
**REPORT ON
SITE INVESTIGATION
AT
SHEFFIELD ROAD
PENISTONE**



**Geotechnical
Developments (UK) Ltd**



Report No: P4682NW/S84
Date: 12th December 2007
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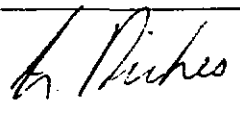
Prepared on behalf of Willstock Construction Ltd

GENERAL NOTES

1. The assessment made in this report is based on the information obtained during this investigation. There may be special conditions appertaining to the site, however, which have not been revealed by the investigation and which, therefore, have not been taken into account in this report
2. It should be appreciated that any desk study information is not necessarily exhaustive and that further information relevant to the proposed site usage may be available.
3. The accuracy of any map extracts cannot be guaranteed and it should be recognised that different conditions on site may have existed between and subsequent to the various map surveys.
4. Whilst the report may express an opinion on possible configurations of strata between or beyond the exploratory holes or on the possible presence of features based on either visual, verbal or published evidence, this is for guidance only and no liability can be accepted for its accuracy.
5. It should also be noted, that any ground gases and contaminants monitored and analysed for are those most likely to give rise to the principal hazards for the proposed use of the site. However, no liability can be accepted for the presence of contaminants, explosive or toxic gases not analysed for.
6. The comments on ground conditions are based on observations made at the time of the investigation, unless otherwise stated. It should be noted, however, that ground water levels vary due to seasonal or other effects.
7. Any qualitative risk assessment included in this report considers the significance of any contamination based on generic standards for the stated end use, together with an assessment of the presence of a pollutant linkage between sources, pathways and receptors. A qualitative assessment of low or insignificant risk does not imply that elevated concentrations of various determinands are not present compared to background or 'green field' conditions. A different assessment may apply if a different end use were proposed. It should also be acknowledged that institutional bodies may consider the presence of 'contaminants' in other ways regardless of whether an apparent risk is present based on defined sources, pathways and receptors.

REPORT STATUS SHEET

Client	Willstock Construction Ltd
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CONTENTS

Figure 1 Site Location Plan

1.0	INTRODUCTION.....	1
2.0	THE SITE	2
2.1	GENERAL	2
3.0	DESK STUDY	2
3.1	SITE HISTORY	2
3.2	PUBLISHED GEOLOGY.....	4
3.3	HYDROLOGY AND HYDROGEOLOGY	4
3.4	RADON	5
3.5	MINING HISTORY/GEOLOGICAL CAVITIES.....	5
3.6	ENVIRONMENTAL DATA	6
4.0	CONCEPTUAL SITE MODEL.....	8
4.1	GENERAL.....	8
4.2	POTENTIAL CONTAMINANT SOURCES	8
4.3	POTENTIAL CONTAMINANT RECEPTORS	9
4.4	POTENTIAL CONTAMINANT PATHWAYS	10
4.5	POTENTIAL SIGNIFICANT POLLUTANT LINKAGES CONSIDERED.....	11
4.6	INTRUSIVE INVESTIGATION REQUIREMENTS	13
4.7	SAMPLING PLAN	13
5.0	FIELDWORK	14
5.1	GENERAL	14
5.2	SURVEYING	14
5.3	DYNAMIC CONTINUOUS SAMPLING BOREHOLES	14
5.4	HAND DUG TRIAL PITS.....	15
5.5	ROTARY BOREHOLES.....	15
5.6	FIELD MONITORING.....	15
6.0	LABORATORY TESTING	16
6.1	ENGINEERING LABORATORY TESTING.....	16
6.2	CHEMICAL CONTAMINATION TESTING	16
7.0	GROUND CONDITIONS	17
7.1	GENERAL.....	17
7.2	MADE GROUND	17
7.3	COAL MEASURES.....	18
7.4	GROUNDWATER.....	18
7.5	VISUAL/OLFACTORY EVIDENCE OF CONTAMINATION	18
8.0	ENGINEERING CONSIDERATIONS.....	18
8.1	GENERAL	18
8.2	FOUNDATION ASSESSMENT	18
8.3	FLOOR SLABS	20
8.4	GENERAL CONSTRUCTION ADVICE.....	20
8.5	ROAD PAVEMENT ASSESSMENT	21
8.6	GROUND GAS ASSESSMENT.....	21
9.0	SLOPE STABILITY ASSESSMENT.....	22
9.1	GENERAL.....	22
9.2	GROUND MODEL	23
9.3	STABILITY ANALYSIS	23
9.4	CONCLUSIONS/RECOMMENDATIONS	25

10.0	TIER 1 CHEMICAL ASSESSMENT	26
10.1	PUBLISHED GUIDELINES	26
10.2	SOIL CHEMICAL TEST RESULTS	27
10.3	LEACHATE TEST RESULTS	29
10.4	CHEMICAL WATER TEST RESULTS	30
10.5	SUMMARY OF CHEMICAL CONTAMINATION ASSESSMENT.....	30
11.0	QUALITATIVE RISK ASSESSMENT	30
11.2	END USERS.....	31
11.3	CONSTRUCTION WORKERS.....	31
11.4	SURFACE AND GROUNDWATER.....	31
11.5	SURROUNDING PROPERTIES.....	32
11.6	UNDERGROUND SERVICES/STRUCTURES	32
11.7	DISPOSAL OF MATERIALS.....	32
11.8	FINAL CONCEPTUAL SITE MODEL	33
12.0	PROPOSED REMEDIAL ACTION/FURTHER WORKS	35

TABLES

TABLE 1	SITE HISTORY.....	3
TABLE 2	POTENTIAL CONTAMINANTS ASSOCIATED WITH OFF-SITE ACTIVITIES	9
TABLE 3	CONCEPTUAL SITE MODEL	12
TABLE 4	FINAL CONCEPTUAL SITE MODEL	34

APPENDICES

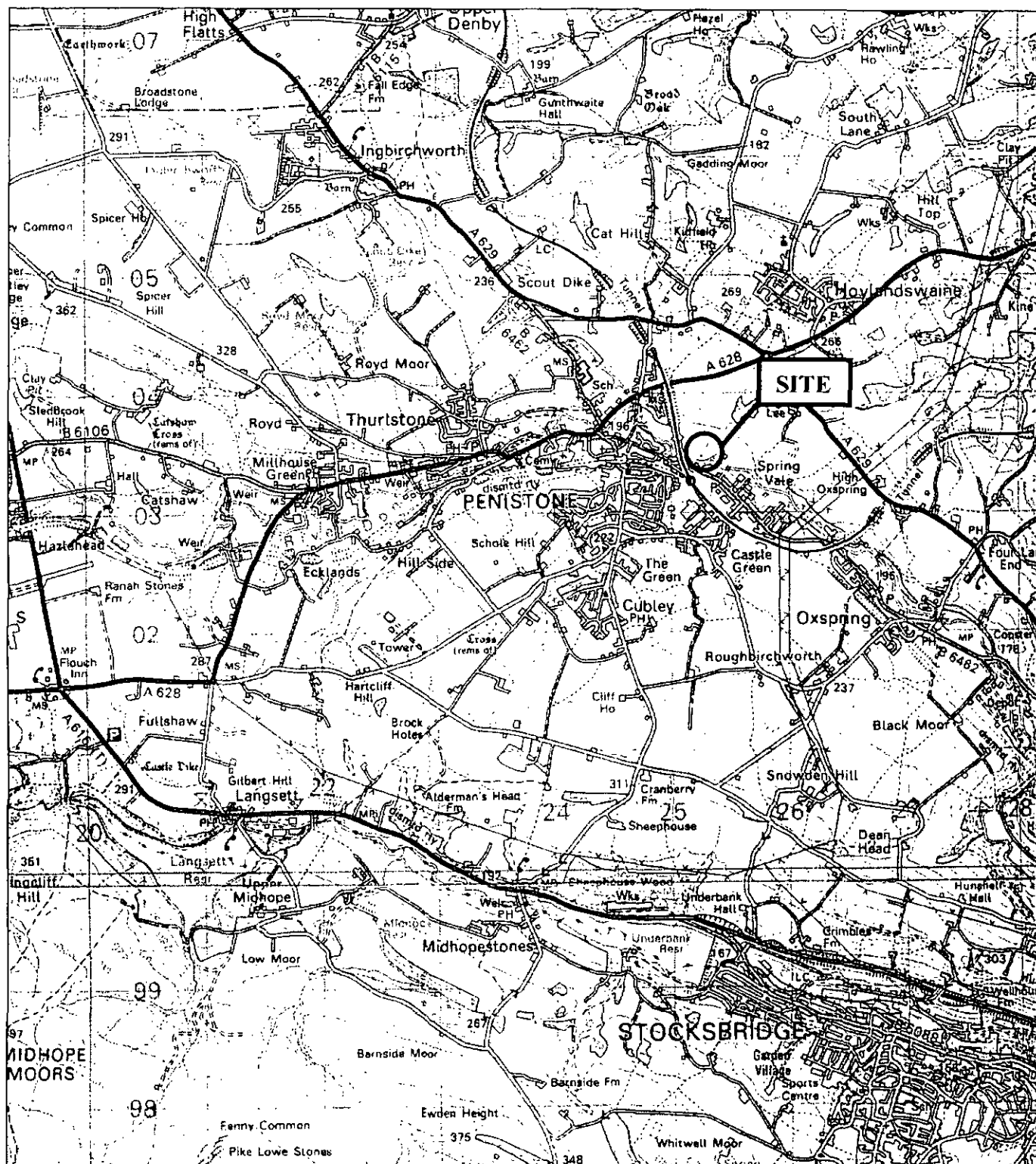
A	DRAWINGS
	Drawing No P4682NW/S84/01 – EXPLORATORY HOLE LOCATION PLAN
	Drawing No P4682NW/S84/02 – GEOLOGICAL SECTIONS
B	EXPLORATORY HOLE LOGS
	(i) Dynamic Continuous Sampling Boreholes (DCS1 to DCS7, DCS2a and DCS2b)
	(ii) Rotary Boreholes (R01 to R07)
	(iii) Hand Dug Trial Pit (HP1 to HP6)
C	LABORATORY TEST RESULTS
	(i) Engineering Test Results
	(ii) Soil Chemical Test Results (including C1 table)
	(iii) Leachate Chemical Test Results (including C2 table)
	(iv) Surface Water Chemical Test Results (including C3 table)
D	GROUND GAS AND GROUNDWATER MONITORING DATA
E	DESK STUDY INFORMATION
	(i) Historical Maps
	(ii) BGS Logs
	(iii) Coal Mining Report
	(iv) Envirocheck Report
F	GEOTECHNICAL ANALYSES
	SPT 'N' Value versus Depth Profile
G	SLOPE/W EXTRACTS

Site: Penistone Road, Sheffield

Title: Site Location Plan (1: 50,000)

Date: December 2007

Project No: P4682NW



**REPORT ON
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AT
SHEFFIELD ROAD
PENISTONE**

1.0 INTRODUCTION

- 1.1 An area of land situated off Sheffield Road, Penistone is being considered for development by Willstock Construction Limited. The proposals are for the construction of four detached residential properties with associated parking and private outdoor areas. The majority of the site is occupied by high slope (approximately 20m high) and it is understood that three of the properties will be constructed into the face of the slope with the remaining structure constructed on the crest of the slope. It is understood that the gardens will consist of a cantilevered terrace extending out from the slope and therefore preventing access to the soils on the slope by the future residents.
- 1.2 Geotechnical Developments (UK) Ltd was instructed by Tom Henry Associates on behalf of Willstock Construction Limited to undertake a desk study and ground investigation at the site and give comments and recommendations on the findings in general accordance with our Estimate Ref: E4682NWrl dated 16th August 2007 and E4682NWsl dated 28th September 2007. The ground investigation was designed by Geotechnical Developments (UK) Ltd taking into account the desk study data to identify potential geotechnical and geo-environmental constraints that may restrict the proposed development of the site and to provide geotechnical data to assist in development design parameters including a slope stability assessment of the site.
- 1.3 This report contains a description of the site at the time of the fieldwork, results of the desk study, fieldwork and laboratory testing undertaken, strata encountered, engineering and contamination laboratory test results, ground gas and groundwater monitoring, an interpretative assessment of the ground conditions with regards to the proposed development and a slope stability assessment of the site and proposed development.
- 1.4 This report is confidential and is written solely for the benefit of the Client, Willstock Construction Limited and the Client's representatives and agents. Any comments given are based on the understanding that the proposed development will be as detailed above. This report has been prepared following a ground investigation which took place on the 20th September 2007 with dynamic continuous sampling and between the 22nd and 26th October with rotary drilling and hand auguring. Geotechnical Developments (UK) Ltd warrants this report based on the ground conditions at the time of the investigation and the results of the subsequent analysis and monitoring. Additional information, improved practices, new guidance, changes in legislation or provision of detailed layout and design proposals will necessitate this report having to be reviewed in whole or in part after that date.

