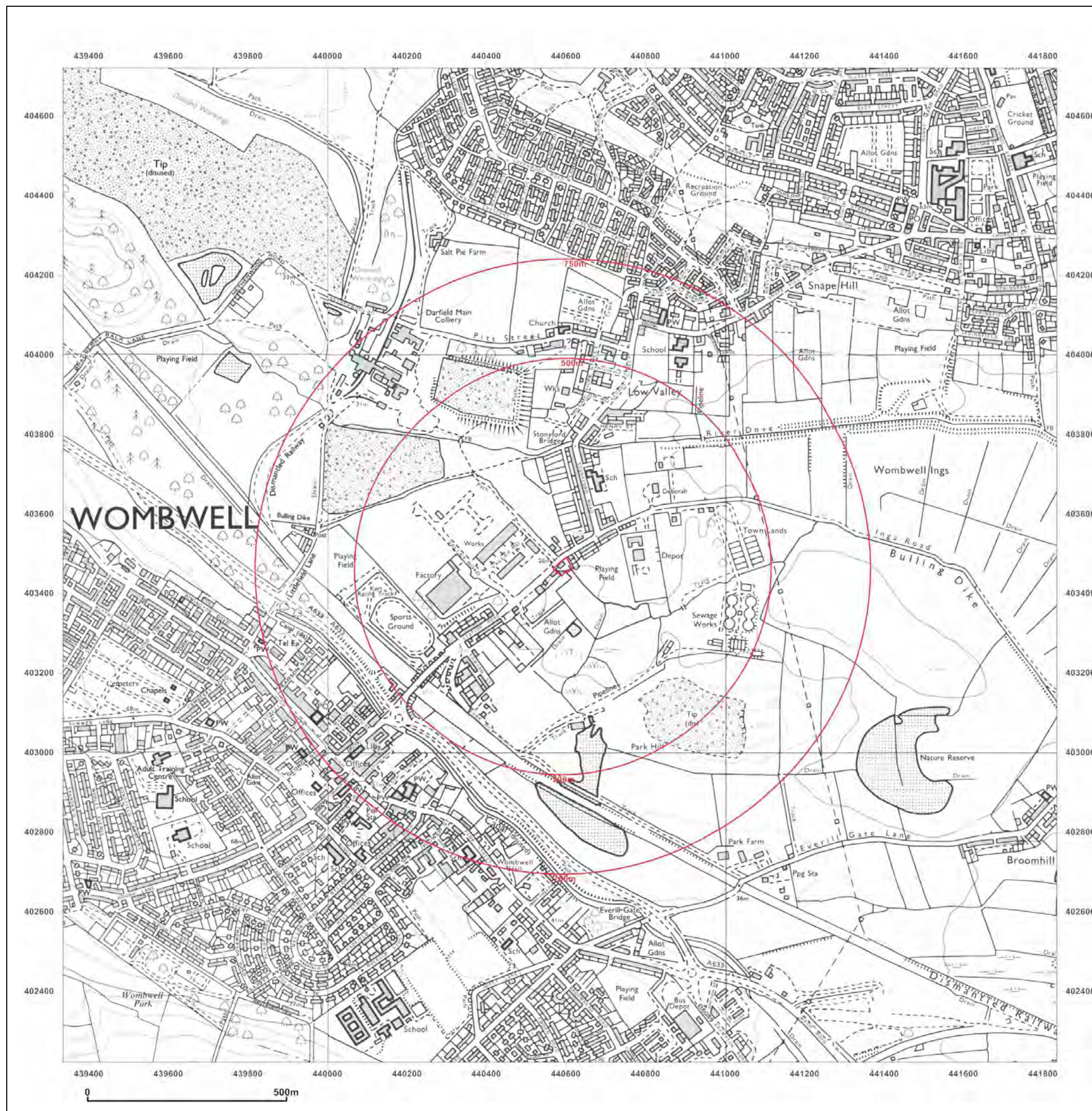


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Client Ref: 134, STATION ROAD, WOMBWELL, BARNSELEY S7
Report Ref: HMD-354-1155401
Grid Ref: 440584, 403471

Map Name: National Grid

Map date: 1987

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1986
Revised 1987
Edition N/A
Copyright N/A
Levelled N/A

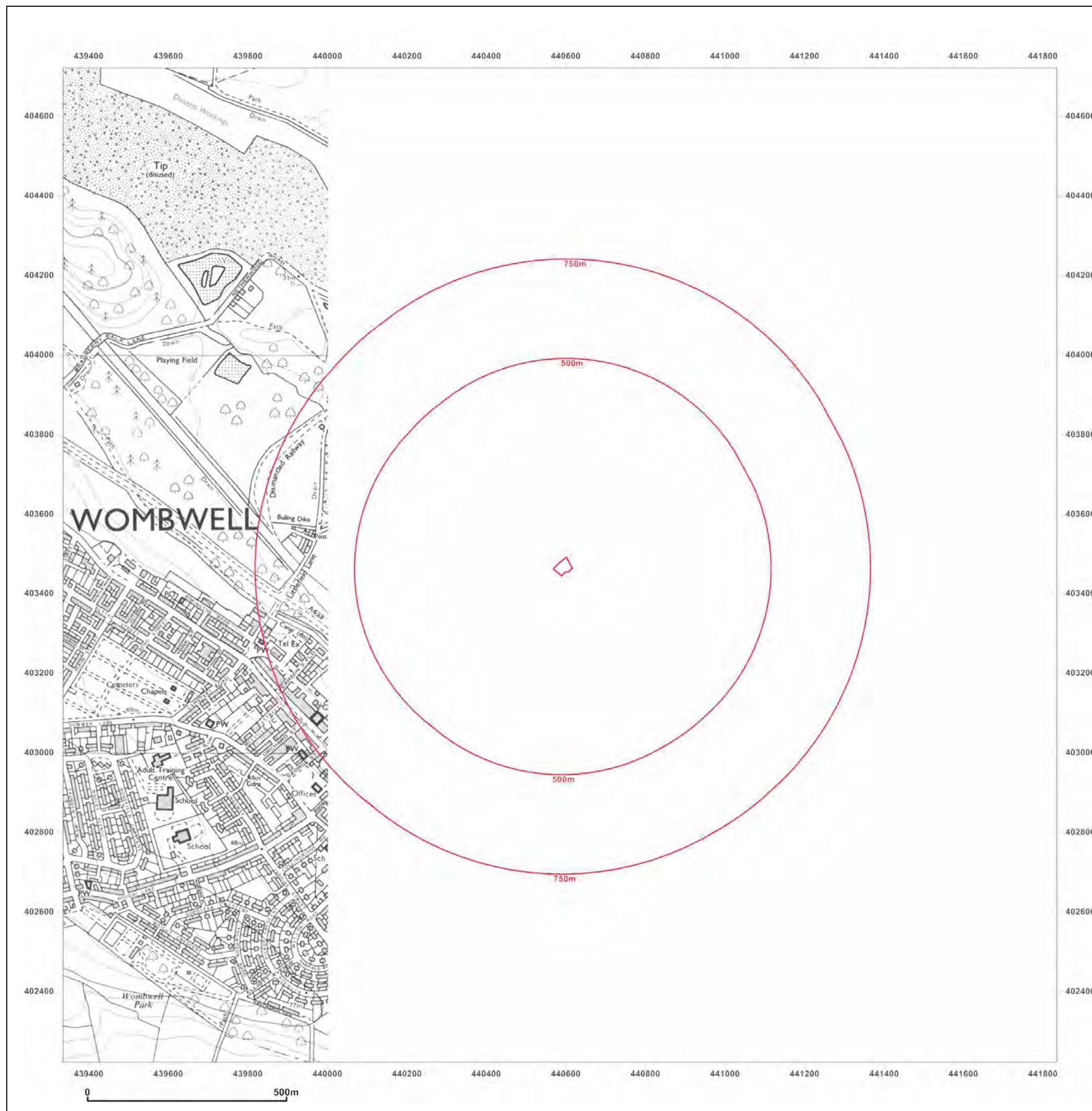


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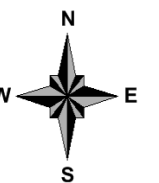
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Report Ref: HMD-354-1155401
Grid Ref: 440584, 403471

Map Name: National Grid

Map date: 1977

Scale: 1:10,000

Printed at: 1:10,000



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

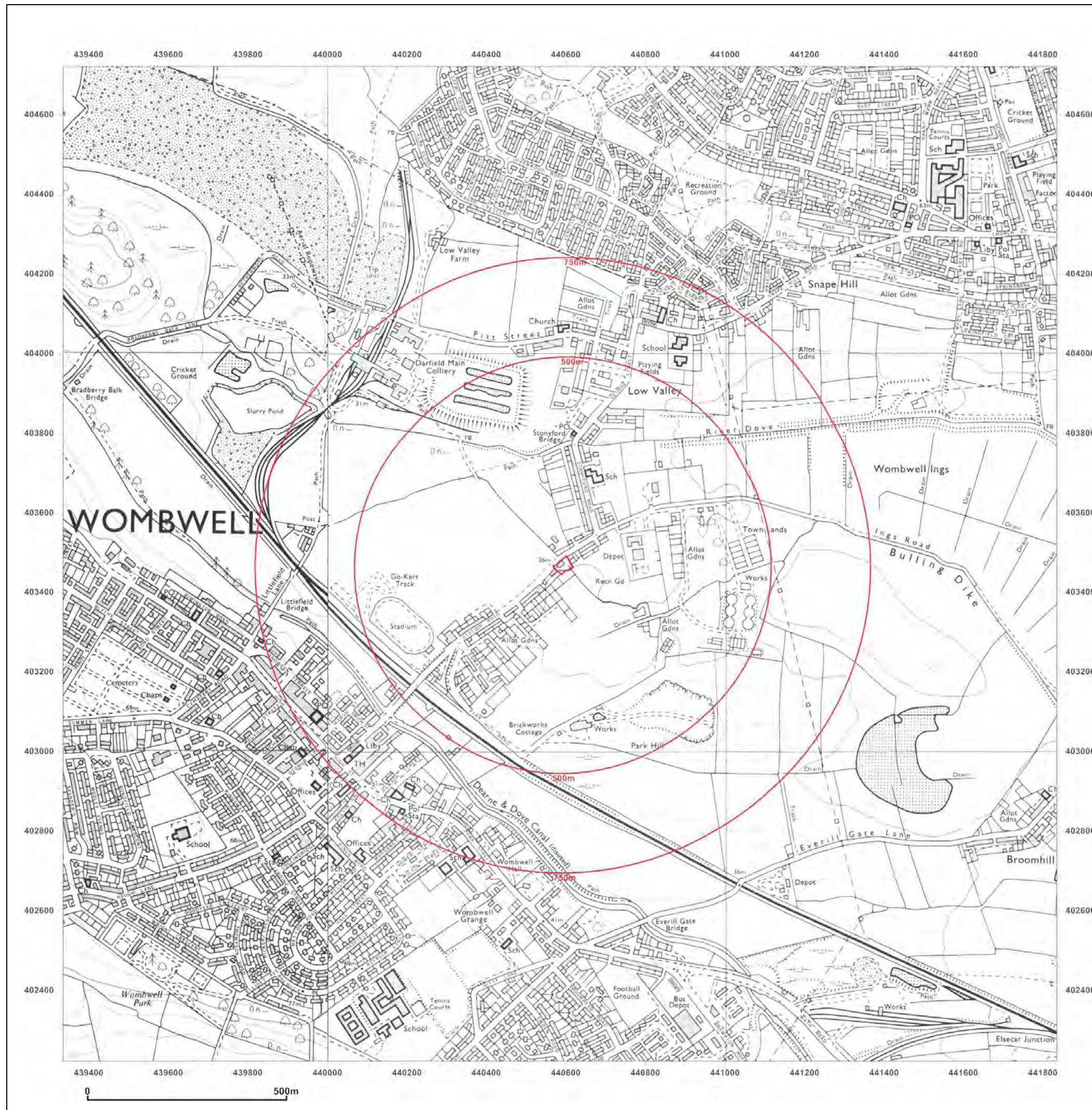


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Report Ref: HMD-354-1155401
Grid Ref: 440584, 403471

Map Name: Provisional

Map date: 1966-1967

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1966
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Edition N/A
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Levelled N/A