2.0 **THE SITE**

2.1 **General**

- 2.1.1 The site is located off Sheffield Road, Penistone, approximately 13km west of Barnsley. The site is irregular in shape and comprises a narrow plateau of land located in the southern area of the site and a steep slope approximately 15m to 20m high leading down to a lower plateau which lies adjacent to the River Don, located on the northern site boundary.
- 2.1.2 The site is generally uneven and covered by sparse vegetation with large cobbles and boulders of slag materials and other building rubble located on the surface of the slope and lower plateau.
- 2.1.3 Sheffield Road runs parallel to the southern boundary of the site and gives access to the top of the slope via newly built residential properties, immediately east of the site. Beyond the River Don, fields extend to the north and out of the shallow valley which is traversed by a viaduct located immediately west of the site, with a north to south orientation.
- 2.1.4 See Drawing Ref. No P4682NW/S84/01, Appendix A(i) for an appreciation of the site layout.
- 2.1.5 The main identified land uses in the immediate area surrounding the site are as follows;
- North – agricultural land.
 - South – railway sidings/industrial properties
 - East – residential and industrial/commercial properties
 - West – railway, allotments, industrial/commercial properties

3.0 **DESK STUDY**

3.1 **Site History**

- 3.1.1 Available editions of the 25" to 1 mile and 6" to 1 mile County Series maps dating back to 1851, together with more recent National Grid 1:2,500, 1:10,000 and 1:10,560 plans were obtained from Landmark Information Group and were examined to determine past site usage a summary of which is presented in Table 1 'Site History' below. Relevant extracts of the maps are presented in Appendix E(i).

Table 1 Site History

Year	Edition	Scale	Comments
1851 to 1938	County Series	25" to 1 mile and 6" to 1 mile	The site area is undeveloped and lies on a steep slope adjacent to the River Don which lies immediately to the north of the site and flows from west to east. Sheffield Road is located immediately south of the site. Penistone Viaduct is located approximately 10m west of the site. Penistone Station is located approximately 130m south of the site. Approximately 160m southeast of the site there is the Yorkshire Steel and Iron Works. By 1906 a small building of unknown use has been constructed approximately 20m east of the site, further extended by 1931.
1955	National Grid	1:10,560	No significant change to the site area.
1960 to 1983	National Grid	1:2,500 1:10,000 and 1:10,560	No significant change to the site area. Yorkshire Steel and Iron Works buildings have been demolished although railway sidings and spoil/tipped material are present in the vicinity of the former works. A works building has been constructed approximately 110m east of the site. By 1968 further development has occurred on land over 100m east of the site identified as a council depot. Works buildings are also present some 40m west. By 1983 other suspected works buildings are evident 100m west.
1985 to 2006	National Grid	1:2,500 and 1:10,000	No significant change to the site area. Above ground storage tanks (ASTs) are evident in the depot to the east. Other works buildings have been constructed approximately 80m to the southeast.

3.2 Published Geology

- 3.2.1 Reference to the 1:50,000 scale published British Geological Survey (BGS) Map Sheet 86 'Glossop' indicates the site to be devoid of drift deposits and underlain by sandstones forming the Penistone Flags strata, part of the Lower Coal Measures (Westphalian A) of Carboniferous age which generally comprise mudstones, sandstones and siltstones with occasional seams of coal. The strata in the site area have an approximate north-easterly dip direction. A coal seam is shown immediately south of Sheffield Road and therefore may underlie the site at shallow depth. A fault is located approximately 250m to the west of the site with down throw to the east.
- 3.2.2 A search of the borehole databank at the British Geological Survey, Keyworth confirmed that there are no available records within 500m of the site.
- 3.2.3 Boreholes SE20SE/69, 1, 2 and 3 are located approximately 0.5km south of the site. The geology at this location is Lower Coal Measures strata overlying the sandstone of the Penistone Flags strata. Reference to the logs indicates sandstone was encountered at depths of between 20.7m and 25.6m with thicknesses of the sandstone ranging between 19.5m and 22m. A rest water level of 23.1m was recorded.
- 3.2.4 The records, together with a location plan, are reproduced in Appendix E(ii).

3.3 Hydrology and Hydrogeology

Hydrology

- 3.3.1 The nearest surface watercourse is the River Don immediately north of the site. The river flows from west to east. River Quality monitoring data for the stretch of river adjoining the site indicates that the Don has a General Quality Assessment (GQA) grade of C (fairly good) in 2000.
- 3.3.2 The site is located within/adjoining an area of possible extreme flooding from fluvial water bodies identified as the River Don. There are no flood defences within 1000m of the site and the site is not located within an area benefiting from flood defences.
- 3.3.3 There are two discharge consents within 250m of the site that both relate to Yorkshire Water Services Ltd (Sewerage Network – Sewers) for the discharge of Sewage Effluent Discharge – Storm Effluent into the River Don. Both are located downstream of the site and therefore are not anticipated to have impacted on the site.
- 3.3.4 There are no surface water abstractions within 500m of the site.

Hydrogeology

- 3.3.5 The Environment Agency records indicate that the site is underlain by strata regarded as a minor aquifer assumed to relate to the Coal Measures (Penistone Flags) strata. A minor aquifer is defined as follows:

"These can be fractured or potentially fractured rocks, which do not have a high primary permeability, or other formations of variable permeability including unconsolidated deposits. Although not producing large quantities of water for abstraction, they are important for local supplies and in supplying base flow to rivers."

3.3.6 There are no recorded groundwater abstraction licences within 250m and no groundwater source protection zones within 1000m of the site. A Source Protection Zone (SPZ) is an area of protected groundwater surrounding a public abstraction borehole, well or spring used for public drinking water supply. The nearest abstraction is 494m to the south for abstraction from the Coal Measures for a foundry.

3.4 **Radon**

3.4.1 Reference to the BRE document 211 "Radon: guidance on protective measures for new dwellings" indicates that the site does not lie in an area where the geological strata may be susceptible to radon emissions.

3.5 **Mining History/Geological Cavities**

3.5.1 Consultation of the Coal Authority's Coal Mining Searches Directory indicates that the site does lie in an area for which a standard mining report is required for new development.

3.5.2 A mining report has been obtained. The main details of the report are summarised below:

- The site is not within the zone of likely physical influence on the surface from past underground workings.
- The site is not in the likely zone of influence of any present or future underground coal workings; however, coal reserves do exist in the local area which could be worked at some time in the future.
- There are no recorded mine entries within 20m of the site.
- The site is not located in an area affected by past, present and future open cast mining.

3.5.3 A copy of the mining report received is included in Appendix E(iii).

3.5.4 In addition to coal, other minerals of economic importance can be worked by underground mining methods, these include chalk, fireclays, gypsum, limestones and metal ores such as copper and lead. A review of the list of non-coal mine plans formerly held by the Health and Safety Executive indicates that the site area is unaffected by any recorded past non-coal mining activity.

3.5.5 Reference to the Department of the Environment (now DEFRA) "Review of Mining Instability in Great Britain" indicates the site is not located in an area of recorded non-coal mining activities.

- 3.5.6 A review of the DoE regional reports for Natural Underground Cavities in Great Britain (1993) indicates the site is not located in an area of recorded natural cavity formation.

3.6 Environmental Data

- 3.6.1 Information pertaining to environmental issues was obtained from an Envirocheck report, commissioned by Geotechnical Developments (UK) Ltd, dated 7th September 2007. This database contains sets of data corresponding to the databases held by a number of sources including the Environment Agency, British Geological Survey, National Radiological Protection Board (NRPB), Coal Authority, Department for the Environment, Food and Rural Affairs (DEFRA) and the Local Authorities. A copy of the report is included in Appendix E(iv).

Environmental Setting

- 3.6.2 The site is in an area designated by DEFRA as being a Nitrate Vulnerable Zone.
- 3.6.3 The site is in an area designated as Adopted Green Belt.
- 3.6.4 The site is not located within 1000m of any other environmentally sensitive receptors such as Sites of Special Scientific Interest (SSSI), Areas of Outstanding Natural Beauty, National Parks, Special Protection Areas, Special Areas of Conservation, Nature Reserves or Ramsar Sites.

Geological

- 3.6.5 The British Geological Survey has classified the site as having a very low to low risk associated with landslide ground instability and non to low risk of running sand instability hazards. The site has been given a non to very low risk rating associated with shrinking or swelling clay ground subsidence and a moderate risk associated with compressible ground subsidence hazards.
- 3.6.6 The British Geological Survey has classified the site as having no hazards associated with collapsible ground instability hazards and ground dissolution instability hazards.
- 3.6.7 The potential for shallow mining is classed as a low-moderate risk.

Potential Contamination Sources

- 3.6.8 Reference to the Envirocheck report indicates that there are none of the following within 500m of the site:-
- Control of Major Accident Hazards Sites (COMAH).
 - Explosive Sites.
 - Notification of Installations Handling Hazardous Substances (NIHHS).
 - Planning Hazardous Substance Enforcements.
 - Contaminated Land Register Entries and Notices.
 - Enforcement and Prohibition Notices.

- IPC and IPPC sites.
- Local Authority Integrated Pollution Prevention and Control regulated sites.
- Local Authority Pollution Prevention and Control Enforcements.
- Prosecutions relating to Authorised Processes or Controlled Waters.
- Registered Radioactive Substance usage/storage sites.
- Fuel station entries.

- 3.6.9 There is one Local Authority Pollution Prevention and Control regulated site within 250m of the site. This is approximately 87m south of the site and relates to Readymix (Huddersfield) Ltd in Springvale, a cement blending, packing and loading company.
- 3.6.10 There has been one Pollution Incident to Controlled Waters within 250m of the site. This occurred at an industrial premise in Darfield approximately 172m southeast of the site. The incident involved Heavy Fuel Oil contaminating a freshwater stream/river. This was classified as a Category 2 – Significant Incident. This location is downstream of the site therefore unlikely to have had any impact on the site.
- 3.6.11 There is one Substantiated Pollution Incident Register entry within 250m of the site relating to an incident 91m southeast of the site on the 4th November 2002. This had an impact on the land and classified as a Category 2 – Significant Incident. The contaminant is described as Specific Waste Materials – containers.
- 3.6.12 There are three Contemporary Trade Directory entries within 250m of the site. These relate to D R Balingwire Ltd, a wire products manufacturers (inactive) that was located 156m west of the site, The Paint Spot, a car body repairs garage (active) located 156m west of the site on Sheffield Road and Green Kleens, a gas suppliers, (active) located 234m southwest of the site.

Landfills and Waste Disposal/Treatment

- 3.6.13 None of the following have been identified within 500m of the site:-

- BGS Recorded Landfill Sites
- Integrated Pollution Control Registered Waste Sites
- Licensed Waste Management Facilities
- Registered Waste Treatment or Disposal Sites

- 3.6.14 There is one Historical Landfill Site located 185m south of the site relating to David Brown Gear Industries on Churchfield Road, Penistone, authorised for disposal of wastes including industrial waste.
- 3.6.15 There is one Local Authority Recorded Landfill Site located in the same area as the historical landfill site named above.

3.6.16 The site to the south would also appear to be identified as previously licensed to Hi-Tec Integrity Castings Ltd for disposal of sand/cement mix, furane sands or other foundry sands.

3.6.17 There is one Registered Waste Transfer Site located 153m west of the site.

4.0 **CONCEPTUAL SITE MODEL**

4.1 **General**

4.1.1 This section uses information from Sections 1 to 3 of this report and background information from field observations to provide a representation of the risk posed to human health and environmental receptors from potential on and off-site contamination sources.

4.1.2 This assessment is based on CLR 11 Model Procedures for the Management of Land Contamination (DEFRA), and presented as a 'source-pathway-receptor' model which is the methodology adopted as the procedure for identifying 'Contaminated Land' under Part IIA of the Environmental Protection Act (1990) and in accordance with current best practice.