Surveyed 1967
Revised 1967
Edition N/A
Copyright N/A
Levelled N/A

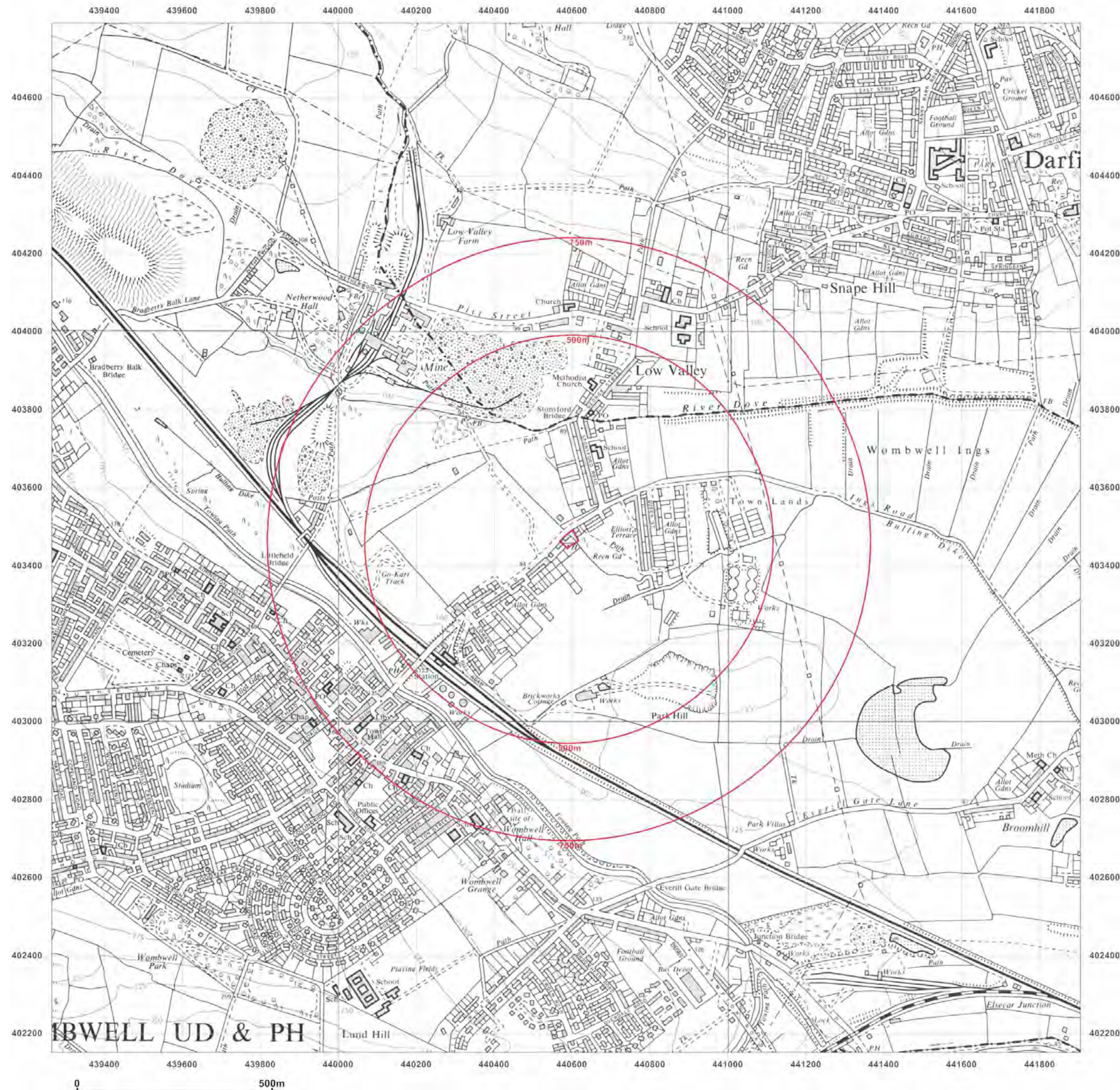


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Client Ref: 134, STATION ROAD, WOMBWELL, BARNSELY S73 0BD
Report Ref: HMD-354-1155401
Grid Ref: 440584, 403471

Map Name: Provisional

Map date: 1951

Scale: 1:10,560

Printed at: 1:10,560



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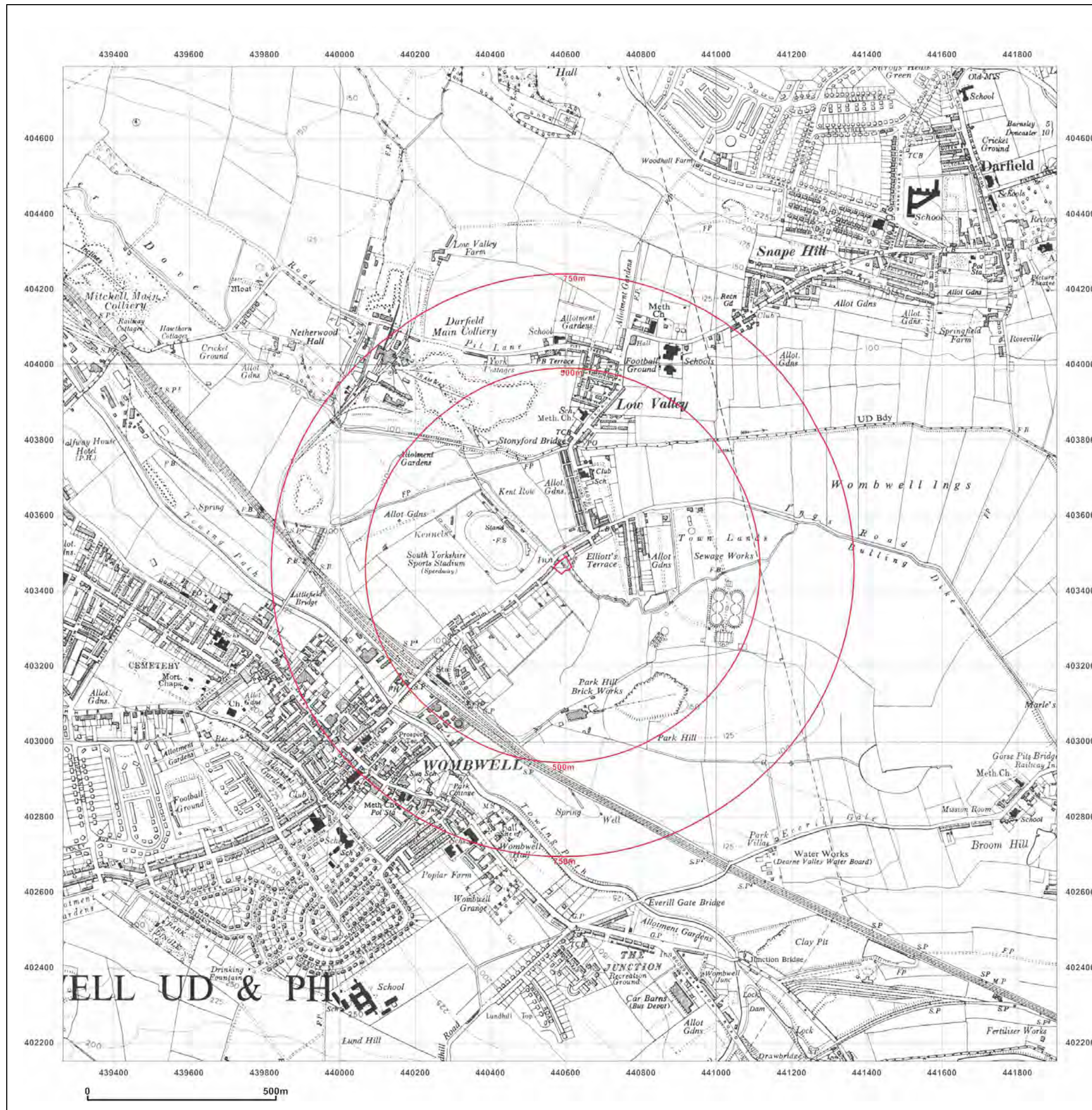


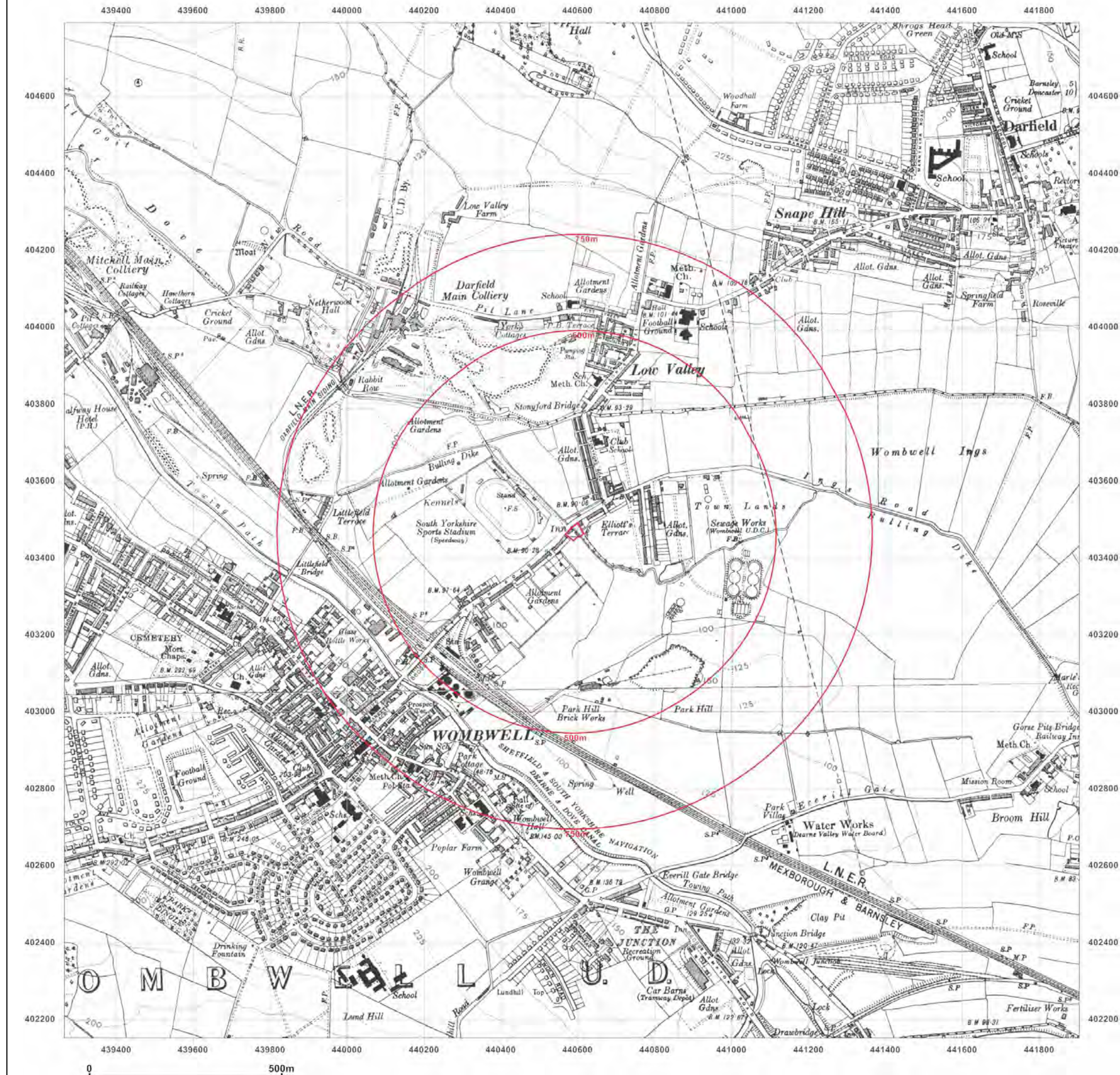
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**Site Details:**

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, S73 0BD

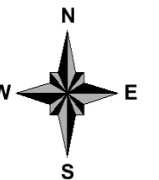
Client Ref: 134, STATION ROAD, WOMBWELL, BARNLEY S73 0BD
Report Ref: HMD-354-1155401
Grid Ref: 440584, 403471