4.2 **Potential Contaminant Sources**

4.2.1 Information gathered from the desk study has been used to identify the likely contaminants, their sources and their spatial distribution. A 'contaminant' is defined as a substance that is in, on or under the land and has the potential to cause harm or to cause pollution of controlled waters.

4.2.2 The only potential current and historical on site source of contamination is the Made Ground materials that form the slope onsite and also possible presence of natural contaminants as described later. Any potential contaminants are considered to be represented by the off-site sources.

4.2.3 The potential current and historic off-site sources of contamination within 250m of the site boundary have been detailed below. This criterion of 250m was chosen for being a conservative estimate of the migration distance of the respective contaminants.

Current & Historical (off site)

- Unknown Works buildings 80m south and 40m and 90m west.
- Possible contaminants derived from the railway lines to the west/southwest of the site.
- Depot buildings and AST 80m to the east.
- Landfill sites within 250m to the south.
- Former Iron and Steel Works 160m to the southeast.
- Wire products manufacturers 156m to the west.
- Car body repairs 156m to the west.

4.2.4 The contaminants associated with these uses as indicated in CLR8, Potential Contaminants for the Assessment of Land (DEFRA, March 2002), are detailed in Table 2.

Table 2 Potential Contaminants Associated with Off-Site Activities

Potential source	Appropriate Industrial Profile	Metals, semi-metals, non metals, inorganic chemicals and others	Organic chemicals
Railway lines	Railway Land	Cd, Cr, Cu, Pb, Ni, V, SO ₄ , asbestos, pH	PAHs, chlorinated aliphatic hydrocarbons, PCBs
Landfill sites	Waste recycling, treatment and disposal sites: landfills and other waste treatment or waste disposal sites	Cd, Cr, Cu, Pb, Ni, Zn, As, S, asbestos, pH	Oil/fuel hydrocarbons, PAHs, chlorinated aliphatic and aromatic hydrocarbons, PCBs
Former Iron & Steel works	Metal manufacturing, refining and finishing works: iron and steelworks	Cr, Pb, Ni, V, Zn, As, S, SO ₄ , asbestos, pH, Free CN ⁻	Phenol, oil/fuel hydrocarbons, aromatic hydrocarbons, PAHs, PCBs
Wire Products manufacturers	Engineering works: mechanical engineering and ordnance works	Be, Cd, Cr, Cu, Pb, Hg, Ni, V, Zn, As, B, Free CN ⁻ , NO ₃ , SO ₄ , asbestos, pH	Phenol, acetone, PAHs, chlorinated aliphatic hydrocarbons, PCBs
Car body repairs	Road vehicle servicing and repair: garages and filling stations	Cr, Cu, Pb, Zn, asbestos, pH	Oil/fuel hydrocarbons, PAHs, chlorinated aliphatic hydrocarbons, organolead compounds

4.2.5 In addition to the findings of the desk study information there is a possibility that naturally occurring determinands may pose a risk to the development or future site users. These risks are discussed below:

- Certain chemicals e.g. sulphate can pose a risk to proposed structures via concrete attack.
- Natural soils may contain elevated concentrations of inorganic compounds that could represent a potential hazard to human health.
- Certain compounds, for example, phenol and acidic pH can present a risk to certain types of water supply pipes.

4.3 Potential Contaminant Receptors

4.3.1 It is envisaged that the receptors of potential contamination associated with the site are:

- **End users** – based on the proposed residential end use, the critical receptor is considered to be a young female child.
- **Neighbouring buildings** – the residential properties located to the east of the site are considered to be at risk, due to their proximity.
- **Surface water** – the River Don located immediately north of the site is considered to be a potentially sensitive receptor.
- **Shallow Groundwater** – Permeable horizons within Alluvium, Made Ground or weathered natural strata may allow the migration of potential contaminants to deeper groundwater or nearby surface water and therefore is considered as a potential intermediary receptor.
- **Deep Groundwater** – the site is located over strata classified as a minor aquifer. Though the deep groundwater is considered as a potential receptor it should be noted that the site is not located within 1000m of a groundwater source protection zone and there are no water abstractions within 250m of the site.
- **Proposed structures/underground services** – certain contaminants can have a detrimental effect on the materials used in the construction of services and structures, for example concrete can be vulnerable to sulphate attack. Toxic/flammable gases maybe generated from Made Ground or decomposition of organic materials.
- **Construction workers** – certain contaminants may represent a risk to site workers involved in the construction process via direct contact, inhalation or ingestion of contaminated soil or vapours. On the basis that exposure will only be on a short term basis, it is proposed that the risks are addressed via the use of appropriate PPE and Health and Safety measures. Further details on the required measures will be provided in the conclusions of this report.

4.4 Potential Contaminant Pathways

4.4.1 CLR11 defines a pathway as ‘a route or means by which a receptor can be exposed to or affected by a contaminant’. To assess the potential risks posed by the contaminants to vulnerable receptors the pathways through which contaminants may impact sensitive receptors need to be identified.

4.4.2 For a residential use, the CLR10 report indicates six potential exposure routes via which future users of the development may be exposed to contaminants.

- Dermal exposure;
- Inhalation of soil dust;
- Inhalation of soil vapour;
- *Direct ingestion of soil.*
- Ingestion of soil attached to vegetables
- Ingestion of contaminated vegetables

4.4.3 Information to date indicates that the underlying geology may comprise Alluvium overlying Penistone Flags strata. The soils are classified as being of low leaching potential; however the following pathways may exist through permeable sandstone strata or granular shallow soils or Made Ground.

- Lateral and downward migration through soils.
- Groundwater transport.

4.4.4 Artificial pathways such as any surface water drainage system, old mine workings etc. may also represent an enhanced potential pathway for migration of liquid/gaseous contaminants or for the direct discharge of contaminants into receiving waters such as the adjacent river.

4.4.5 Airborne movement of contaminants may result from the nearby railway lines. The site is located downwind of the assumed prevailing wind direction from the southwest.

4.5 **Potential Significant Pollutant Linkages Considered**

4.5.1 A significant 'pollutant linkage' requires the presence of a pathway and a receptor and a 'pollutant' being present. All three elements of a pollutant linkage need to be present for a risk to exist.

4.5.2 Based on the information contained in Sections 4.2 - 4.4 the significant pollutant linkages that cannot be discounted without further information being retrieved by intrusive investigation are included within the following table:-

Table 3 Conceptual Site Model

SOURCE		PATHWAY		RECEPTOR	RISK RATING	JUSTIFICATION	MITIGATION
Contaminated Soil, Made Ground and naturally occurring contaminants	→	Dermal exposure	→	construction workers and future residents	LOW	Although the site history suggests no development activities it is possible that pollutants may exist that represent a human health risk to construction workers and future users of the site.	The risk to future users, if present can be controlled by cover layers in landscaped areas and membranes beneath structures.
		Inhalation of soil dust					The use of appropriate PPE can limit the risk to construction workers.
		Inhalation of soil vapour					
		Direct ingestion of soil, soil attached to vegetables or contaminated vegetables.					
	→	Migration of soil vapour and dust both on and off-site.	→	Neighbouring existing buildings and proposed buildings	LOW	Development of the site may lead to exposure of residual Made Ground, if present.	Risk to the receptor is dependent on the contamination in the soils. In dry conditions dampening down any exposed material can reduce migration. The risk to future users can be controlled by cover layers and membranes.
	→	Leaching through soils	→	Shallow or perched groundwater or surface water	LOW/MODERATE	If contaminants are encountered within the underlying material they may be leachable, however soils are of low leachability. Potential for leaching into adjoining surface water course.	The risk to receptor is dependent on the contamination in the soils, if any, and/or the presence of shallow groundwater.
	→	Chemical Attack	→	Proposed building foundations/service supply pipes	LOW	Made Ground materials if encountered may contain concentrations of sulphates that may cause chemical attack on concrete or water supply pipes.	Use of concrete designed in accordance with BRE Special Digest 1 "Concrete in aggressive ground" or appropriate type of water supply pipe as agreed with supplying water company.
Gases and vapour	→	Migration of soil vapour and gases to indoor and outdoor air	→	Future site users and properties	LOW	Made Ground may be present onsite and former landfill sites also present within 250m.	Gas monitoring required to confirm gas concentrations. If found to be present can be controlled by membranes.
Contaminated shallow or perched groundwater	→	Transport via granular soils	→	Minor aquifer/surface water	LOW/MODERATE	There are no groundwater abstractions or source protection zones within 250m of the site, thus low risk. Immediate proximity of River Don suggests moderate risk.	It is unlikely that remedial measures will be required due to minimal potential for site derived contamination.
Offsite contamination sources eg. AST	→	Leaching through soils or shallow groundwater transport or airborne pathways	→	Future structures, service and users	LOW/MODERATE	Site downwind of prevailing wind direction. Sandstone strata may allow migration of liquid/gaseous contaminants.	As with onsite sources, appropriate cover layers/concrete classification etc. may be required.

4.6 Intrusive Investigation Requirements

4.6.1 Based on the conceptual model previously presented, the following information is required to quantify the relevance and severity of the potential significant pollutant linkages. This information will be obtained by ground investigation.

- Actual presence and extent of contaminants in soils;
- Leachability of contaminants from soils (if significant soil concentrations identified or suspected);
- Actual presence of contaminants in controlled water (if significant soil or leachability concentrations identified or suspected);
- Direction of groundwater flow (if present);
- Actual generation of gas;

4.7 Sampling Plan

4.7.1 Information gathered from the desk study has been used to develop an understanding of the likely contaminants present, their sources and their spatial distribution in order to assess their impact on the proposed development. The present and historical site setting was identified and investigated using a general exploratory hole coverage including a general suite of chemical tests. Testing for all of the potential contaminants identified within the Conceptual Site Model is limited to those considered most likely to be present based on the desk study and field observations, therefore some potential contaminants, such as asbestos, or hydrocarbons will only be subject to analysis if there is strong visual or olfactory evidence of materials suspected to contain the contaminants. Prior to undertaking the fieldwork the following scope of works was defined based on the initial conceptual model for the site:

- One day of dynamic continuous sampling within the areas of Made Ground.
- Seven rotary drilled boreholes to determine the depth of Made Ground materials along the crest of the slope
- One day of hand dug trial pitting along the toe of the slope to determine the ground conditions.
- Installation of ground gas and groundwater monitoring boreholes.
- Soils to be tested for a range of contaminants based on those likely to be present due to the site historical uses and observations made during the field work. It is anticipated that these would include metals (specifically those for which soil guideline values (SGVs) have been derived and a suite of organic determinands.
- Leachability testing on soils samples for which significant soil concentrations have been identified.
- Surface water samples to be tested for contaminants identified in soil/leachability samples at concentrations which could pose a risk to groundwater or surface water bodies.
- Groundwater levels, ground gas concentrations, gas flows and atmospheric pressure to be monitored in boreholes on three monitoring visits.

5.0 **FIELDWORK**

5.1 **General**

5.1.1 Six hand dug trial pits, nine dynamic continuous sampler boreholes and seven rotary boreholes were undertaken across the site to examine the ground conditions. The locations of the exploratory holes were generally in accordance with the sampling plan presented in Section 5.7 to best investigate the ground conditions across the site, given the results of desk study research, field observations, available access and location of underground services.

5.1.2 Fieldwork was generally carried out in accordance with BS5930 (1999) "Code of Practice for Site Investigations", BS10175 (2001) "Investigation of potentially contaminated sites - Code of practice", the Association of Geo-technical and Geo-environmental Specialist Guidelines for Good Practice in Site Investigations (August 1998) and supervised by an experienced Engineering Geologist.

5.2 **Surveying**

5.2.1 The exploratory holes were located by means of a global positioning system (Trimble Pro XRS). The elevation of each borehole was correlated with the topographical survey provided by Haycock and Todd drawing No: S6539 dated May 2007.

5.2.2 The locations are presented on Drawing No. P4682NW/S84/01 in Appendix A(i).

5.3 **Dynamic Continuous Sampling Boreholes**

5.3.1 Nine dynamic continuous sampling boreholes (Boreholes DCS1 to DCS7, including DCS2a and 2b) were formed at the site on the 20th September 2007.

5.3.2 The boreholes were formed utilising a Competitor 130 rig and were advanced using equipment to form 101mm diameter with an 87mm core (reducing to 70mm diameter with depth) boreholes to the base, at a maximum depth of 5.45m below ground level (bgl). All the boreholes were cased using 115mm diameter casing to variable depths to prevent ground collapse.

5.3.3 Samples of the deposits encountered were recovered in 1m long clear plastic liners, which were opened on site for subsequent logging and sub-sampling. Disturbed plastic pot and glass amber jar samples were recovered from the various strata for chemical and engineering laboratory testing.

5.3.4 In situ Standard Penetration Tests (SPT) using the split spoon method were undertaken in the boreholes to provide a measure of the relative density of the granular (coarse grained) deposits.

5.3.5 SPT "N" values have been plotted against depth below ground level and are presented in Chart 1 in Appendix F.

5.3.6 On completion of drilling, boreholes DCS1, DCS4 and DCS5 were utilised for installation of gas/groundwater monitoring standpipes. A visual representation of the standpipes is presented on the relevant borehole logs.

5.3.7 Descriptions and depths of the various strata recovered are presented on the borehole records, reproduced in Appendix B(i), together with sample depths, comments on groundwater inflows and any other pertinent information.

5.4 Rotary Boreholes

5.4.1 Seven rotary boreholes (Boreholes R01 to R07) were formed at the site between the 22nd and 26th October 2007. The boreholes were drilled utilising a Soilmec 400 track mounted rotary drill rig and advanced using a rotary open hole techniques combined with Standard Penetration Tests (SPT) to a maximum depth of 14.45m bgl.

5.4.2 In situ Standard Penetration Tests, using split spoon method were undertaken in the boreholes to provide a measure of the relative density of the granular Made Ground deposits and strength of the underlying bedrock sequences. SPT "N" values have been plotted against depth below ground level and are presented in Chart 1 in Appendix F.

5.4.3 Descriptions and depths of the various strata recovered are presented on the borehole records, reproduced in Appendix B(ii), together with sample depths, comments on groundwater inflows and any other pertinent information.

5.5 Hand Dug Trial Pits

5.5.1 Six trial pits (HP1 to HP6) were excavated along the toe of the slope, to a maximum depth of 1.2m bgl using hand digging methods, and advanced using a hand held auger to a refusal depth.

5.5.2 Disturbed plastic tub and amber glass jar samples were recovered from various strata exposed within the excavations for engineering and chemical laboratory testing.

5.5.3 All excavations were backfilled with arisings prior to leaving site at the end of each day of fieldwork.

5.5.4 Descriptions and depths of the various strata recovered are presented on the trial pit records, reproduced in Appendix B(iii), together with sample depths, hand vane shear strength test results, comments on groundwater inflows, pits stability and any other pertinent information.

5.6 Field Monitoring

5.6.1 Ground gas/groundwater level monitoring has been carried out on four occasions between the 5th October 2007 and 29th November 2007. The standpipes were monitored for methane, carbon dioxide, carbon monoxide, hydrogen sulphide, oxygen and atmospheric pressure using a Geotechnical Instruments Infra Red Gas Analyser and flow using a Gas Data GF60 analyser.

5.6.2 Following measurement of soil gas concentrations and gas flow readings, the valve head assembly was removed to allow measurement of groundwater levels. It was not possible to recover groundwater samples.

5.6.3 The results of the gas concentration measurements, gas flow readings and groundwater level data are reproduced in Appendix D.

6.0 **LABORATORY TESTING**

6.1 **Engineering Laboratory Testing**

6.1.1 Engineering laboratory testing was carried out in general accordance with BS1377 (1990) "Method of Test for Soils for Civil Engineering Purposes" at a UKAS accredited laboratory. The following tests were scheduled:

- Classification of materials in accordance with BRE Special Digest 1 "Concrete in aggressive ground" including pH Value, Total (acid) Soluble Sulphate, Soluble Sulphate (2:1 aqueous extract) and Total Sulphur Analysis

6.1.2 The engineering laboratory test results are produced in Appendix C(i).

6.2 **Chemical Contamination Testing**

6.2.1 On the basis of the Conceptual Site Model (Section 4.0) and examination of the recovered soil samples, laboratory testing of the shallow Made Ground and deeper naturally occurring soils was undertaken by a UKAS accredited laboratory, in accordance with MCERTS accreditation standards. The samples were analysed for the following determinands:-

- Arsenic, beryllium, cadmium, chromium, copper, nickel, selenium, zinc, lead, mercury and vanadium
- pH
- Speciated Polycyclic Aromatic Hydrocarbons (PAHs)
- Total Organic Carbon (TOC)
- Fractionated TPH in accordance with the TPHCWG methodology (to include carbon bands and aliphatic/aromatic split)

6.2.2 During the site investigation no samples suspected to contain asbestos materials were visually identified by the site engineer and therefore no testing for asbestos was undertaken. However given the history of the site it is possible that asbestos is present at the site and if material suspected to contain asbestos is identified during the site redevelopment then specialist advice should be sought.

6.2.3 The results are reproduced in Appendix C(ii).

6.2.4 Four soil samples identified to contain potentially leachable compounds were scheduled for leachability. The resulting eluate was analysed for the concentration of the following determinands: -

- Arsenic, beryllium, cadmium, chromium, copper, nickel, selenium, zinc, lead, mercury and vanadium
- pH
- Hardness

6.2.5 The leachate results are reproduced in Appendix C(iii).

6.2.6 Two surface water samples recovered from upstream and downstream of the River Don were analysed for the following determinands:-

- Arsenic, beryllium, cadmium, chromium, copper, nickel, selenium, zinc, lead, mercury and vanadium
- pH
- Hardness

6.2.7 The results of the surface water analysis are reproduced in Appendix C(iv).

7.0 **GROUND CONDITIONS**

7.1 **General**

7.1.1 Based on the desk study information and published geological information it was anticipated that the ground conditions across the site would comprise deep Made Ground materials overlying Coal Measures strata.

7.1.2 Various cross sections depicting the ground conditions are included on Drawing No. P4682NW/S84/02 in Appendix A(ii).

7.2 **Made Ground**

7.2.1 Made Ground was encountered within all boreholes and proven to the base of all dynamic continuous sampler boreholes (to a maximum depth of 6.0m bgl) with the exception of boreholes DSC4 and DSC5, located adjacent to the southern boundary of the site closest to Sheffield Road. Within the rotary boreholes and boreholes DSC4 and DSC5 the Made Ground materials were proven to a depth of between 3.45m, in the southernmost part of the site, and increasing to a maximum depth of 11.45m bgl (R06) along the crest of the slope.

7.2.2 Made Ground materials typically comprised loose to medium dense dark brown and black sandy gravel and gravelly sand with occasional orange-brown and black gravelly clays. The gravel fraction comprised angular and sub-angular fine to coarse sandstone, ash, coal, clinker, brick and slag.

- 7.2.3 Four hand dug pits were excavated at the toe of the slope, adjacent to the River Don, and Made Ground materials were recorded to the base of the each pit, with the exception of hand pits HP1 to HP3 which refused at a depth of between 0.9m and 1.2m bgl (within possible Coal Measures strata). A number of excavations were abandoned due to surface water inflows (from the adjacent watercourse).
- 7.2.4 Standard Penetration Tests (SPT) carried out within the Made Ground materials recorded 'N' Values of between N=6 (which correlates to loose) and N= 35 (dense) with occasional high N values of N>50 (associated with underlying obstructions).
- 7.3 **Coal Measures**
- 7.3.1 Beneath the Made Ground materials, Coal Measures strata, which comprised the 'Penistone Flags' sandstone, was encountered to the base of the rotary boreholes. The Coal Measures strata generally comprised very weak sandstone and mudstones.
- 7.3.2 SPTs carried out within the Coal Measures strata recorded 'N' values of between N=40 and N>100.
- 7.4 **Groundwater**
- 7.4.1 No groundwater strikes were recorded within the boreholes, during their formation or during subsequent groundwater monitoring visits.
- 7.5 **Visual/Olfactory Evidence of Contamination**
- 7.5.1 During the investigation there was no obvious visual or olfactory evidence of contamination.
- 8.0 **ENGINEERING CONSIDERATIONS**
- 8.1 **General**
- 8.1.1 The proposals are for the construction of four detached residential properties with associated parking and private outdoor areas. As the majority of the site is occupied by an approximately 20m high slope it is understood that three of the properties will be constructed into the face of the slope and the remaining structure will be constructed on the crest of the slope. In general the slope is well vegetated with grass cover and a number of small trees/shrubs located across the slope.
- 8.1.2 For an appreciation of the proposed development reference should be made to drawing reference number S1 entitled 'Proposed 4 Nr Residential Dwellings to Land Adjoining Valley View, Sheffield Road, Penistone, Barnsley, S Yorkshire' dated November 2007 by Alan Robinson (Architect).
- 8.2 **Foundation Assessment**
- 8.2.1 Based on the complex nature of the proposed development the following assessment has been separated into two main parts, the detached house located on the crest of

the slope (referred within the following sections as Property 1) and the three detached houses located within the slope face (Properties 2 to 4).

Property 1

- 8.2.2 The Made Ground on the site in its current state is not considered to be a suitable founding strata due to its variability in composition and state of compaction and therefore unacceptable total and differential settlements are likely under loaded conditions. In addition any direct loading on the crest of the slope is likely to decrease the overall stability of the existing slope, causing slope failure.
- 8.2.3 It is considered that for the single property, a piled foundation; transferring all structural loads onto the more competent mudstone/sandstone deposits of the Coal Measures strata should be adopted. Due to the deepening profile of the Coal Measures strata, indicated within cross sections presented in drawing P4682NW/S84/02 in Appendix A, it is considered that piles should penetrate the underlying Coal Measures by at least 2.0m. Based on the geological cross sections it is estimated that, along the crest of the slope, the Coal Measures strata would be encountered at a depth of approximately 11m bgl (195.90m AOD). It is recommended that the advice of a specialist piling contractor is sought regarding the design and installation of any piling solution.
- 8.2.4 It is considered that as the proposed structure within Property 1 is to be supported on piled foundations, no additional loading is anticipated close to the crest of the slope. However further assessment of the current stability of the existing slope is required to determine its potential effect on the construction of and structural support of the proposed piles, as discussed within Section 9.0.

Property 2 to 4

- 8.2.5 To enable the construction of the three detached properties within this area of the site it is considered that a retaining structure supporting the slope will be required to form the rear wall. Excavation of the upper slope to the proposed lower floor level (assumed within the slope assessment at a level of 198.00m AOD) can then be followed by 'bottom - up' construction of each property.
- 8.2.6 For ease of construction it is considered that reinforced secant piled wall methods should be adopted for the construction of the retaining structure and that the advice of a specialist piling contractor should be sought regarding the design and installation of such a piling solution. Based on the geological cross sections it is estimated that, at the crest of the slope, the Coal Measures strata would be encountered at a depth of approximately 11m bgl (195.90m AOD).
- 8.2.7 At the base of the excavation, the Made Ground in its current state is not considered to be a suitable founding strata due to its variability in composition and state of compaction and therefore unacceptable total and differential settlements are likely under loaded conditions. It is considered that a piled foundation should be adopted; transferring all structural loads onto the more competent mudstone/sandstone

deposits of the Coal Measures strata. Based on the inferred geological profile, presented in drawing P4682NW/S84/02 in Appendix A, it is considered that the underlying Coal Measures strata would be encountered at an approximate level of 188m AOD and piles should penetrate the underlying Coal Measures by at least 2.0m. It is recommended that the advice of a specialist piling contractor is sought regarding the design and installation of any piling solution.

- 8.2.8 Following the excavation of the upper part of the existing slope, properties 2 to 4 are to be supported off piled foundations, however it is considered that a slope stability assessment is required for the lower slope profile to determine its potential effect on the proposed structure, as discussed within Section 9.0.

8.3 Floor Slabs

- 8.3.1 Due to the presence of variable Made Ground, it is anticipated that the proposed floor loading would generally not favour a ground bearing slab due to its potential for unacceptable total and differential settlements. It is considered that a suspended floor slab should be adopted in conjunction with the piled foundation design.

8.4 General Construction Advice

Exploratory Hole Positions

- 8.4.1 Trial pits or boreholes carried out as part of this or previous investigations may represent soft spots and conduits/sumps for groundwater or surface water. In excavations, such materials may also be loose and unstable. Unless specifically stated exploratory hole locations should be regarded as approximate. Consideration should be given to accurate location of such features where it considered they may impact on the proposed development.