Map Name: County Series

Map date: 1948

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Report Ref: HMD-354-1155401
Grid Ref: 440584, 403471

Map Name: County Series

Map date: 1938

Scale: 1:10,560

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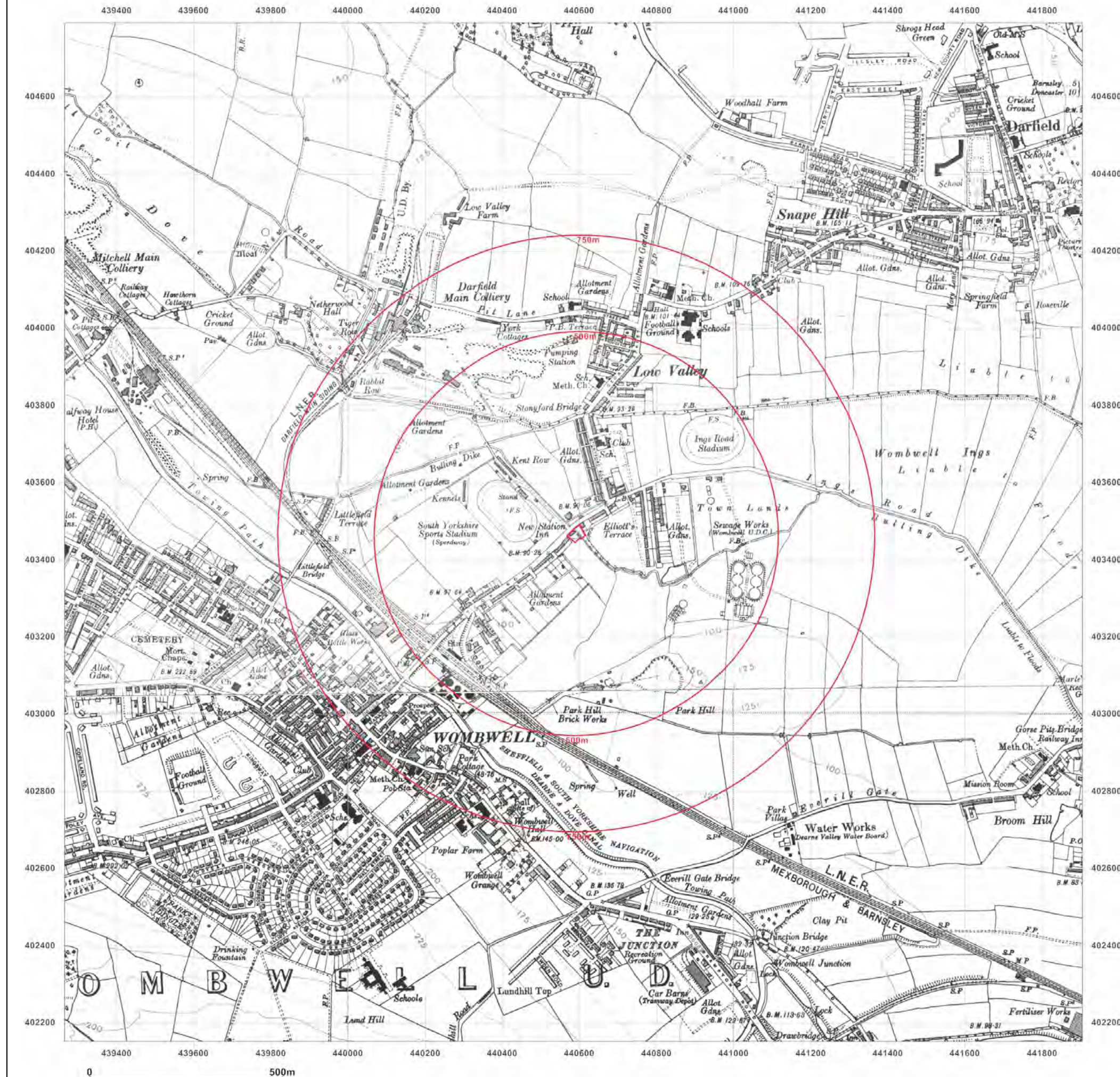


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Report Ref: HMD-354-1155401

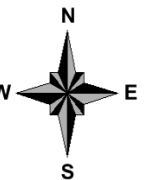
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Map Name: County Series

Map date: 1929-1931

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1851
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Revised 1929
Edition N/A
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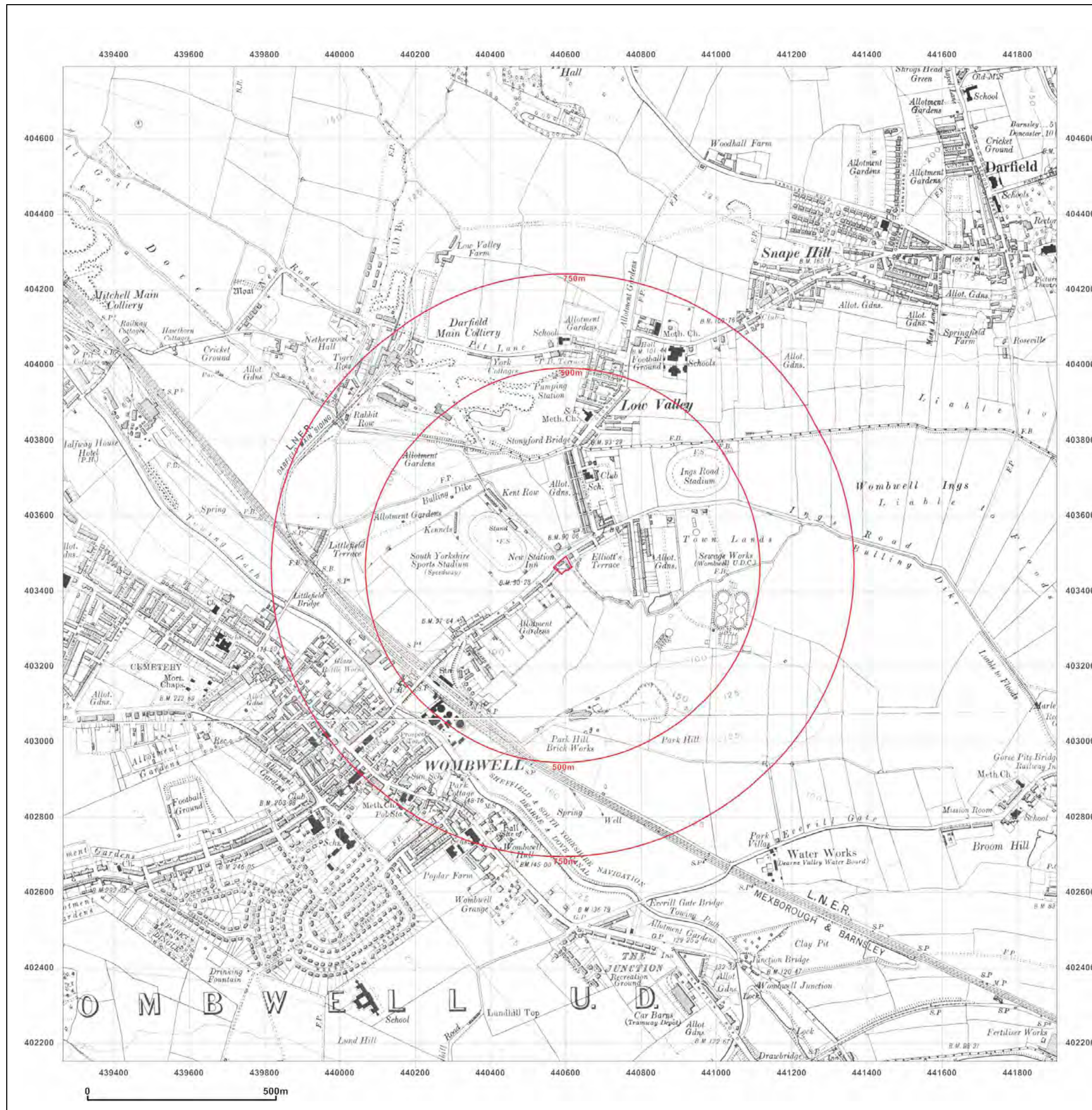


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Report Ref: HMD-354-1155401
Grid Ref: 440584, 403471

Map Name: County Series

Map date: 1901-1904

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Revised 1901
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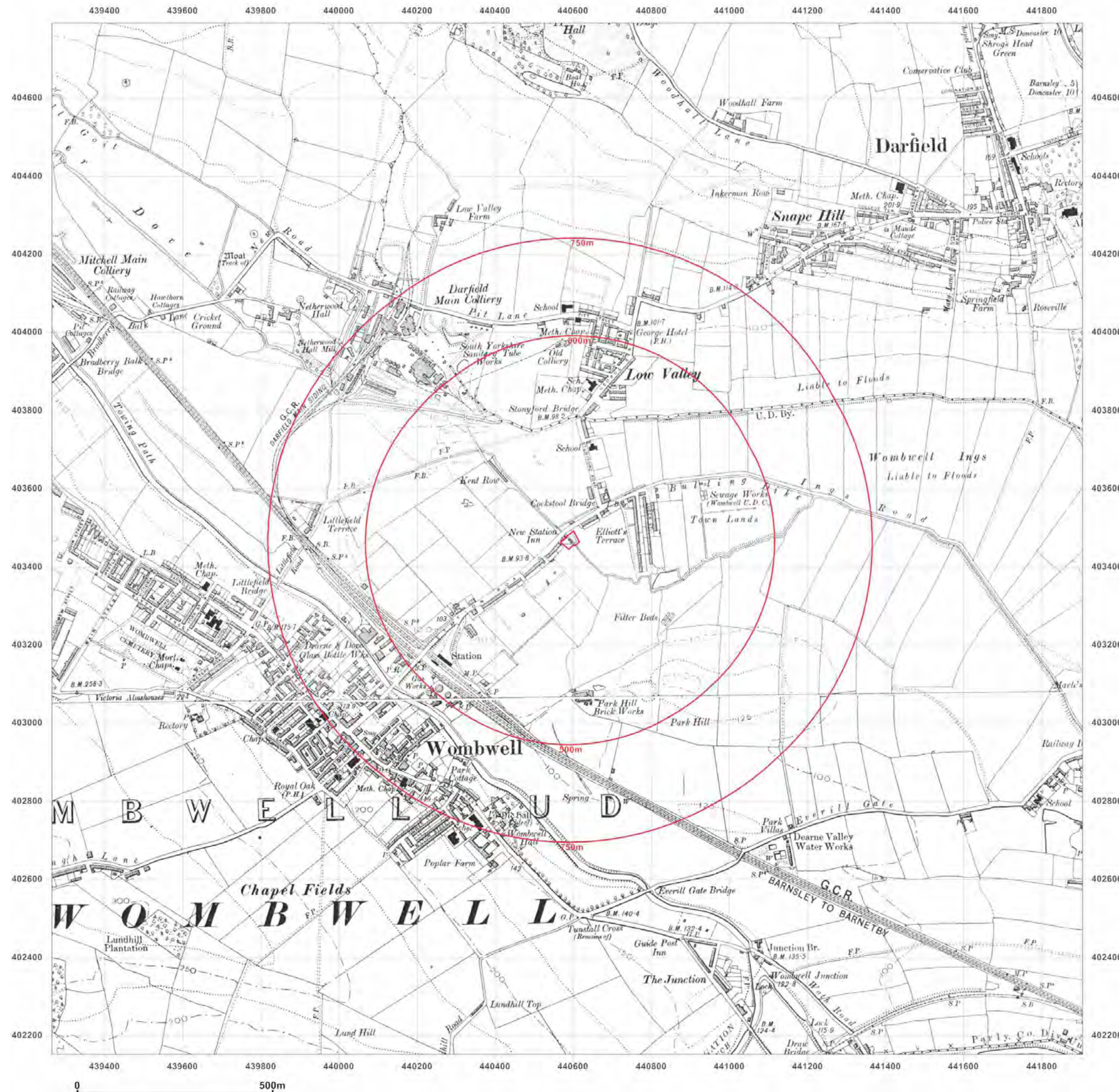


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Client Ref: 134, STATION ROAD, WOMBWELL, BARNSELY S73 0BD
Report Ref: HMD-354-1155401
Grid Ref: 440584, 403471

Map Name: County Series

Map date: 1890

Scale: 1:10,560

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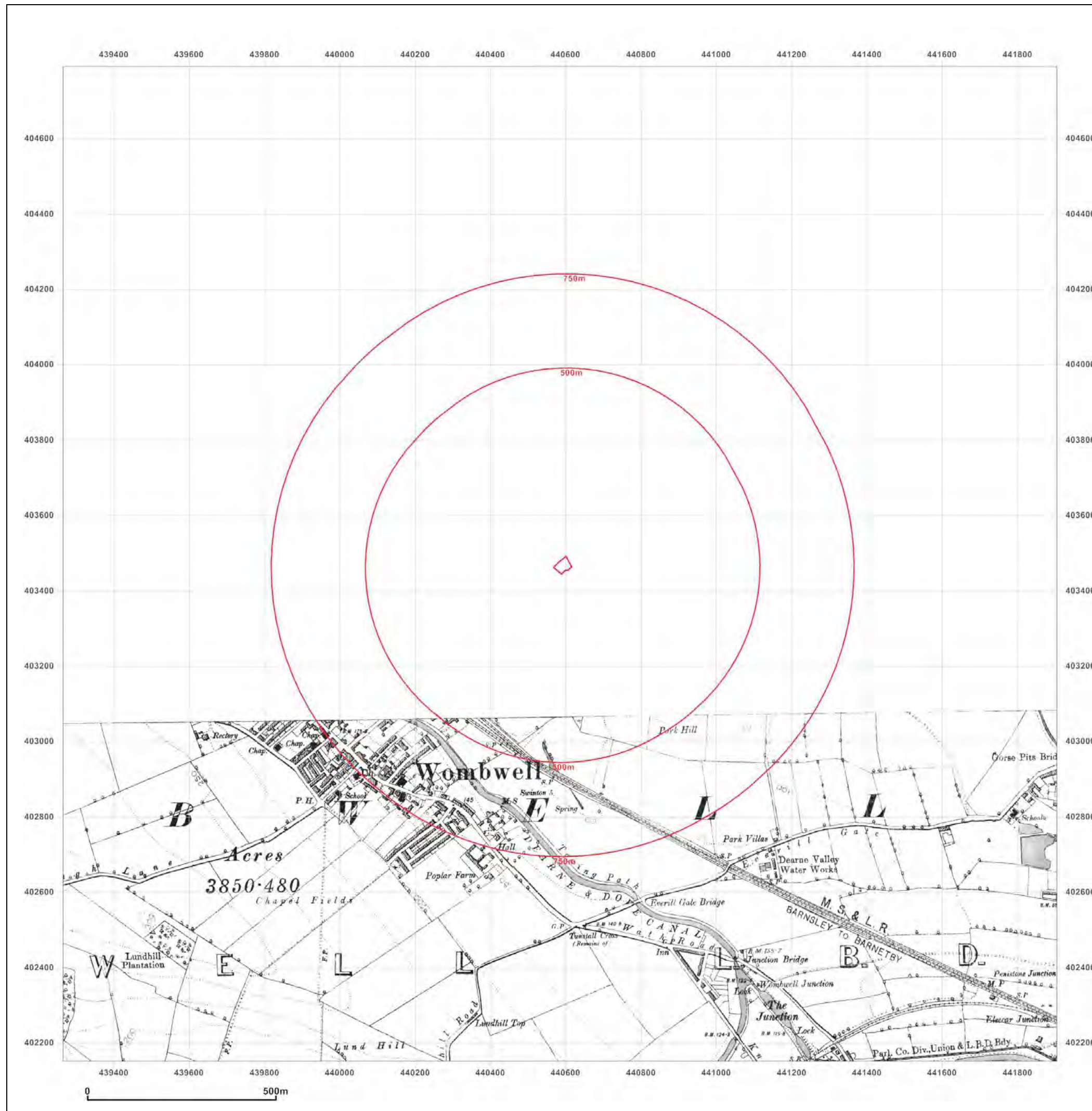


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Report Ref: HMD-354-1155401
Grid Ref: 440584, 403471

Map Name: County Series

Map date: 1890

Scale: 1:10,560

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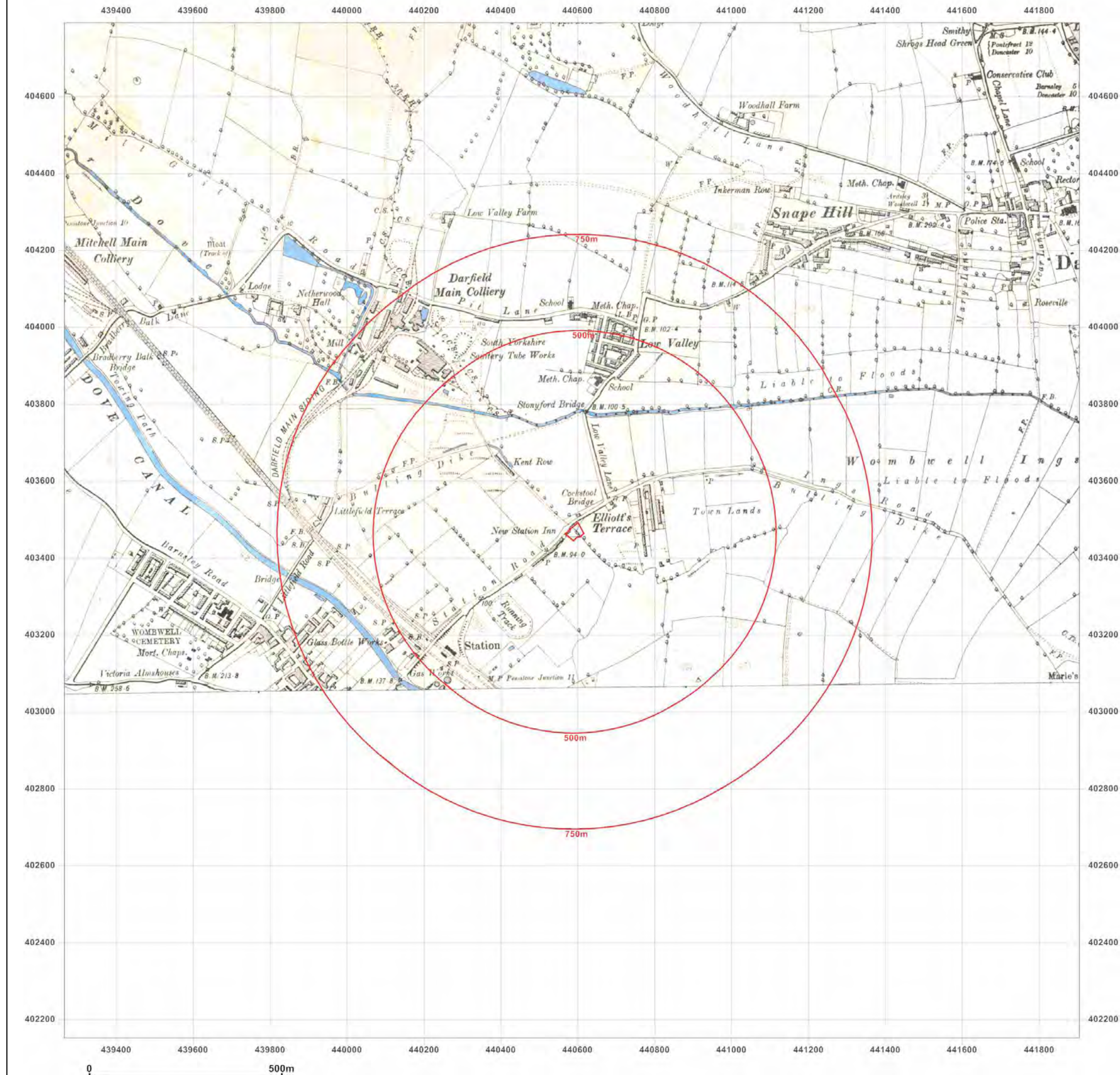


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The COAL AUTHORITY

Issued by:

The Coal Authority, Property Search Services, 200 Lichfield Lane, Berry Hill, Mansfield, Nottinghamshire, NG18 4RG

Website: www.groundstability.com Phone: 0845 762 6848 DX 716176 MANSFIELD 5

**LANDMARK INFORMATION GROUP
LIMITED
SOWTON INDUSTRIAL ESTATE
ABBEY COURT
UNIT 5/7 EAGLE WAY
EXETER
DEVON
EX2 7HY**

Our reference: **51000399749001**
Your reference: **50645774_1|**
Date of your enquiry: **05 November 2013**
Date we received your enquiry: **05 November 2013**
Date of issue: **05 November 2013**

This report is for the property described in the address below and the attached plan.

Non-Residential Coal Authority Mining Report

134 STATION ROAD, WOMBWELL, BARNSELEY , SOUTH YORKSHIRE,

This report is based on and limited to the records held by, the Coal Authority, and the Cheshire Brine Subsidence Compensation Board's records, at the time we answer the search.

Coal mining	See comments below
Brine Compensation District	No

Information from the Coal Authority

Underground coal mining

Past

The property is in the likely zone of influence from workings in 8 seams of coal at 140m to 630m depth, and last worked in 1989.

Any ground movement from these coal workings should have stopped by now.

Present

The property is not in the likely zone of influence of any present underground coal workings.

Future

The property is not in an area for which the Coal Authority is determining whether to grant a licence to remove coal using underground methods.

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

The property is not in an area that is likely to be affected at the surface from any planned future workings.

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

No notice of the risk of the land being affected by subsidence has been given under section 46 of the Coal Mining Subsidence Act 1991.

Mine entries

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

Coal mining geology

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

Opencast coal mining

Past

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

Present

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

Future

The property is not within 800 metres of the boundary of an opencast site for which the Coal Authority is determining whether to grant a licence to remove coal by opencast methods.

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.

Coal mining subsidence

There are 3 claim(s) within 50 metres of the property boundary that do not match the property address. These are shown on the attached plan.

The 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.

If further subsidence damage claims information is required in addition to that provided in this report, the Authority need to manually search their records. For further advice on how to order this additional information visit www.groundstability.com or telephone 0845 7626 848.

Mine gas

There is no record of a mine gas emission requiring action by the Coal Authority within the boundary of the property.

Hazards related to coal mining

The property has not been subject to remedial works, by or on behalf of the Authority, under its Emergency Surface Hazard Call Out procedures.

Withdrawal of support

The property is in an area for which notices of entitlement to withdraw support were published in 1946, 1952, 1983.

The property is not in an area for which a notice has been given under section 41 of the Coal Industry Act 1994, revoking the entitlement to withdraw support.

Working facilities orders

The property is not in an area for which 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.

Payments to owners of former copyhold land

The property is not in an area for which a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Information from the Cheshire Brine Subsidence Compensation Board

The property lies outside the Cheshire Brine Compensation District.

Additional Remarks

This report is prepared in accordance with the Law Society's Guidance Notes 2006, the User Guide 2006 and the Coal Authority and Cheshire Brine Board's Terms and Conditions 2006. The Coal Authority owns the copyright in this report. The information we have used to write this report is protected by our database right. All rights are reserved and unauthorised use is prohibited. If we provide a report for you, this does not mean that copyright and any other rights will pass to you. However, you can use the report for your own purposes.