Excavation Plant

- 8.4.2 Conventional mechanical backhoe excavators should prove suitable for excavation through the materials encountered at the site. However, should occasional large obstructions (cobbles/boulders) remain beneath the site, larger capacity excavators and pneumatic/hydraulic breakout equipment may be necessary.

Excavation Stability/Hazardous Gases

- 8.4.3 The Made Ground is in a loose state of compaction and will be subject to spalling and partial collapse within excavations. Deeper excavations are likely to be prone to rapid, unpredictable, large scale collapse, particularly in the presence of surface water inflows. Consequently, temporary support should be considered for all excavations where collapse is to be avoided. Heavier duty closed shoring should be provided for any excavation where man entry is necessary, in compliance with statutory requirements to ensure safe working conditions. Low levels of carbon dioxide have been recorded from the Made Ground materials, hence care should be

taken when personnel enter excavations (or confined spaces) to ensure full ventilation is available and appropriate safety precautions taken.

Dewatering

- 8.4.4 Groundwater was not encountered within any of the boreholes during the four monitoring visits and groundwater flow into any excavations is not anticipated.

Classification of Buried Concrete

- 8.4.5 The results of chemical analyses undertaken on samples recovered from the Made Ground and naturally occurring deposits encountered at the site indicate the Design Sulphate Class for the site to be "DS-2" based on the results of analytical testing and reference to BRE Special Digest 1 "Concrete in aggressive ground", Part I, in association with (alkaline/acidic) pH values. The BRE Digest suggests that buried concrete should be designed to an Aggressive Chemical Environment for Concrete (ACEC) site classification of "AC-2" based on mobile groundwater conditions.

8.5 Road Pavement Assessment

- 8.5.1 It is recommended that road pavement design should be based on an equilibrium design value of 2%, based on the material properties. It is recommended however that proof rolling of the formation is carried and any soft, loose, compressible or otherwise unsuitable deposits removed and replaced with a suitable fill compacted in appropriate layers.
- 8.5.2 It is considered that the deposits at formation level are frost susceptible and appropriate precautions should be taken with regard to road pavement design such as allowing at least 450mm of non frost susceptible material between formation and finished road level. The capping/sub-base will provide a suitable thickness of non-frost susceptible material.
- 8.5.3 It is recommended that a protective cover layer is left above the formation until the road construction is carried out to prevent deterioration of the sub-grade.

8.6 Ground Gas Assessment

- 8.6.1 Ground gas monitoring has been undertaken as part of this and previous investigations between 5th October 2007 and 23rd November 2007 with a total of four monitoring visits being undertaken, the results of which are included in Appendix D.
- 8.6.2 Methane concentrations of less than the detection limit of 0.1% by volume were recorded and carbon dioxide concentrations between <0.1% and 0.3% by volume during the various monitoring phases. Carbon monoxide and hydrogen sulphide were not recorded above detection limit.
- 8.6.3 Oxygen concentrations have been recorded ranging from 20.8% (atmospheric) to 19.7% (near atmospheric). Average flows were recorded between <0 l/hr and

1.9 l/hr with a maximum average flow of 1.9 l/hr recorded in borehole RO1 during the fourth monitoring visit.

- 8.6.4 *In our experience, the gas concentrations recorded across the majority of the site are considered broadly typical of ground gas conditions recorded in generally inert Made Ground materials and variable natural strata.*
- 8.6.5 *In order to characterise the gas regime of the site, reference has been made to guidance given in CIRIA document C659 'Assessing risks posed by hazardous ground gases to buildings'. The methodology described in this document for determining whether methane and carbon dioxide could present a constraint to new development utilises a risk based process taking into consideration the conceptual site model, the data obtained during the phases of gas monitoring and the nature of the proposed development.*
- 8.6.6 *For a high-rise housing development, the assessment uses both, gas concentrations and borehole flow rates to define a characteristic situation for the site based on a limiting borehole gas volume flow for methane and carbon dioxide.*
- 8.6.7 *Based on the monitoring and risk assessment process the site is classified as a Characteristic Situation 1 due to the low concentrations of methane/carbon dioxide and associated flow rates recorded and therefore no particular gas protection measures are considered necessary.*

9.0 **SLOPE STABILITY ASSESSMENT**

9.1 **General**

- 9.1.1 *The site is irregular in shape and comprises a narrow plateau of land located in the southern area of the site and a steep slope approximately 20m high leading down to a lower plateau running adjacent to the River Don, which is located on the northern boundary. In general the slope is well vegetated with grass cover and a number of small trees/shrubs located across the slope.*
- 9.1.2 *As discussed within the previous section the proposed structures are to be supported off piled foundations and therefore no additional loading is anticipated on the slopes. In addition, within Properties 2 to 4 the upper section of the slope is to be removed and supported by a retaining structure, therefore reducing the active slope height.*
- 9.1.3 *The following ground models were created and analysed using SLOPE/W version 6.21, which is a powerful Windows based slope stability application with CAD like features. The assessment will concentrate on the three main slope stability issues that are considered affect the proposed development, including:-*
- Stability of the existing slope adjacent to Property 1*
 - Stability of the remaining lower slope following the removal of Made Ground materials in Property 2 to 4*

- Stability of the adjacent slopes following the removal of Made Ground materials in Properties 2 to 4.

9.2 Ground Model

- 9.2.1 Selected slope profiles representing the typical and worst case situations across the slope as a whole, based on the topographical survey of the site, and are presented in Drawing No: P4682NW/S84/01 entitled 'Slope Assessment'. Extracts from the SLOPE/W program are presented within Appendix G.
- 9.2.2 The existing slope on the site has a height of approximately 20m (208.0m AOD to 188m AOD) and typical slope angles of between 33.7° (1 in 1.5) and 41° (1 in 1.15). Based on visual inspection of the lower part of the existing slope and the slope profile to the east of the site it is considered that large cobbles/boulders of clinker/slag have been placed to act as a retaining structure near the toe of the slope during the placement of the Made Ground materials.
- 9.2.3 Based on the borehole logs, which recorded no groundwater strikes during the investigation, the predominantly granular Made Ground materials are considered to be free draining.
- 9.2.4 A conservative estimation of the soil properties for each of the Made Ground materials has been established using SPT data and geotechnical analysis carried out during the site investigation. Due to the predominantly granular nature of the Made Ground materials a cohesion value of 0 kN/m² has been assumed together with internal friction angle (phi value) of 31° based on SPT results.

9.3 Stability Analysis

- 9.3.1 The ground models were created and analysed using SLOPE/W version 6.21.
- 9.3.2 A sensitivity analysis was undertaken on the effect of the contribution of the lower retaining structure and the variation of groundwater levels would have on the factor of safety and stability of the slope. In addition a further ground model was created for the 'as built' condition following construction of the retaining wall and excavation of the upper slope materials.
- 9.3.3 A target factor of safety (FoS) of 1.4 is considered appropriate for this slope which would take into account the following:-
- The variability of the Made Ground materials,
 - A reasonable level of confidence in the parameters used, based on site investigation data
 - The ground model developed using current site investigation information
 - The likely consequences of a failure and risk to humans and structures.

- 9.3.4 It is understood that the existing slope has been in place for a considerable period of time. Based on the desk study information it is considered the Made Ground materials have been sourced from the nearby steel and iron works and it has been assumed the materials have not been placed on the site to any engineered specification. The exception being the large cobbles/boulders of clinker/slag placed at the base of the slope to act as a retaining structure.
- 9.3.5 At the time of carrying out this assessment Geotechnical Developments (UK) Ltd are unaware of any previous slope failures along the existing slope. Based on a visual inspection of the slope there were no obvious indications of any previous slope failures that could affect the proposed development. In general the slope appeared to be stable, vegetated with grass cover and a number of small established trees and shrubbery located across the slope face.

Property 1

- 9.3.6 The SLOPE/W results for the current Slope profiles A, B and C, indicates that in general the slope will achieve a FoS of less than 1, i.e. potentially unstable, (minimum FoS recorded as 0.762) due to the steep profile of the slope and uncompact medium dense nature of the Made Ground materials. It should be noted that the lowest factors of safety relate to very shallow failure surfaces, which based on the information available, do not appear to be occurring and the actual factor of safety is probably close to unity. The above assessments have all been made with and without the contributing stability factors associated with the Made Ground retaining structure (located at the base of the slope) and also assuming low ground water conditions exist beneath the site (as indicated during monitoring visits). If a high water level does occur, which is unlikely, the overall stability of the slope would reduce further.
- 9.3.7 It is recommended that Property 1 is to be supported on a piled foundation and therefore not impose any additional loading close to the crest of the slope. It is considered that the current vegetation along the face of the slope together with the actual shear strength of the soils, possibly including some cohesion of the Made Ground is accountable for its existing (but marginal) stability however it is considered that further remedial measures are required to increase the stability of the slope.
- 9.3.8 It is considered that a retaining soil mesh could be installed along the existing slope adjacent to the proposed Property 1 location and anchored into the Coal Measures strata to increase its stability. It is recommended that advice of a specialist contractor is sought regarding the design and installation of any retaining solution.

Property 2 to 4

- 9.3.9 Following the installation of the retaining wall and the excavation of the upper slope materials a ground model has been produced which assumes the floor level of the proposed structure is at 198.0m AOD and concentrates on the stability of the remaining slope profile.

- 9.3.10 The SLOPE/W results for the re-profiled Slope A and B, indicates that without taking into consideration the retaining properties of the lower Made ground materials the slope will achieve a FoS of less than 1 (minimum FoS of between 0.701 and 0.995).
- 9.3.11 However, as discussed previously, visual inspections of the lower slope and slope profiles further east of the site indicate the presence of the large cobbles/boulders of clinker acting as a retaining structure. Visual evidence to the east of the site includes an approximately 15m - 20m high steeply inclined slope which has been retained using similar materials. If the retaining effects of the cobbles/boulders located at the base of the slope are considered within the assessment, an improved FoS of between 0.810 (new Slope A) and 1.22 (new Slope B) are recorded.
- 9.3.12 It is recommended that Properties 2 to 4 are supported on piled foundations and therefore no additional loading is anticipated close to the crest of the lower slope. It is considered that the remaining slope profile, above the Made Ground retaining structure (following construction), should be re-profiled to at least a 1 in 2 slope (26.6°). Based on SLOPE/W assessment re-profiling of the lower slope to a 1 in 2 gradient would increase the stability of the lower slope to a FoS of 1.4.

Other Slopes

- 9.3.13 Following the excavation of the upper slope materials for properties 2 to 4 it is considered that the newly cut adjacent slopes will need to be designed to a slope angle of at least a 1 in 2 slope (26.6°) however, due to site boundary/land ownership issues this may not be possible or practical. Alternatively if such slope angles are not viable, consideration could be given to the use of additional retaining structures or further slope stabilisation measures (as discussed for property 1).
- 9.3.14 It is recommended that the advice of a specialist contractor is sought regarding the design and installation of any retaining solution or stabilisation method.

9.4 Conclusions/Recommendations

- 9.4.1 In general, the overall risk of slope failure adjacent to property 1 is considered moderate but is only considered likely to occur as shallow failures. It is recommended that appropriate stabilisation measures should be carried out as indicated within the above sections. It is recommended that all piled foundation should be designed to accommodate any potential horizontal movement.
- 9.4.2 It is considered that the overall risk of slope failure adjacent to properties 2 to 4, following construction is low, provided that appropriate re-profiling of the lower slope and appropriate re-profiling/retaining/stabilisation of adjacent slopes is carried out; as indicated within the above sections.
- 9.4.3 Where piling rigs are forming the retaining wall and piles for structures it is considered that appropriate anchors and safety precautions should be established along the crest of the slope to prevent any slope failure. Again, the advice of a

specialist piling contractor should be sought with regards to the safe installation of any proposed piled structures

- 9.4.4 Although the groundwater levels beneath the site are considered to be low, it is recommended that appropriate measures to control surface water drainage across the slope face this area should be considered to prevent any increases in groundwater levels.
- 9.4.5 The vegetation located across the slope face should be maintained and also incorporated within new slopes as it protects the slope face by reducing any effects by weathering. Additional planting of bushes/trees along the slope face would further enhance its near surface soil stability.

10.0 **TIER 1 CHEMICAL ASSESSMENT**

10.1 **Published Guidelines**

- 10.1.1 The following assessment summarises the results of the chemical analyses, compared to available and relevant published guidelines. At present in the United Kingdom there are no statutory limits for the presence of contaminants in the solid deposits (soils) or groundwater. There are a number of documents available, which provide guidelines on acceptability criteria. Those that are considered to be most relevant are discussed below.

Human Health

- 10.1.2 DEFRA and The Environment Agency published a series of guidelines with regards to the assessment of risks to human health from soil based contamination. Within these guidelines (CLR7 to CLR10) a series of generic Soil Guideline Values (SGVs) have been produced for the following contaminants: arsenic, cadmium, chromium, lead, nickel, mercury, selenium, ethylbenzene, toluene and phenol, in addition draft SGVs have been produced for benzene, xylene and naphthalene. These SGVs have been produced for a series of standard land uses such as residential, commercial/industrial and allotments.
- 10.1.3 SGVs have been produced using Health Criteria Values (HCVs) which are intended to indicate the concentration of a substance in soil below which human exposure can be considered to represent a 'tolerable' or 'minimal' level of risk. SGVs are not intended to indicate the presence of an 'unacceptable intake or direct bodily contact with a contaminant' (ref. CLAN 2/05) and therefore exceedance of SGVs does not necessarily indicate the 'Significant Possibility of Significant Harm' (SPOSH) and that the site would meet the statutory definition of contaminated land as defined under Part IIA of the Environmental Protection Act 1990. Instead, the exceedance of SGVs simply indicates that further assessment or remedial action may be required. The non-exceedance of an SGV indicates the presence of an acceptable risk and that the land is suitable for its intended use.

- 10.1.4 In a number of instances where no published or draft SGVs are available then reference has been made to assessment criteria published by the Charter Institute of Environmental Health and Land Quality Management Limited in their document "Generic Assessment Criteria for Human Health Risk Assessments" reference LQM Project 0823, dated 2007. The CLEA Model, together with toxicological and parameter data obtained from published documents in accordance with the hierarchy set out in CLR9 has been used to derive Generic Assessment Criteria (GACs).
- 10.1.5 It is understood that the current proposals are to redevelop the site for residential use. At this stage we have assumed any landscaped areas, located along the lower plateau of the slope will be communal and therefore it is considered appropriate to compare all of the results to those generic SGVs and GACs applicable to a 'residential without plant uptake' setting. The SGVs and GACs are intended to be used purely as a guide to whether further assessment is required or remedial action should be taken.

Controlled Waters

- 10.1.6 Controlled Waters are defined by Section 104 of Part III of the Water Resources Act, 1991, and amended by the Water Act 2003. This is interpreted to include:

'all rivers, canals, lakes, groundwater, estuaries and coastal waters to three nautical miles from the shore. Groundwaters are defined as water contained in underground strata within the saturation zone, and includes saturated perched water bodies.'

- 10.1.7 As discussed within the Conceptual Model, there exists a potential for contamination migration within permeable horizons of the Made Ground materials to locally impact on controlled waters. It should be noted that the underlying geology comprises the Coal Measures strata (minor aquifer), however there are no abstractions within 250m of the site, therefore we consider the surface water body, River Don, to be the main receptor.
- 10.1.8 In order to allow a provisional assessment of the potential for impact on Controlled Waters, groundwater quality results have been compared to the statutory Environmental Quality Standards for inland freshwater and if not available the Maximum Admissible Concentrations as defined in the Water Supply (Water Quality) Regulations, 2000.

10.2 Soil Chemical Test Results

- 10.2.1 Table C1 in Appendix C(ii) summarises all of the chemical tests carried out to date as part of this investigation and compares the results, where applicable, to published SGVs and other appropriate screening values as discussed above.
- 10.2.2 Where considered appropriate, statistical analysis of the soil results have been undertaken using the mean and maximum value tests in accordance with CLR7. Where specific potential contaminant hotspots and compounds have been targeted, namely areas of the site identified as likely to contain hydrocarbons, no statistical assessment has been undertaken.

pH

- 10.2.3 Four samples tested for pH gave values ranging between 7.9 and 8.3 indicating slightly alkaline ground conditions.

Human Health (Cadmium, chromium, lead, mercury and selenium)

- 10.2.4 Four samples of Made Ground were analysed for the above determinands. Concentrations of cadmium, chromium, lead, mercury and selenium were not recorded above generic SGVs in any of the samples.

Human Health (Arsenic)

- 10.2.5 Arsenic was recorded in three samples from boreholes DCS1, 2 and 5 at depths of between 0.1m and 0.2m bgl exceeding the SGV of 20mg/kg with results of between 24mg/kg and 90mg/kg. A statistical assessment has been carried out in line with CLR7 for arsenic using the mean and maximum tests. The results indicate that the maximum value is classified as an inlier, and that the upper bound 95th percentile mean value of 85.8mg/kg for arsenic does exceed the SGV, suggesting that statistically, elevated concentrations of arsenic above the SGV maybe encountered within the Made Ground materials across the site.

Human Health (Nickel)

- 10.2.6 Of the four samples tested for nickel, only one of the results exceeded the SGV of 75mg/kg from borehole DCS2 at 0.1m bgl with a result of 90mg/kg.
- 10.2.7 A statistical assessment has been carried out in line with CLR7 for nickel using the mean and maximum tests. The results indicate that the maximum value is classified as an inlier, and that the upper bound 95th percentile mean value of 89mg/kg for nickel does exceed the SGV, suggesting that statistically, elevated concentrations of nickel above the SGV maybe encountered within the Made Ground materials across the site.

Human Health (Beryllium, Copper Vanadium and Zinc)

- 10.2.8 The soils results have been compared to the GAC for a residential without plant uptake end use. None of the four Made Ground samples tested for beryllium, copper, vanadium and zinc exceeded the GACs.

Total Organic Carbon (TOC)

- 10.2.9 Three samples were submitted for analysis of Total Organic Carbon (TOC). The Made Ground recorded TOC values ranging between 14% and 22%. These results have been used to calculate soil organic matter (SOM) percentages for the soil of between 24.1% and 37.9% with an average of 32.2% by dividing the TOC (fraction) by 0.58, in accordance with current Environment Agency guidance. Therefore organic compound concentrations have been compared with SGVs and GACs derived for an SOM of 5% or greater.

Human Health (Phenol)

- 10.2.10 Four samples were submitted for analysis of concentrations of phenol. None of the samples recorded phenol concentrations above the SGV of 37,300mg/kg.

Human Health (Polycyclic Aromatic Hydrocarbons)

- 10.2.11 Three samples were submitted for analysis of concentrations of PAHs. Currently, there are no published finalised SGVs for either individual PAH compounds or for total PAH, however DEFRA/EA have published a draft SGV for naphthalene and GACs have been produced for benzo(a)pyrene, dibenzo(ah)anthracene, fluorene.
- 10.2.12 Of the three samples tested for benzo(a)pyrene, one of the results exceeded the GAC of 1.32mg/kg for a residential without plant uptake end use and an SOM of 5% with results of 2.6mg/kg in DCS1 at a depth of 0.1m bgl.
- 10.2.13 Of the three samples tested, none of the results exceeded the draft SGV of 34mg/kg for naphthalene, the GAC of 1.32mg/kg for dibenzo(ah)anthracene or the GAC of 2700mg/kg for fluorine, for a residential without plant uptake end use and a SOM of 5%.

Total Petroleum Hydrocarbon (TPH) and Benzene, Toluene, Ethylbenzene and Xylene (BTEX)

- 10.2.14 Five samples were analysed for TPH, speciated into carbon bands with an aromatic and aliphatic split.
- 10.2.15 Total concentrations of TPH ranging from 67mg/kg to 140mg/kg were recorded. Comparison of the individual carbon band results have been made with GACs and none of the TPH concentrations in the Made Ground samples were recorded above the respective GACs.

10.3 Leachate Test Results

- 10.3.1 Reference to Table C2, Appendix C(iii) shows a summary of the leachate test results compared against the Environmental Quality Standards (EQS) and the Maximum Admissible Concentrations (MAC) as defined in the Water Supply (Water Quality) Regulations, 2000 were not available.

Inorganics

- 10.3.2 Four leachate samples were analysed for a range of inorganics, including arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium and zinc.
- 10.3.3 Concentrations of arsenic, cadmium, chromium, lead, mercury, nickel and selenium were not recorded above the EQS values (or MAC values). Copper was recorded below the detection limit of the test in all samples tested.

- 10.3.4 Zinc was recorded in one leachate sample from borehole DSC1, exceeding the EQS of $8\mu\text{g/l}$ with a result of $13\mu\text{g/l}$. However when the true hardness of the receiving stream waters as determined from the surface water samples (see Table C3) is used to determine the EQS rather than the hardness recorded in the leachate samples, then the leachate results for zinc do not exceed the EQS.

10.4 Chemical Water Test Results

- 10.4.1 Reference to Table C3, Appendix C(iv) shows a summary of the water test results compared against the Environmental Quality Standards (EQS) and the Maximum Admissible Concentrations (MAC) as defined in the Water Supply (Water Quality) Regulations, 2000 were not available.

Inorganics

- 10.4.2 Two samples were analysed for a range of inorganics including arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium and zinc. None of these determinands exceeded the EQS values (or MAC values).

10.5 Summary of Chemical Contamination Assessment

- 10.5.1 Arsenic, nickel and benzo(a)pyrene have been identified in the Made Ground materials at concentrations exceeding generic SGVs, indicating the possibility of harm to the health of future users of the proposed development. These determinands therefore require further assessment, discussed below.
- 10.5.2 Leachate tests suggest that the zinc concentrations within the Made Ground is potentially mobile, with one leachate result exceeding the EQS value. However when the true hardness of the receiving stream waters is used to determine the EQS rather than the hardness recorded in the leachate samples, then the leachate results for zinc do not exceed the EQS. In addition surface water samples recovered from upstream and downstream of the River Don have indicated no impact as a result of current/historical onsite activities, with none of the determinants exceeding the EQS (or MAC) values.

11.0 QUALITATIVE RISK ASSESSMENT

- 11.1.1 In carrying out this assessment, the potential targets of any contaminated soil/groundwater and potential pathways for contaminant migration to the targets have been taken into account. The following targets, therefore can either be excluded or require further assessment. These will be discussed in more detail below:

- End users of the site
- Construction workers
- Surrounding properties
- Groundwater

- Surface Water
- Underground services
- Flora & fauna

11.2 End Users

11.2.1 Elevated concentrations of arsenic, nickel and benzo(a)pyrene have been detected within the Made Ground materials across the site at concentrations above the SGVs and GACs. Elevated concentrations of the various contaminants identified have the potential to cause harm to future residents via a number of uptake routes, including direct ingestion, inhalation of fugitive dust and dermal contact.

11.2.2 The proposed development will comprise a number of residential properties that are cut into the existing slope and a single house located close to the crest of the slope and it is understood that any outside areas are to be cantilevered against the buildings and suspended over the slope. Therefore, there is very limited opportunity for future residents to come into direct contact with the soils and as a result it is considered that the overall risk to future users is low as the pathway for contamination to the receptor, via the mentioned uptake routes is removed.

11.2.3 Based on the chemical assessment of the site it is considered that specific cover layers are not necessary as the pathway for contamination to the receptor is removed.

11.3 Construction workers

11.3.1 The potential health hazard imposed on construction workers engaged in site works by the Made Ground deposits encountered over the majority of the site area is considered to be low on the basis of the chemical analyses carried out. Standard health and safety measures are considered adequate and as such high standards of personal hygiene should always be maintained amongst site personnel and ground workers in particular should be encouraged to use gloves and dust masks. Washing facilities should also be provided and used prior to eating/smoking to prevent any hand to mouth transfer.

11.3.2 In dry conditions, it may be necessary to dampen down exposed materials to prevent dust generation and operatives should be encouraged to wear dust masks. The possibility of currently undetected hydrocarbons (in soils/groundwater or as free product) cannot be discounted and further advice should be sought where visual or olfactory evidence of such materials is discovered during ground works.

11.4 Surface and Groundwater

11.4.1 Whilst the underlying strata is considered a minor aquifer, it is understood that nearby abstractions are solely for industrial use, located 494m from the site, and the site is not located within a source protection zone. Therefore the nearby River Don, located along the northern boundary of the site is considered to represent the most sensitive environmental receptor.

11.4.2 On the basis of the results to date, one leachate sample of Made Ground materials has recorded a zinc concentration above the EQS values, however when the true hardness of the receiving stream waters is used to determine the EQS rather than the hardness recorded in the leachate samples, then the leachate results for zinc do not exceed the EQS and thus this zinc concentration is not considered to pose a significant risk to controlled water.