Location map



Approximate position of property



Enquiry boundary

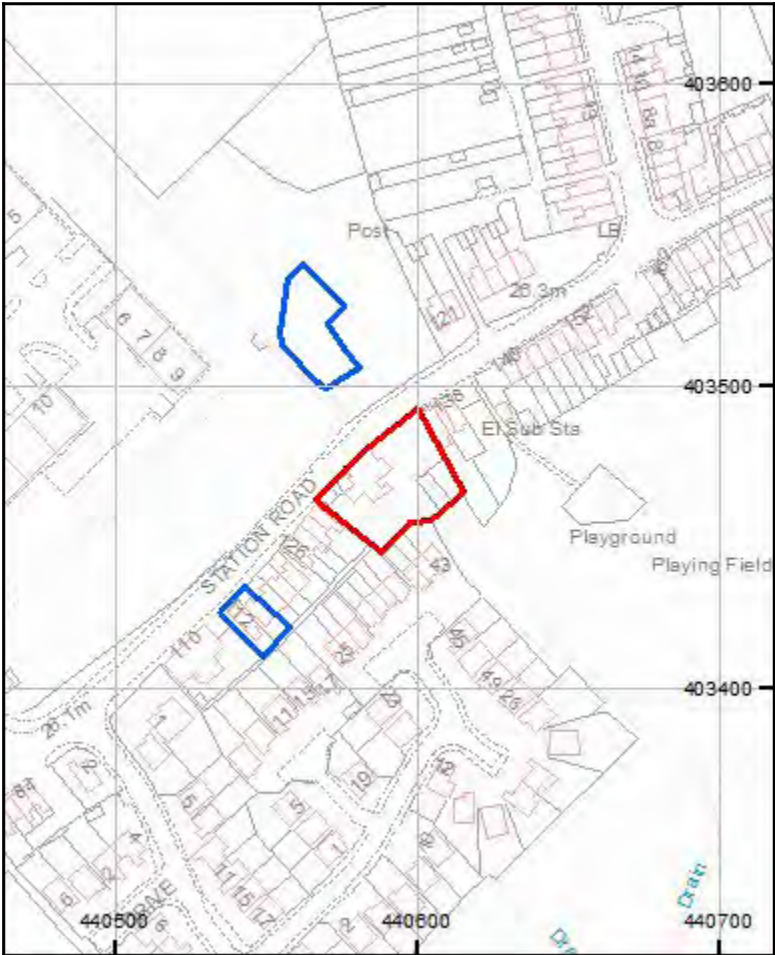
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Key

Approximate position of enquiry boundary shown



Coal Claims



NOTES ON SITE INVESTIGATION PROCEDURE

1. **GENERAL.** The ground investigation has been carried out in accordance with the requirements of Eurocode 7, in particular BS EN 1997-2: 2007 Eurocode 7 – Geotechnical Design, Part 1 and BS EN 1997:2004 Eurocode 7 – Geotechnical Design, Part 2. It is also in accordance with British Standards BS EN ISO 14688-1 and 2 “Geotechnical Investigation and testing – Identification and Classification of Soil” Parts 1 and 2 and BS EN ISO 14689-1 “Geotechnical Investigation and Testing – Identification and Classification of Rock”. BS 5930 the Code of Practice for Site Investigation is partly superseded. This appendix briefly describes the nature of the work carried out. It also gives a brief description of the more important tests, which are made for engineering purposes on rocks and soils (see also BS 1377). By its very nature, any ground investigation only samples a small percentage of the ground. Consequently, changes in ground conditions and soil properties can occur between any two exploratory points, for example local features such as soft ground, pockets of contamination and faults. This is also true of the exploration of mineworkings and such features can extend beneath parts of the site not investigated. Unrecorded bell pits and shafts can also exist between exploratory points. The ground investigation is designed to minimise such risks but they cannot be eliminated.
2. **GROUND INVESTIGATION.**
 - 2.1 **BOREHOLE AND TRIAL PIT RECORDS.** These illustrate the ground conditions only at the location of the particular borehole or trial pit. Correlation between boreholes is for guidance only and its accuracy cannot be guaranteed.
 - 2.2 **SHELL AND AUGER BORING.** This technique uses a tripod winch and an essentially percussive action using a variety of tools. Disturbed and undisturbed samples can be taken. This is the most suitable method for soft ground investigation, enabling the maximum amount of information to be obtained. However, minor changes in lithology may be overlooked unless continuous undisturbed sampling is used.
 - 2.3 **GROUNDWATER.** Groundwater levels vary seasonally and the details given on the borehole logs relate only to the dates and the conditions described in the borehole records. The rate of boring may not have allowed an equilibrium water level to be established and the use of casing may seal off certain seepages.
 - 2.4 **SAMPLING.** Disturbed samples of soils are taken for identification and classification purposes. In cohesive soils 'undisturbed' samples 100mm in diameter are taken by open drive sampler for laboratory testing of strength, permeability and consolidation characteristics.
 - 2.5 **STANDARD PENETRATION TESTS.** S.P.T tests are used in granular and cohesive materials and in soft or weathered rocks. Difficulties in obtaining true 'N' values mean they must only be used as a guide and not as an absolute value in foundation design.
 - 2.6 **ROTARY DRILLING.** Two main types of rotary drilling are carried out in rock. Rock coring using diamond or tungsten carbide tipped core bits provides samples and information on rock types, fissuring and weathering. Openhole drilling only produces small particles for identification purposes and the information gained is therefore limited. The latter is, however, useful as a quick method for detecting major strata changes and for the location of coal seams and old workings. Water, air, foam or drilling muds may be used as the flushing medium in either case.
 - 2.7 **PERMEABILITY TESTS.** These can be carried out in boreholes or trial pits and gives a good indication of in-situ permeability.
 - 2.8 **TRIAL PITTING.** This enables soil conditions to be closely examined at any specific point and samples taken. It also gives useful information on the stability of excavations and ingress of water.
 - 2.9 **WINDOW SAMPLING.** Window sampling consists of driving a series of 1m-long tubes into the ground using a dropping weight. On completion of each 1m run, the tube is withdrawn. The next tube is then inserted and the process repeated to provide a continuous profile of the ground. On each run the tube diameter is reduced in order to assist in its recovery.
 - 2.10 **GAS MONITORING.** This is routinely carried out in trial pits or probe holes to check for elevated levels of methane and carbon dioxide or oxygen deficiency, particularly since risks can exist from natural gases, landfill sites and rising groundwater levels in mine workings below ground. Longer term monitoring is carried out with gas monitoring standpipes.
3. **SOIL DESCRIPTION.** Samples from borings or trial pits are described as specified in the standard procedure outlined in the British Standards. The description includes colour, consistency, structure, weathering, lithological type, inclusions and origin. All descriptions are based on visual and manual identification.

Fire Soils (Cohesive Soils)

The following field terms are used:

Soil Type	Description
Very soft	Exudes between fingers
Soft	Moulded by light finger pressure
Firm	Cannot be moulded by the fingers but can be rolled in hand to 3mm threads.
Stiff	Crumbles and breaks when rolled to 3mm threads but can be remoulded to a lump.
Very stiff	No longer moulded but crumbles under pressure. Can be indented with thumbs.

The following terms are used in accordance with the results of laboratory and field tests.

Description	Undrained Shear Strength c_u (kPa)
Extremely Low	<10
Very Low	10 - 20
Low	20 - 40
Medium	40 - 75
High	75 - 150
Very High	150 - 300
Extremely High	>300

Fine soils can also be classified according to their sensitivity, which is the ratio between undisturbed and remoulded undrained shear strength.

Sensitivity	Ratio
Low	8
Medium	8 - 30
High	>30
Quick	>50

Granular Soils (Non-Cohesive)

The following descriptions are used for granular soils.

Description	Normalised Blow Count (N_1) 60
Very Loose	0 - 3
Loose	3 - 8
Medium	8 - 25
Dense	25 - 42
Very Dense	42 - 58

4. **NATURAL OR IN-SITU MOISTURE CONTENT.** The natural or in-situ moisture content of a soil is defined as the weight of water contained in the pore space, expressed as a percentage of the dry weight of solid matter present in the soil. Soil properties are greatly affected by the moisture content and the test can help to give an indication of likely engineering behaviour.

5. **LIQUID AND PLASTIC LIMITS.** Two simple classification tests are known as the liquid and plastic limits. If a cohesive soil is remoulded with increasing amounts of water, a point will be reached at which it ceases to behave as a plastic material and becomes essentially a viscous fluid. The moisture content corresponding to this change is arbitrarily determined by the liquid limit test. 'Fat' clays, which have high contents of colloidal particles, have high liquid limits; 'lean' clays, having low colloidal particle contents have correspondingly low liquid limits. An increase in the organic content of a clay is reflected by an increase in the liquid and plastic limits.

If a cohesive soil is allowed to dry progressively, a point is reached at which it ceases to behave as a plastic material, which can be moulded in the fingers, and it becomes friable. The moisture content of the soil at this point is known as the 'plastic limit' of the soil.

The range of water content over which a cohesive soil behaves plastically, i.e. the range lying between the liquid and plastic limits, is defined as the plasticity index.

A cohesive soil with a natural water content towards its liquid limit will, in general, be an extremely soft material whereas a cohesive soil with a natural water content below its plastic limit will tend to be a stiff material.

6. **PARTICLE-SIZE DISTRIBUTION.** A knowledge of particle-size distribution is used to classify soils and to indicate likely engineering behaviour. British Standards define soils in relation to their particle-size as shown below:-

Boulders	>200mm	Coarse Sand	2.0	to	0.63mm
Cobbles	200 to 63mm	Medium Sand	0.63	to	0.2mm
		Fine Sand	0.2	to	0.063mm
Coarse Gravel	63 to 20mm	Coarse Silt	0.063	to	0.02mm
Medium Gravel	20 to 6.3mm	Medium Silt	0.02	to	0.0063mm
Fine Gravel	6.3 to 2mm	Fine Silt	0.0063	to	0.002mm
		Clay	<0.002mm		

7. **BULK DENSITY.** The bulk density of a material is the weight of that material per unit volume and includes the effects of voids whether filled with air or water. The 'dry density' of a soil is defined as the weight of solids contained in a unit volume of the soil.

8. **PERMEABILITY.** The permeability of a material is defined as the rate at which water flows through it per unit area of soil under unit hydraulic gradient.
9. **CONSOLIDATION CHARACTERISTICS.** When subjected to pressure, a soil tends to consolidate as the air or water in the pore space is forced out and the grains assume a denser state of packing. The decrease in volume per unit of pressure is defined as the 'compressibility' of the soil, and a measure of the rate at which consolidation proceeds is given by the 'coefficient of consolidation' of the soil. These two characteristics M_v and C_v are determined in the consolidation test and the results are used to determine settlement of structures or earthworks.
10. **STRENGTH CHARACTERISTICS.** The strength of geological materials is generally expressed as the maximum resistance that they offer to deformation or fracture by applied shear or compressive stress. The strength characteristics of geological materials depend to an important degree on their previous history and on the conditions under which they will be stressed in practice. Consequently, it is necessary to simulate in the laboratory tests the conditions under which the material will be stressed in the field.

In general, the only test carried out on hard rocks is the determination of their compressive strength but consideration must be given to fissuring, jointing and bedding planes.

The tests at present in use for soils and soft rocks fall into two main categories. Firstly, those in which the material is stressed under conditions of no moisture content change, and secondly those in which full opportunity is permitted for moisture content changes under the applied stresses. Tests in the first category are known as undrained (immediate or quick) tests, while those in the second category are known as drained (slow or equilibrium) tests. The tests are normally carried out in the triaxial compression apparatus but granular materials may be tested in the shear box apparatus.

The undrained triaxial test gives the apparent cohesion C_u and the angle of shearing resistance ϕ_u . In dry sands, $C_u = 0$ and ϕ_u is equal to the angle of internal friction whereas with saturated non-fissured clays ϕ_u tends to 0 and the apparent cohesion C_u is equal to one-half the unconfined compression strength q_u . On site the vane test gives an approximate measure of shear strength.

For some stability problems use is made of a variant of the undrained triaxial test in which the specimen is allowed to consolidate fully under the hydrostatic pressure and is then tested to failure under conditions of no moisture content change. This is known as the consolidated undrained triaxial test. Pore water pressures may be measured during this test or a fully drained test may be carried out. In either case the effective shear strength parameters C' and ϕ' can be obtained which can be used to calculate shear strength at any given pore water pressure.

11. **COMPACTION.** The density at which any soil can be placed in an earth dam, embankment or road depends on its moisture content and on the amount of work which is used in compaction. The influence of these two factors can be studied in compaction tests, which can determine the maximum dry density (MDD) achievable at a certain optimum moisture content (OMC).
12. **CALIFORNIA BEARING RATIO TEST.** In flexible pavement design a knowledge of the bearing capacity of the subgrade is necessary to enable the thickness of pavement for any particular combination of traffic and site conditions to be determined. The quality of the subgrade can be assessed by means of the California Bearing Ratio Test or approximately by the MEXE cone penetrometer.
13. **ROCK DESCRIPTION.** This is based on;
 - i. Colour (minor then principal colour).
 - ii. Grain Size.

Description	Predominate Grain Size (mm)
Very Coarse - grained	>63
Coarse - grained	63 - 2
Medium - grained	2 - 0.063
Fine - grained	0.063 - 0.002
Very Fine - grained	<0.002

- iii. Matrix.
- iv. Weathering.