11.4.3 Based on the chemical results of the water samples recovered from the River Don there is no evidence of any impact on surface waters from the site.

11.5 Surrounding Properties

11.5.1 On the basis of the ground and groundwater conditions encountered and the results of analytical testing, the risk of offsite migration of contaminants presenting a risk to nearby residents/property is considered to be low.

11.5.2 In dry conditions, it is considered necessary to dampen down any exposed Made Ground materials to prevent dust generation and migration to neighbouring properties.

11.6 Underground Services/Structures

11.6.1 Underground services on the site can be affected by the presence of a range of contaminants in the soil. Reference has been made to the Water Regulations Advisory Services information and guidance note 'The Selection of Materials for Water Pipes to be Laid in Contaminated Land' (Ref. No 9-04-03) dated October 2002.

11.6.2 Whilst only a limited number of the potential contaminants that could affect water supply pipes have been reviewed as part of the soil testing undertaken as part of this assessment, it has been established that the Made Ground samples contained levels of arsenic, mercury, and petroleum hydrocarbons that may represent a hazard to certain types of water supply pipes. The pH values of greater than 8 also obtained signify potential risks of corrosion. On this basis it would appear that the Made Ground deposits may be unsuitable for placement of certain types of water supply pipes. Statutory Authorities may require provision of specific water supply pipes to prevent the tainting of water and copies of the results should be supplied to the relevant authority such that a decision may be made.

11.6.3 As discussed within section 8.4.5 the BRE Special Digest 1 suggests that buried concrete should be designed to an Aggressive Chemical Environment for Concrete (ACEC) site classification of "AC-2" based on mobile groundwater conditions.

11.7 Disposal of Materials

11.7.1 We recommend that as off-site disposal of materials is required, that analytical results relevant to the materials being disposed of should be provided to landfill

operators to confirm whether it meets their license agreements and to confirm disposal costs.

11.7.2 The waste producer is responsible for ensuring that basic characterisation of the waste has taken place to establish its key characteristics.

11.7.3 All waste materials should be handled in accordance with the Duty of Care for waste or relevant Waste Management Licensing. Materials should be classified and disposed off according to the Landfill Directive. Correct testing (e.g. Waste Acceptance Criteria testing) may need to be undertaken prior to disposal.

11.8 **Final Conceptual Site Model**

11.8.1 Based on information included within this investigation and following the successful completion of any mitigation works discussed above, a summary of the new conceptual model of the site is included within Table 4 'Final Conceptual Site Model'.

Table 4 Final Conceptual Site Model

SOURCE		PATHWAY		RECEPTOR	INITIAL RISK RATING	NEW RISK RATING	JUSTIFICATION	MITIGATION	FINAL RISK RATING
Contaminated Soil, Made Ground and naturally occurring contaminants	→	Dermal exposure	→	Future residents	LOW	MODERATE	Pollutants exist within the Made Ground that represent a human health risk to construction workers and future users of the site.	The pathway for contaminant to the receptor is removed by the construction of the proposed structure and associated access and parking. The lower section of the slope is to remaining undeveloped and inaccessible.	LOW
		Inhalation of soil dust		Construction workers				The use of appropriate PPE and Health and Safety measures would limit the risk to construction workers.	LOW
		Inhalation of soil vapour							
		Direct ingestion of soil							
	→	Migration of soil vapour and dust both on and off-site.	→	Neighbouring existing buildings and proposed buildings	LOW	LOW/MODERATE	Development of the site will lead to the exposure of Made Ground materials	In dry conditions dampening down of exposed material should be carried out to reduce any migration.	LOW
	→	Leaching through soils	→	Shallow or perched groundwater or surface water	LOW/MODERATE	LOW	Soils are of low leachability and there is no evidence of any shallow/perched groundwater to act as a pathway.	No mitigation measures are required	LOW
	→	Chemical Attack	→	Proposed building foundations	LOW	MODERATE	Made Ground materials encountered contain concentrations of sulphates that may cause chemical attack on concrete or water supply pipes.	Use of concrete designed in accordance with BRE Special Digest 1 "Concrete in aggressive ground" as discussed in Section 8.4.5	LOW
service supply pipes				Appropriate type of water supply pipe should be agreed with supplying water company as discussed in Section 10.6.				LOW	
Gases and vapour	→	Migration of soil vapour and gases to indoor and outdoor air	→	Future site users and properties	LOW/MODERATE	LOW	There has been no elevated gas concentrations recorded	Based on the gas concentrations recorded no gas protection measures are required; in accordance with guidance given in CIRIA document C659 'Assessing risks posed by hazardous ground gases to buildings'.	LOW
Contaminated shallow or perched groundwater	→	Transport via granular soils	→	Minor aquifer/surface water	LOW/MODERATE	LOW	There has been no shallow/perched groundwater encountered and there is no evidence of any contamination within the River Don.	No mitigation measures are required	LOW
Offsite contamination sources eg. AST	→	Leaching through soils or shallow groundwater transport or airborne pathways	→	Future structures, service and users	LOW	LOW	There has been no shallow/perched groundwater encountered.	No mitigation measures are required	LOW

12.0 **PROPOSED REMEDIAL ACTION/FURTHER WORKS**

12.1.1 The following remedial measures/further works have been identified as a result of the investigations:

- Further advice should be sought where visual or olfactory evidence of any contaminated material is discovered during groundworks.
- Concrete to be designed in accordance with BRE Special Digest 1 as discussed in Section 8.4.5.
- Slope stability remedial measures as discussed within Section 9.0.

APPENDIX A



Dynamic Continuous
Sampler Borehole.
Geotechnical Developments (UK) Ltd.
September 2007

Rotary Core Borehole.
Geotechnical Developments (UK) Ltd.
October 2007

Hand Dug Pit
Geotechnical Developments (UK) Ltd.
October 2007

Notes:
Based on Drawing No:S6539
by Haycock & Todd.
Drawing Dated May 2007.

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Client:
Woodstock Construction Ltd

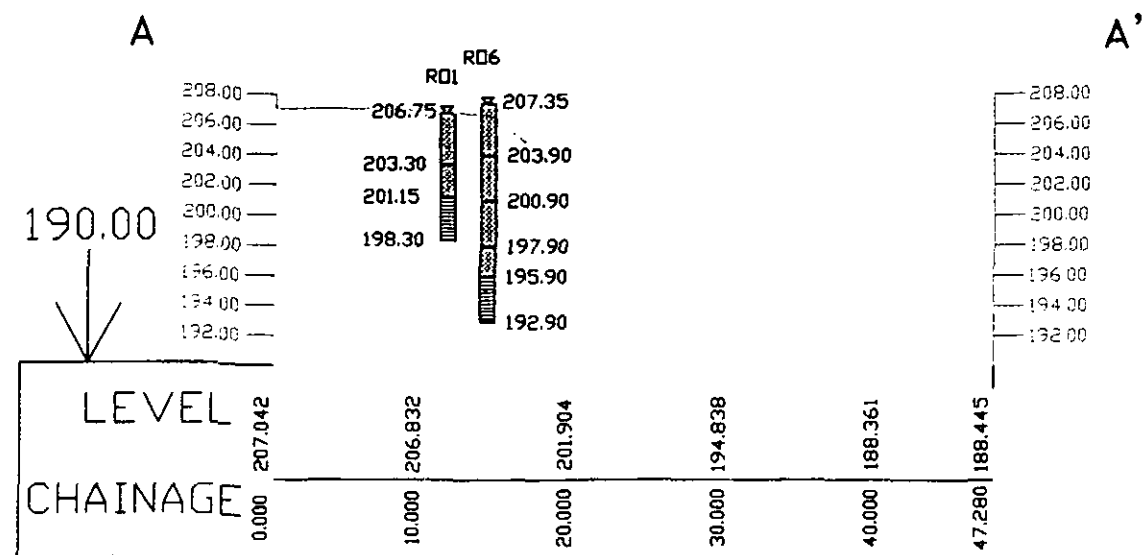
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Sheffield Road, Penisfone

Title:
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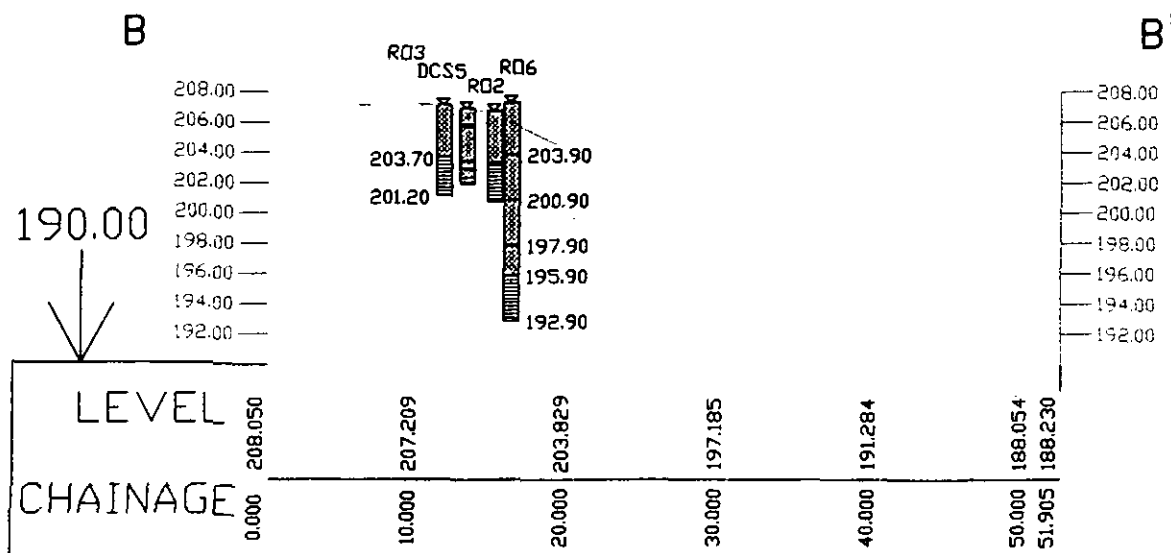
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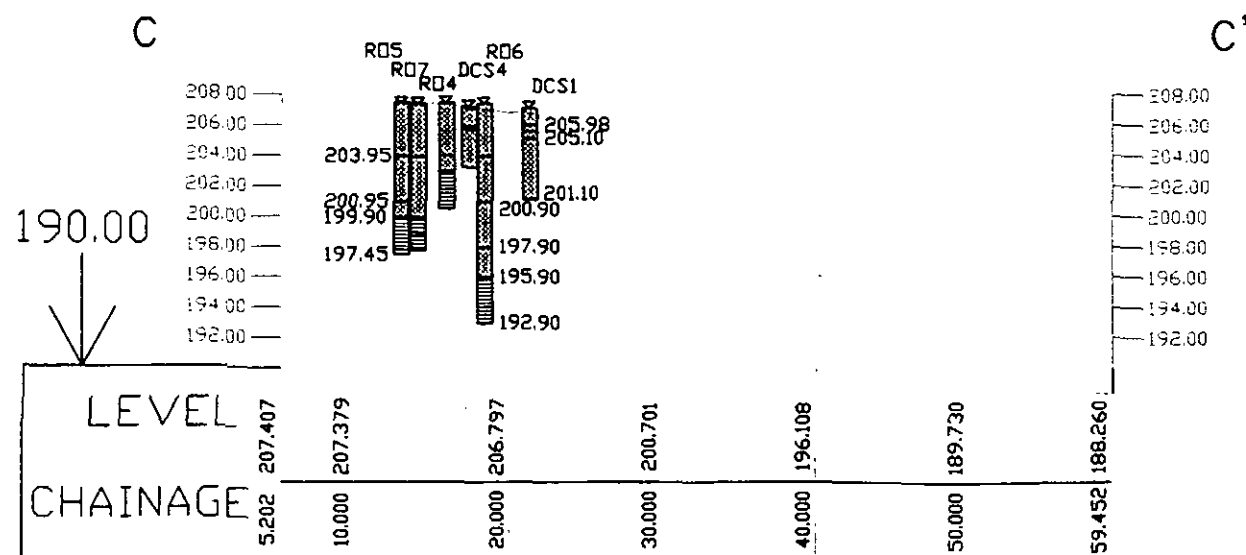
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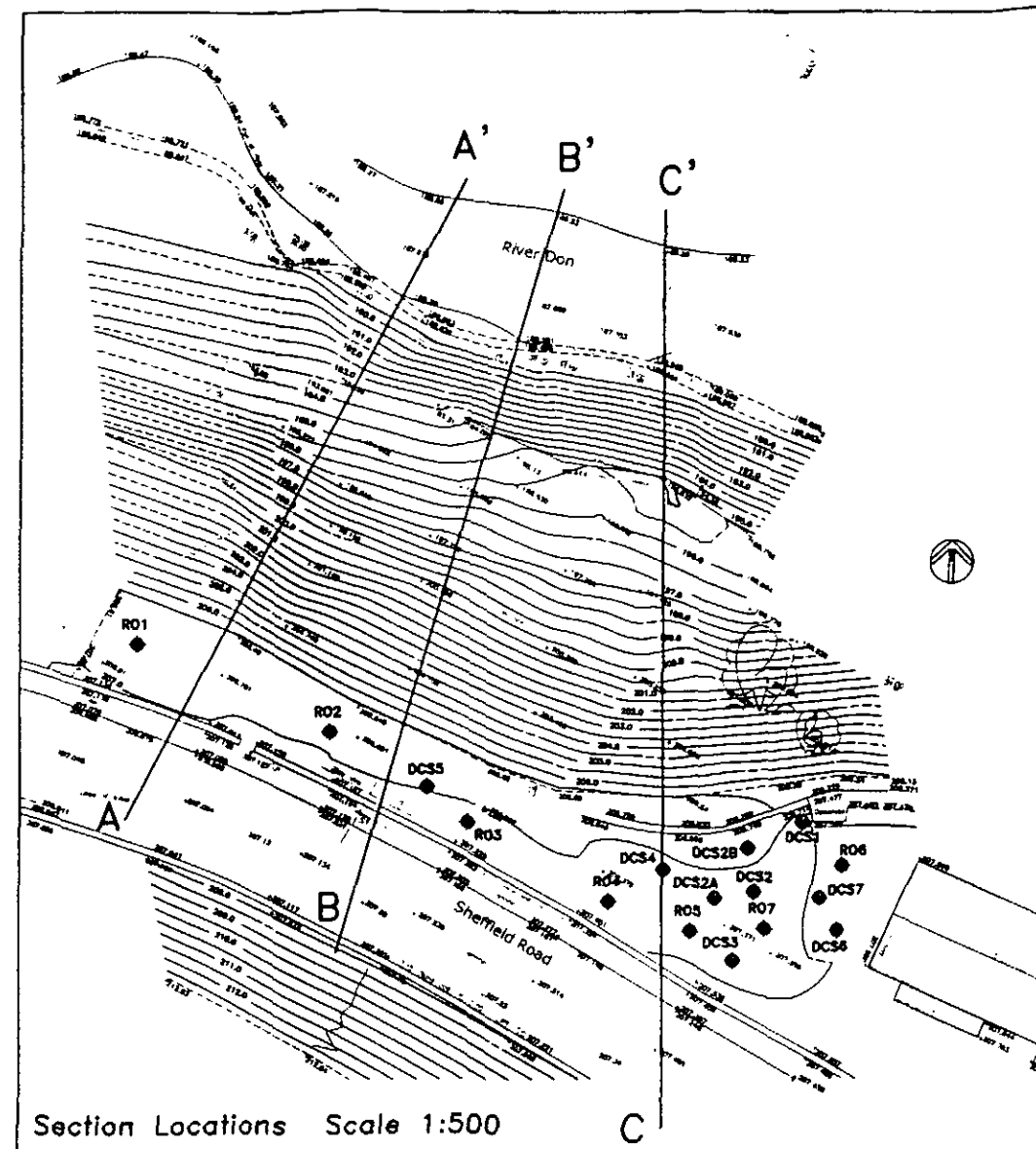
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Section B Horiz. 1:500 Vert. 1:500