Term	Description
Fresh	No visible sign of weathering/alteration of the rock material.
Discoloured	The colour of the original fresh rock material is changed and is evidence of weathering/alteration. The degree of change from the original colour should be indicated. If the colour change is confined to particular mineral constituents, this should be mentioned.
Disintegrated	The rock material is broken up by physical weathering, so that bonding between grains is lost and the rock is weathered/alterd towards the condition of a soil in which the original material fabric is still intact. The rock material is friable but the grains are not decomposed.
Decomposed	The rock material is weathered by the chemical alteration of the mineral grains to the condition of a sol in which the original material fabric is still intact; some or all of the grains are decomposed.

- v. Carbonate Content.
- vi. Stability of Rock Material.

Stable indicates no changes when sample left in water for 24 hours. Fairly stable indicates fissuring and crumbling of surfaces. Unstable indicates complete disintegration of the sample.

- vii. Unconfined Compressive Strength.

Term	Field Identification	Unconfined Compressive Strength (MPa)
Extremely Weak ^a	Indented by thumbnail.	Less than 1
Very Weak	Crumbles under firm blows with point of geological hammer, can be peeled by a pocket knife.	1 to 5
Weak	Can be peeled by a pocket knife with difficulty, shallow indentations made by firm blow with point of geological hammer.	5 to 25
Medium Strong	Cannot be scraped or peeled with a pocket knife, specimen can be fractured with single firm blow of geological hammer.	25 to 50
Strong	Specimen required more than one blow of geological hammer to fracture it.	50 to 100
Very Strong	Specimen requires many blows of geological hammer to fracture it.	100 to 250
Extremely Strong	Specimen can only be chipped with geological hammer.	Greater than 250
^a Some extremely weak rocks will behave as soils and should be described as soils.		

viii. Structure.

Sedimentary	Metamorphic	Igneous
Bedded	Cleaved	Massive
Interbedded	Foliated	Flowbanded
Laminated	Schistose	Folded
Folded	Banded	Lineated
Massive	Lineated	
Graded	Gneissose	
	Folded	

ix. Discontinuities.

x. Discontinuity Spacing, persistence and roughness, infilling and seepage.

xi. Weathering of the Rock Mass.

Term	Description	Grades
Fresh	No visible sign of rock material weathering; perhaps slight discolouration on major discontinuity surfaces.	0
Slightly weathered	Discolouration indicates weathering of rock material and discontinuity surfaces.	1
Moderately weathered	Less than half of the rock material is decomposed or disintegrated. Fresh or discoloured rock is present either as a continuous framework or as core stones.	2
Highly weathered	More than half of the rock material is decomposed or disintegrated. Fresh or discoloured rock is present either as a continuous framework or as core stones.	3
Completely weathered	All rock material is decomposed and/or disintegrated to soil. The original mass structure is still largely intact.	4
Residual soil	All rock material is converted to soil. The mass structure and material fabric are destroyed. There is a large change in volume, but the soils has not been significantly transported.	5

xii. Rock Mass Permeability

14. **CHEMICAL TESTS.** A knowledge of total soluble sulphate content and pH of soils and groundwater is important in determining the protection required for concrete or steel in contact with the ground. Other specialist tests may be carried out on sites suspected of being contaminated by toxic materials (see standard appendix B).

15. **REFERENCES**

Site Investigation Practice by Michael D Joyce. E & F N Spon 1982.

BRITISH STANDARDS

BS EN 1997-1: 2004 "Eurocode 7 – Geotechnical Design – Part 1: General Rules"

BS EN 1997-2: 2007 "Eurocode 7 – Geotechnical Design – Part 2: Ground Investigation and Testing"

BS ISO 14688-1:2002 "Geotechnical Investigation and Testing – Identification and Classification of Soil – Part 1"

BS ISO 14688-2:2004 "Geotechnical Investigation and Testing – Identification and Classification of Soil – Part 2"

BS ISO 14689-1:2003 "Geotechnical Investigation and Testing – Identification and Classification of Rock – Part 1"

BS 5930 Code of Practice for Site Investigation 1999 (partly superseded)

BS 1377 Methods of Test for Soils for Civil Engineering Purposes 1990 (Parts 1 to 8)

1. **GENERAL.** The desk study and/or intrusive ground investigation is typically carried out in accordance with the requirements of BS5930 and BS10175. In relation to contamination the desk study is referred to as the preliminary investigation in BS10175 and the intrusive ground investigation is referred to as the Exploratory Investigation. This appendix briefly describes the nature of the work carried out and explains the standards against which contamination data has been assessed. The nature of any contamination investigation is such that only a small percentage of the ground, and therefore potential contamination, is sampled. Consequently variations in both ground conditions and contaminant levels can occur between any two sampling positions. The contamination investigation is designed to minimise such risks, but they cannot be eliminated.
2. **REVIEW OF CONTAMINATION ISSUES.** Part 2A of the Environmental Protection Act 1990 created a new regime for the identification and remediation of contaminated land. It introduced a definition of contaminated land described in Section 78A(2) of the Act of:

"any land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land, that

- (a) significant harm is being caused or there is a significant possibility of such harm being caused; or
- (b) significant pollution of controlled waters is being caused or there is a significant possibility of such pollution being caused:

Both Part 2A and the planning regime embrace the "suitable for use" approach. In the context of Part IIA, action is necessary only where there are unacceptable risks to health or to the environment, taking into account the current use of the land and its environmental setting.

For humans, significant harm is defined as "death, disease, serious injury". Specifically, disease is taken to mean an unhealthy condition of the body or part of it. "Significant possibility of significant harm" is described as health effects arising from the intake of a contaminant or other direct bodily contact with the contaminant where the intake or exposure is unacceptable. The assessment should also take into account the total intake from all sources, the relative contribution of the pollutant linkage in question, and the duration of intake or exposure. The various statutory definitions are given overleaf.

The presence of unnatural substances does not automatically constitute a risk unless there is a link or pathway between the contamination (the hazard) and the receptor (the target) be it humans, the environment or property. Therefore the assessment needs to determine whether a hazard is present and whether the necessary pathway exists the so-called "pollution linkage" or "conceptual site model".

The effect of any hazard on a site depends primarily on the site use and groundwater conditions since these determine who and what may be at risk and the routes by which they may be exposed to the hazard. Site uses can include allotments, domestic gardens on residential developments, amenity and recreational areas, public open space and industrial and commercial buildings. On any site, the potential contaminants have to be identified together with the potential receptors. The pathway for that contaminant to reach its target has then to be considered.

3. **PRELIMINARY INVESTIGATION.** The preliminary Phase I Geoenvironmental Assessment (desk study) report normally considers the following key sections:

Introduction	
The Site	Contaminated Land
Site History	Radon
Geology and Mining	Geoenvironmental Risk Assessment
Hydrogeology	Geotechnical Assessment
Landmark Envirocheck	Ground Investigation (Recommendations)

The report will summarise the findings and also relate our opinions to the potential for a site to be geoenvironmentally impaired, at levels likely to warrant mitigation or further consideration appropriate to the current or future use.

Findings are based on information obtained and described during the desk study and site inspection without intrusive ground investigation. It is possible that further information exists. The absence of indicators of impairment does not mean that such impairment does not exist. Additional investigation including intrusive methods can reduce the risks but cannot eliminate them and may not be cost effective. We can advise on the additional research opportunities, their cost and their possible impact on mitigating risk. Recommendations are normally given based on the redevelopment proposals for the site.

Type of Receptor	Description of harm that is to be regarded as significant harm	Conditions For There Being A Significant Possibility Of Significant Harm
1. Human beings	Death, disease, serious injury, genetic mutation, birth defects or the impairment of reproductive functions. For these purposes, disease is to be taken to mean an unhealthy condition of the body or a part of it and can include, for example, cancer, liver dysfunction or extensive skin ailments. Mental dysfunction is included only insofar as it is attributable to the effects of a pollutant on the body of the person concerned.	If the amount of the pollutant in the pollutant linkage represents an unacceptable intake or direct bodily contact, assessed on the basis of relevant information on the toxicological properties of that pollutant. Such an assessment should take into account: - the likely total intake of, or exposure to, the substance or substances which form the pollutant, from all sources including that from the pollutant linkage in question; - the relative contribution of the pollutant linkage in question to the likely aggregate intake of, or exposure to, the relevant substance or substances; and - the duration of intake or exposure resulting from the pollutant linkage in question. The question of whether an intake or exposure is unacceptable is independent of the number of people who might experience or be affected by that intake or exposure. Toxicological properties should be taken to include carcinogenic, mutagenic, teratogenic, pathogenic, endocrine-disrupting and other similar properties.
2. All other human health effects (particularly by way of explosion or fire)		If the probability, or frequency, of significant harm of that description is unacceptable. The pollutant linkage might cause "significant harm which" - would be irreversible or incapable of being treated; - would affect a substantial number of people; - would result from a single incident such as a fire or an explosion; or - would be likely to result from a short-term (less than 24-hour) exposure to the pollutant.
3. Any ecological system, or living organism forming part of such a system, within a location which is protected.	For any protected location: - harm which results in an irreversible adverse change, or in some other substantial adverse change, in the functioning of the ecological system within any substantial part of that location; or - harm which affects any species of special interest within that location and which endangers the long-term maintenance of the population of that species at that location.	If either: - significant harm of that description is more likely than not to result from the pollutant linkage; or - there is a reasonable possibility of significant harm of that description being caused, and if that harm were to occur, it would result in such a degree of damage to features of special interest at the location in question that they would be beyond any practicable possibility of restoration.
4. Property in the form of: - crops, including timber; - produce grown domestically, or on allotments, for consumption; - livestock; - other owned or domesticated animals; - wild animals which are the subject of shooting or fishing rights.	For crops, a substantial diminution in yield or other substantial loss in the value resulting from death, disease or other physical damage. For domestic pets, death, serious disease or serious physical damage. For other property in this category, a substantial loss in its value resulting from death, disease or other serious physical damage.	If significant harm of that description is more likely than not to result from the pollutant linkage in question.
5. Property in the form of buildings.	Structural failure, substantial damage or substantial interference with any right of occupation.	If significant harm of that description is more likely than not to result from the pollutant linkage in question during the expected economic life of the building.
6. Controlled waters.		

4. **INTRUSIVE INVESTIGATION.** BS10175 describes this as an exploratory investigation. Intrusive ground investigation is described in Standard Appendix A. During the investigation representative or indicative samples are obtained for testing by an accredited laboratory. The aim is to determine (with a degree of confidence appropriate to the objectives), the presence, concentration and distribution of contaminants in respect of those points investigated. The extent of any necessary intrusive investigation will depend on the size of the site and any hazards, either known or suspected.

5. **ASSESSMENT OF CONTAMINATION.** The assessment of contaminated land under the terms of Part II A of the Environmental Protection Act 1990 is based upon pollution linkage (source - pathway - receptor model).

The Contaminated Land Report (CLR) series of documents have been produced by the Department for Environment, Food and Rural Affairs (DEFRA) and the Environment Agency, to provide regulators with "relevant, appropriate, authoritative and scientifically based information and advice on the assessment of risk from contamination in soils".

The Environment Agency has issued a number of Soil Guideline Values (SGVs), which whilst non-binding, may be used as guidance in the assessment of land and in setting remediation targets. They should only be applied to human health assessments.

The SGVs have been derived using the Contaminated Land Exposure Assessment Model (CLEA) and are based on assumptions relating to soil conditions, pollutant type and behaviour, land use patterns and the availability of receptors. SGVs are also subject to statistical assessment. The CLR documentation requires that the results of laboratory testing are subject to statistical analysis to remove uncertainty over a so-called 'averaging area'.

To date only selective SGVs have been issued for the following land-uses

- Residential with and without plant uptake
- Allotments
- Commercial/Industrial

Soil Guideline Values (mg/kg)			
Analyte	Residential	Allotments	Commercial
Arsenic	32	43	640
Cadmium	10	1.8	230
Chromium (total)	130		5000
Mercury	170	80	3600
Nickel	130	230	1800
Selenium	350	120	13000
Lead (2)	450		750
Toluene	610	120	4400
Ethylbenzene	350	90	2800
Phenol	420	280	3200
Benzene	0.33	0.07	95
o-xylene	250	160	2600
m-xylene	240	180	3500
p-xylene	230	160	3200
Copper (1)	2330	524	71,700
Zinc (1)	3750	618	665,000
Benzo(a)pyrene (1)	1.0	2.1	14
Naphthalene (1)	8.7	23	1100
Flourene (1)	780	160	71,000

(1) Generic Assessment Criteria (mg/kg) derived by LQM / CIEH

(2) Geometric mean value across site

DEFRA previously issued “Outcome of the Way Forward Exercise on Soil Guideline Values”. This document was intended to provide guidance to determine if there is a Significant Possibility of Significant Harm (SPOSH) i.e. whether land meets the legal trigger of being contaminated land.

In the context of Part 2A, a risk assessor using an SGV would conclude the following (DEFRA, 2008).

- At a representative average soil concentration at or below an SGV, it is very unlikely that there will be a *significant possibility of significant harm (SPOSH)*.
- At a representative average soil concentration above an SGV, there *might* be a *significant possibility of significant harm* with the significance linked to the margin of exceedance, the duration and frequency of exposure, and other site-specific factors that the enforcing authority may wish to take into account. Further investigation and/or detailed evaluation will usually be required.

It should be stressed that where there is any uncertainty as to whether or not there is a SPOSH, it was the policy of this practice to adopt a conservative approach, particularly in the adoption of clean cover systems.

In April 2012, Defra both published new Statutory Guidance which forms a major part of their contaminated land regimes under Part 2A of the Environment Protection Act 1990. The regime provides a means of dealing with contaminated land which poses a significant risk to human health or the environment where there is no alternative solution. It also works alongside planning rules and building regulations to help ensure that affected land is made suitable for use when it is redeveloped.

Since the regime was introduced in 2000 there has been considerable uncertainty over how to decide when land is, and is not contaminated land on grounds of the legal test of *significant possibility of significant harm to human health or the environment*.

To help address this, one of the main changes set out in the new Statutory Guidance, is the introduction of a new four category test to help decide when land is, and is not, contaminated land on grounds of *significant possibility of significant harm to human health*. Under the new four category test:

- Category 1 describes land that is clearly contaminated land, for example because similar land is known to have caused significant harm in the past.
- Categories 2 and 3 cover less straightforward land where more detailed consideration is needed before the regulator can decide either: (a) that there is a strong case for regulatory action, in which case the land would be in Category 2 and be classified as contaminated land under Part 2A; or (b) that such a case does not exist, in which case the land would be in Category 3 and not be classified as contaminated land under Part 2A.
- Category 4 describes land that is clearly not contaminated land, as discussed below.

One of the main purposes of including the Categories in the Statutory Guidance is to provide a legal framework against which new technical tools can be developed by the land contamination sector to describe the Categories in more detail with regard to specific substances and/or situations.

The new Category 4 test is particularly important in terms of reducing uncertainty over when land is definitely not caught by the regime.

The new Statutory Guidance makes clear what land should be placed into Category 4, for example:

- (a) Land where no relevant contaminant linkage has been established.
- (b) Land where there are only normal levels of contaminants in soil (as explained in Section 3 of the guidance), unless there is a particular reason to consider otherwise. In other words land with normal background concentrations in the soil.
- (c) Land that has been excluded from the need for further inspection and assessment under Part 2A because contaminant levels do not exceed relevant generic assessment criteria in accordance with Section 3 of the guidance, or relevant technical tools or advice that may be developed in accordance with paragraph 3.30 of the guidance, e.g. Category 4 Screening Levels.
- (d) Land where estimated levels of exposure to contaminants in soil are likely to form only a small proportion of what a receptor might be exposed to anyway through other sources of environmental exposure (e.g. in relation to average estimated national levels of exposure to substances commonly found in the environment, to which receptors are likely to be exposed to in the normal course of their lives).

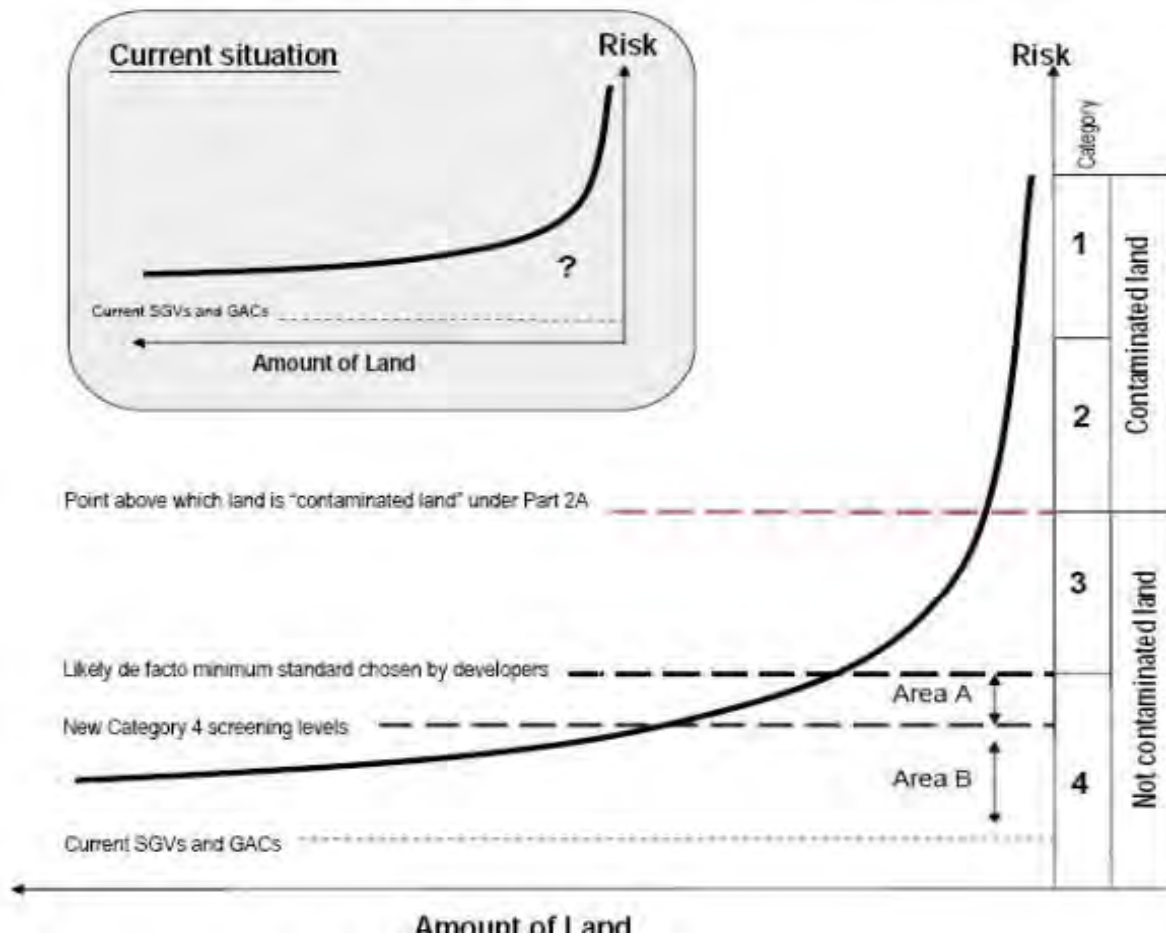
The guidance clarifies how generic assessment criteria (including the currently available SGVs/GACs) should and should not be used. It states that:

- 3.27 *It is common practice in contaminated land risk assessment to use “generic assessment criteria” (GACs) as screening tools in generic quantitative human health risk assessment to help assessors decide when land can be excluded from the need for further inspection and assessment, or when further work may be warranted.*
- 3.28 *Local authorities may use GACs and other technical tools to inform certain decisions under the Part 2A regime, provided: (i) they understand how they were derived and how they can be used appropriately; (ii) they have been produced in an objective, scientifically robust and expert manner by reputable organizations; and (iii) they are only used in a manner that is in accordance with Part 2A and this Guidance.*
- 3.29 *GACs relating to human health risk assessment represent cautious estimates of levels of contaminants in soil at which there is considered to be no risk to health or, at most, a minimal risk to health. With regard to such GACs:*
- (a) They may be used to indicate when land is very unlikely to pose a significant possibility of significant harm to human health. This is on the basis that they are designed to estimate levels of contamination at which risks are likely to be negligible or minimal and far from posing a significant possibility of significant harm to human health.
 - (b) They should not be used as direct indicators of whether a significant possibility of significant harm to human health may exist. Also, the local authority should not view the degree by which GACs are exceeded (in itself) as being particularly relevant to this consideration, given that the degree of risk posed by land would normally depend on many factors other than simply the amount of contaminants in soil.
 - (c) They should not be seen as screening levels which describe the boundary between Categories 3 and 4 in terms of Section 4 (i.e. the two Categories in which land would not be contaminated land on grounds of risks to human health). In the very large majority of cases, these SGVs/GACs describe levels of contamination from which risks should be considered to be comfortably within Category 4.
 - (d) They should not be viewed as indicators of levels of contamination above which detailed risk assessment would automatically be required under Part 2A.
 - (e) They should not be used as generic remediation targets under the Part 2A regime. Nor should they be used in this way under the planning system, for example in relation to ensuring that land affected by contamination does not meet the Part 2A definition of contaminated land after it has been developed.

The way in which the new four category system is intended to operate and the place of the C4SLs within that system, was explained in detail in the Impact Assessment which accompanied the Statutory Guidance. Please note that although the detail of the Impact Assessment is included here to provide clarity on the job expected of C4SLs, the Statutory Guidance, itself, sets out the regime that needs to be delivered under Part 2A.

Paragraph 47 of the Impact Assessment describes the diagram in detail. Of particular relevance to this project is the description of the overall diagram (sub-paragraph a), description of category 4 (sub-paragraphs c (part iv) and h) and the description of how the monetised benefits of the new system will be realised (sub-paragraph h). These sub-paragraphs are reproduced below.

Diagram showing the new Category 1-4 system (compared to current situation)



The diagram above seeks to illustrate, in a simplified manner, broadly what the changes to the statutory guidance on significant possibility of significant harm to human health are intended to achieve. To explain:

- The curved line and axes illustrate the spectrum of risk presented by land contamination. The idea is to show that a very large amount of land is low risk, and only a small amount of land would pose sufficient risk to be contaminated land in the legal sense. The axes and lines in the diagrams are not to scale, and they have been compressed for the purposes of illustration (in reality the risks on Category 1 land would probably be orders of magnitude above Category 4 risks, and vastly more land would be in Category 4 compared to the other Categories).
- The smaller diagram summarizes the current situation. In the area below the SGV/GACs there is near certainty that land is not contaminated land, however, above the line there is increasing uncertainty. As explained above, currently remediation usually occurs to just below the SGV/GAC level because they are perceived as offering the only cast-iron guarantee of when land is definitely not contaminated land. Sometimes consultants are employed to justify remediating to levels above the SGV/GACs, however the further they go away from the SGV/GACs the more legal risk they and their clients are exposed to.
- The new statutory guidance will end the current situation, and it would not be legally possible e.g. for individual regulators to ignore the changes being made. For example, as explained above, the new statutory guidance will specifically say:
 - that Part 2A cannot be used to force remediation to below a point where it ceases to be contaminated land in the legal sense i.e. the Category 2/3 border in terms of the diagram), although responsible parties can choose to go further;
 - that SGV/GACs cannot be used as one size fits all remediation thresholds under either Part 2A of the planning system;
 - that normal background levels of contamination are not caught by Part 2A; and
 - that SGV/GACs are well into Category 4, sometimes by only a few times and sometimes by orders of magnitude. These changes and others also provide the legal backing for the development e.g. of Category 4 screening levels, as discussed below.

- (d) The new Category 1-4 system divides the spectrum of risk posed by contaminated land into four different categories, and the statutory guidance will explain how to decide when land falls into each Category. This is more sophisticated than the current statutory guidance, which in effect has only two categories (contaminated land or not) and does not explain how to decide which category land falls into. The new Category 1-4 system reflects what assessors find when they investigate real sites i.e. some are clearly contaminated land (Category 1); some clearly are not (Category 4) and some are less-straightforward and need some level of detailed assessment before a decision can be taken as to whether or not they are contaminated land (Categories 2 and 3).
- (e) In the case of Category 2 and 3 sites, the regulator will have flexibility to take decisions within the parameters set by the new Guidance. There would be less flexibility for Category 2 and 3 sites that clearly pose either a high or low risk. However, the regulator will have considerable flexibility for sites closer to the Category 2/3 border to judge which side of the border a site would fall (e.g. taking account of their understanding of the risks, uncertainties and the interests of the local community). These are often complex decisions which need to be taken case-by-case given the many factors involved.
- (f) In the case of Categories 1 and 4 the regulator will have far less flexibility. For example, if a regulator claimed that a site matching the Category 1 description was not contaminated land, or that a site matching the Category 4 description was contaminated land, they would be acting directly against the statutory guidance which the Act requires that they follow, and decisions could be challenged (e.g. in a law court) with a high chance that the challenge would be successful. Among other things, the intention of doing this is to create far more legal certainty around when land is definitely not contaminated land in the legal sense. With the specific wording of the new statutory guidance, and the supporting tools such as the new Category 4 screening levels, it would be very difficult for a regulator e.g. to threaten landowners with the Part 2A regime, and if they tried to determine land as contaminated land they would be operating in direct opposition to the statutory guidance.
- (g) In the many consultation meetings held in developing the Category 1-4 system, all the developers, landowners and consultants we spoke to were strongly of the view that they would want to ensure their land is safely within Category 4 (even though in theory they could remediate to a level within Category 3 and still satisfy Part 2A and planning rules). They would do this for various reasons, including the fact that the flexibility granted to regulators in Categories 2 and 3 means that the further into Category 3 a site gets, the greater the risk that the regulator might decide it is in Category 2. Also they would want to be in Category 4 for reasons of marketability, future proofing etc. So developers and others would have a strong incentive to seek the regulatory certainty of being safely within Category 4. Thus, as far as development taking place under the planning system is concerned, Category 3 would, in effect, normally be a buffer which provides added reassurance that development falling within Category 4 will not be caught by the Part 2A regime.
- (h) The new statutory guidance will bring about a situation where the current SGV/GACs are replaced with more pragmatic (but still strongly precautionary) Category 4 screening levels (C4SLs) which will provide a higher simple test for deciding that land is suitable for use and definitely not contaminated land. Above the C4SLs, in Area A on the diagram, there will be much stronger legal backing for experts to use their judgement to make sensible and precautionary decisions on when land should be considered to be towards the top end of Category 4, without fear that land may be caught as contaminated land. This recognizes that the generic C4SLs will not be able to describe the Category 3/4 border itself because they are generic and would therefore have to err on the side of caution whilst a detailed site specific assessment would be able to push further by looking at specific circumstances relating to a specific site.
- (i) The very large majority of the monetized benefits of the changes to the regime discussed in this Impact Assessment manifest themselves in Category 4, and in particular in Areas A and B on the diagram. The main effects of moving to the new system would include Low risk land falling within Area B (pre-development) on the diagram would no longer have to be remediated because it would fall below the new C4SLs. Similarly land which is in Area A pre-development would no longer need to be remediated if justified by a detailed site-specific assessment. For these sites the cost of remediation would be removed altogether. The cost of remediating land which is initially in Categories 3, 2 or 1 would fall because it would be remediated to the new C4SL levels (or somewhere within Area A if there has been a detailed assessment) rather than the SGV/GAC level. This will have the overall effect of reducing the cost of remediation, with the effect varying according to specific site circumstances, the type of remediation etc. Generally the cost of remediation would fall for many affected brownfield land sites. This would have the general effect of making such land more economically viable for development. It would also mean that some land that is not currently economically viable to develop becomes reduce pressure to develop Greenfield land in some cases. The C4SLs will also speed up regulatory decisions on the reuse of brownfield land by providing a simple remediation standard.

6. GEOENVIRONMENTAL RISK ASSESSMENT

- 6.1 **Potential Hazard Sources.** Ground contamination can occur through several causes, particularly from historical use of the site and is often linked to the processes of waste disposal, underground storage, open storage, process pipework, leaks, spillages, tanks, site filling and various other reasons. The contamination can either arise from site sources or be the result of migration from other sources off site.
- 6.2 **Potential Migratory Pathways.** The primary pathways are considered to be laterally or vertically downward through underlying strata or upward to the ground surface. Such pathways also provide the potential for contaminants to migrate towards local watercourses and groundwater.

Potential Targets At Risk. Potential environmental liabilities related to current legislation associated with contaminated land with regard to existing ownership and redevelopment are summarised.

The probability of a hazard, linked with its consequences, can be used to assess risk in accordance with the tables below for use in decision making.

Consequence of Pollution Linkage

Severe	Damage to human health. Substantial pollution of controlled waters. Significant change in ecosystem population. Irreparable damage to property.
Moderate	Non-permanent damage to human health. Minor pollution of controlled waters. Change in ecosystem. Damage to property.
Mild	Short term health effects. Slight pollution of controlled waters. Slight effect on ecosystem. Minor repairable damage to property.
Near Zero	No noticeable effect on human health. No significant pollution to controlled waters. No measurable effect on ecosystem densities. Non-structural cosmetic damage to property.

Decision Making

Probability of a hazard and an associated linkage	Consequences of a pollution linkage (hazard-pathway-target)			
	Severe	Moderate	Mild	Near Zero
High	High	High	Medium/low	Negligible
Medium	High	Medium	Low	Negligible
Low	High/medium	Medium/low	Low	Negligible
Unlikely	High/medium/low	Medium/low	Low	Negligible

Final overall risk is based on an assessment of probability of a hazard and its consequences. Risk categories are shown shaded in the table above and defined below.

Risk	Description
High	Site probably or certainly unsuitable for present use or environmental setting. Contamination probably or certainly present and likely to have an unacceptable impact on key targets. Urgent action needed.
Medium/ Moderate	Site may not be suitable for present use or environmental setting. Contamination may be present, and likely to have unacceptable impact on key targets. Action may be needed on the medium term.
Low	Site considered suitable for present use and environmental setting. Contamination may be present but unlikely to have unacceptable impacts on key targets. Action unlikely to be needed in present use.
Negligible	Site considered suitable for present use and environmental setting. Contamination may be present but unlikely to have unacceptable impacts on key targets. No action needed while site remains in present use.

The review of the information from the exploratory investigation may be such that a decision is made that there is no need for further investigation. Alternatively, it may be necessary to carry out a further main investigation.

7. SITE WASTE MANAGEMENT PLANS (SWMPs)

In England, the SWMP Regulations 2008 came into force on 6th April 2008. They apply to 'construction projects', and to the whole life of a construction project, from design all the way through to completion. As well as including actual construction works, they include renovation projects, site preparation works, the installation of services, and all kinds of demolition. If you carry out a construction project where the value of the materials plus labour exceeds £300,000, it becomes a criminal offence (for both the project manager and the main contractor) not to produce a SWMP.

The Plans must include basic elements like who prepared it, who's in charge of the project, who's the main contractor, what's the location, and what's the estimated value. But it must also include details of the decisions taken at the outset on (1) the design of the project, (2) the methods employed and (3) the materials employed in order to MINIMISE the quantity of waste produced on site. It will therefore be crucial to have evidence of that thought process. The SWMP must describe each type of waste that will be produced, and estimate the volume. Then, you must identify the particular waste management 'action' that will apply to the waste. Is it to be dumped, sent for recycling, or perhaps recovered through use for land treatment under an exemption?

8. WASTE MANAGEMENT LICENSING

The Environment Agency has set out guidance as to the classification of waste arising from construction sites in its document "The Definition of Waste" dated April 2006. This document outlines how waste is to be handled

The following activities are not regarded as a waste management activity requiring licensing.

- 1) Construction activities carried out for the purpose of producing a suitably engineered soil e.g. lime stabilisation, vibro-replacement and piling.
- 2) Uncontaminated materials produced on site (including excavated soils and materials from demolition) which can be reused without further treatment. Examples include site regrading and footing excavations.

These must be done in accordance with the Planning Permission. Demolition material must be used in accordance with the quality protocols for the production of aggregates from inert waste, subject to appropriate testing and the lack of any harmful constituents. Uses include pipe bedding, backfill and sub-base.

- 3) Contaminated soils can be moved on-site providing they do not require treatment or containment. There should be no risk to the environment i.e. non-leachable and in accordance with Planning Permission. Relevant activities can include site regrading and use of materials below clean cover systems, capping, buildings and hardstanding.

Where contaminated materials have to be placed in an engineered cell to prevent pollution, then this would be classed as landfilling and require PPC permits. Any material taken off site is considered to be waste. However, this is under review. If material is waste, then there is a duty of care including ensuring material is transported by a registered carrier. The destination of material leaving the site should be regularly checked and Waste Transfer Notes kept.

Clean Covers Systems

According to the Environment Agency's Remediation Position Statements of May 2006, the placement of a cover system using "clean" material is not treatment of waste. Consequently, no licensing/permitting position statements are applicable to this type of remediation. If the cover system uses 'waste materials' in its construction, waste management licensing exemption paragraph 9A may be applicable to its installation. If the installation of the proposed cover system does not meet the criteria for registration of this exemption, the activity may be regulated through a waste management site licence.

9. WASTE ACCEPTANCE CRITERIA (WAC)

The main objective of the Landfill Directive is to prevent or reduce as far as possible the negative effects of landfilling waste on the environment and on human health. It is intended to reduce the disposal of waste materials to landfills and to encourage more sustainable approaches to dealing with wastes. It bans the landfill of liquids and certain solid wastes, introduces requirements for the treatment of wastes prior to landfill and provides for the classification of landfills as sites for inert, hazardous or non-hazardous waste and prohibits co-disposal.

It sets out procedures for waste acceptance at landfills and the types of waste for each class of landfill as specified by Waste Acceptance Criteria (WAC). The WAC are predominantly lists of "limit values" for certain parameters obtained from standard leaching tests of wastes going to landfills. WAC are set out in the Landfill Directive itself. Full details can be found in the Environment Agency document "Guidance for waste destined for disposal in landfills" Version 2 June 2006.

10. GAS MONITORING

In March 2007, the NHBC issued a report entitled "Guidance on Evaluation of Development Proposals on Sites Where Methane and Carbon Dioxide are Present".

The document recommends that a Conceptual Site Model is produced at the desk study stage. This can be used to produce a Preliminary Risk Assessment (PRA), with a view to assessing whether a ground gas investigation is necessary. The NHBC guidance suggests that the production of a PRA is a preliminary tool only and "cannot remove

the need entirely for ground gas monitoring data ..". This suggests that gas monitoring is needed in all circumstances. This would normally comprise the use of gas monitoring wells over a suitable time period in order to establish maximum gas concentrations and flow rates.

Our view however, and it may not be the view of the NHBC or the Local Authority, is that if there is no evidence of any gas producing source and if spike testing or on-site testing shows no evidence of landfill gases, then we regard the risk of hazardous gas production to be minimal such that further on-going monitoring would not be required. This is in line with the concept of there being no significant risk of significant harm i.e. no contamination. If there is any element of doubt, basic gas protection measures can be installed at minimal cost and each site dealt with individually.

11. MAIN REFERENCES

British Standards Institution	BS3882: British Standard Specification for Topsoil BS5930: British Standard Code of Practice for Site Investigations, 1999 BS8485: British Standard Code of Practice for the characterization and remediation from ground gas in affected developments, 2007 BS10175: British Standard Code of Practice for the Investigation of Potentially Contaminated Sites, 2001
BRE	Radon: Guidance on protective measures for new dwellings, BR211 Protective measures for housing on gas-contaminated land, BR414, 2001 Cover systems for land regeneration, 2004 Concrete in aggressive ground. Special Digest SD1, 3 rd Edition, 2005
Cairney T	Reclaiming Contaminated Land, 1987 Contaminated Land, Problems and Solutions, 1993
CIEH	The LQM / CIEH Generic Assessment Criteria for Human Health Risk Assessment (2 nd Edition)
CIRIA	Assessing risks posed by hazardous ground gases to buildings, CIRIA C665
DOE	CLR reports 1-4 Waste Management Paper No. 26A "Landfill completion: A technical memorandum..." Waste Management Paper No. 27 "Landfill Gas: A technical memorandum..."
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This list is not intended to be exhaustive.



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