Section C Horiz. 1:500 Vert. 1:500



Key:

- Made Ground
- Coal Measures

Notes:
Section Locations Based on Drawing No:S6539 by Haycock & Todd.
Drawing Dated May 2007.

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Project: Sheffield Rd, Penistone

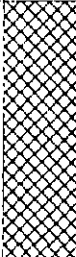
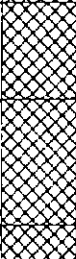
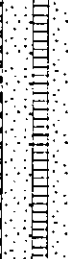
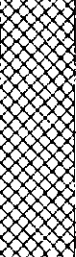
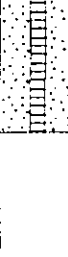
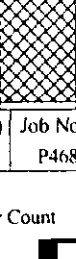
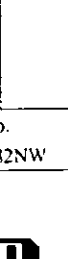
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Scale: As shown Date: December 2007

Drawing No. P4682/S84/02 Revisions:

APPENDIX B(i)

Method Competitor 130		Drilled By NJ		Date 20/09/07		Site Sheffield Road, Penistone						
Dia mm 101		Co-ord 425148 403385		Ground Level 207.10 (m AOD)		Client Willstock Construction Ltd						
Soil Samples/Tests												
Type	Depth (m)		SPT Results		Field Records	PID (ppm)	Level mAOD	Depth (m)	Description of Strata	Legend	Inst	
	From	To	Type	Depth								
Da Dp	01 01	0.10 0.10							MADE GROUND : Loose dark brown and black sandy angular to subangular fine to coarse GRAVEL. Sand is fine to coarse. Gravel is sandstone, ash, coal, slag, tarmac and clinker.			
Da Dp	02 02	0.50 0.50										
			S	1.00	N=8 (4,4,2,2,2,2)		205.98	1.12	MADE GROUND : Firm mottled orange-brown and black slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is angular to subangular fine to medium ash, brick, coal and clinker.			
Dp	03	1.30					205.60	1.50				
Dp	04	1.80							MADE GROUND : Medium dense dark brown-black slightly clayey slightly gravelly fine to coarse SAND. Gravel is angular to subangular fine to coarse coal, clinker and sandstone.			
			S	2.00	N=21 (4,3,2,4,5,10)		205.10	2.00				
Dp	05	2.50							MADE GROUND : Medium dense dark brown-black sandy angular to subangular fine to coarse GRAVEL. Sand is fine to coarse. Gravel is clinker, ash, coal, sandstone and slag.			
			S	3.00	N=20 (3,3,4,5,3,8)							
			S	4.00	N=10 (4,3,2,2,3,3)							
Dp	06	4.70										
			S	5.00	N=12 (2,2,2,3,3,4)							
								201.10	6.00			
Remarks 1. Damp at 2.80m bgl. 2. 50mm diameter standpipe installed to 5.00m bgl. Plain pipe with bentonite seal from ground level to 1.00m bgl. Slotted pipe with gravel from 1.00m to 5.00m bgl. Bung gas valve and chinese cover fitted. 3. " " denotes standpipes utilised for gas and groundwater monitoring.								Base of Borehole RM / ANT		Scale 1:30	End Casing Depth (m) 2.00	Job No. P4682NW
Sample/Test key:												
D Disturbed Sample				U Undisturbed sample with Blow Count								
Da Amber Glass				Hp Hand Penetrometer (kg/cm²)								
Dp Plastic Tub				W Water Sample								
Dv McCartney Vial				IVAN Hand Vane (KPa)								
B Bulk Sample				C/S CPT/SPT								
				N/R No Recovery								
												



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BOREHOLE LOG

Borehole DCS2

Sheet 1 of 1

Method Competitor 130		Drilled By NJ		Date 20/09/07		Site Sheffield Road, Penistone					
Dia mm 101		Co-ord 425145 403380		Ground Level 207.30 (m AOD)		Client Willstock Construction Ltd					
Soil Samples/Tests							Level mAOD	Depth (m)	Description of Strata	Legend	Inst
Type	Depth (m)		SPT Results		Field Records	PID (ppm)					
	From	To	Type	Depth							
Da 01	0.10	0.10							MADE GROUND : Dark brown-black sandy angular to subangular fine to coarse GRAVEL. Sand is fine to coarse. Gravel is coal, ash, clinker and brick.		
Dp 01	0.10	0.10									
			S	1.00	N>50 (6,5,12,17,20,4/15mm)	206.30	1.00		Base of Borehole		

Remarks

- Borehole remained dry during drilling.
- Borehole backfilled with arisings on completion.

Logged by

RM / ANT

Scale

1:30

End Casing Depth (m)

Job No.

P4682NW

Sample/Test key:

D	Disturbed Sample	U	Undisturbed sample with Blow Count
Da	Amber Glass	Hp	Hand Penetrometer (kg/cm ²)
Dp	Plastic Tub	W	Water Sample
Dv	McCartney Vial	IVAN	Hand Vane (KPa)
B	Bulk Sample	C/S	CPT/SPT
		N/R	No Recovery





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BOREHOLE LOG

Borehole DCS2A

Sheet 1 of 1

Method Competitor 130		Drilled By NJ		Date 20/09/07		Site Sheffield Road, Penistone					
Dia mm 101		Co-ord 425143 403380		Ground Level 207.35 (m AOD)		Client Willstock Construction Ltd					
Soil Samples/Tests								Legend	Inst		
Type	Depth (m) From To		SPT Results Type Depth		Field Records	PID (ppm)	Level mAOD			Depth (m)	Description of Strata
									MADE GROUND : Black sandy angular to subangular fine to coarse GRAVEL. Sand is fine to coarse. Gravel is coal, ash, clinker and slag.		
			S	1.00	N>50 (6.5,4,17,25,10/35mm)		206.35	1.00	Base of Borehole		

Remarks

1. Borehole remained dry during drilling.
2. Borehole backfilled with arisings on completion.

Logged by

RM / ANT

Scale

1:30

End Casing Depth (m)

Job No.

P4682NW

Sample/Test key:

D	Disturbed Sample	U	Undisturbed sample with Blow Count
Da	Amber Glass	Hp	Hand Penetrometer (kg/cm ²)
Dp	Plastic Tub	W	Water Sample
Dv	McCartney Vial	IVAN	Hand Vane (KPa)
B	Bulk Sample	C/S	CPT/SPT
		N/R	No Recovery





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BOREHOLE LOG

Borehole DCS2B

Sheet 1 of 1

Method Competitor 130		Drilled By NJ		Date 20/09/07		Site Sheffield Road, Penistone					
Dia mm 101		Co-ord 425145 403383		Ground Level 206.90 (m AOD)		Client Willstock Construction Ltd					
Soil Samples/Tests							Level mAOD	Depth (m)	Description of Strata	Legend	Inst
Type	Depth (m) From To		SPT Results Type Depth		Field Records	PID (ppm)					
			S	1.00	N>50 (6,6,13,25,12/40mm)	205.90	1.00	MADE GROUND : Dark brown and black gravelly fine to coarse SAND.Gravel is angular to subangular fine to coarse clinker, coal, ash, brick and slag.			
								Base of Borehole			

Remarks

- Borehole remained dry during drilling.
- Borehole backfilled with arisings on completion.

Logged by

RM/ ANT

Scale

1:30

End Casing Depth (m)

Job No.

P4682NW

Sample/Test key:

D	Disturbed Sample	U	Undisturbed sample with Blow Count
Da	Amber Glass	Hp	Hand Penetrometer (kg/cm ²)
Dp	Plastic Tub	W	Water Sample
Dv	McCartney Vial	IVAN	Hand Vane (KPa)
B	Bulk Sample	C/S	CPT/SPT
		N/R	No Recovery





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BOREHOLE LOG

Borehole DCS3

Sheet 1 of 1

Method Competitor 130		Drilled By NJ		Date 20/09/07		Site Sheffield Road, Penistone						
Dia mm 101		Co-ord 425144 403376		Ground Level 207.25 (m AOD)		Client Willstock Construction Ltd						
Soil Samples/Tests										Legend	Inst	
Type	Depth (m)		SPT Results		Field Records	PID (ppm)	Level mAOD	Depth (m)	Description of Strata			
	From	To	Type	Depth								
										MADE GROUND : Dark brown and black sandy angular to subangular fine to coarse GRAVEL. Sand is fine to coarse. Gravel is ash, coal, clinker, slag and brick.		
								206.25	1.00	Base of Borehole		
Remarks 1. Borehole remained dry during drilling. 2. Borehole backfilled with arisings on completion. 3. Borehole abandoned at 1.00m bgl.												
Logged by RM / ANT						Scale 1:30		End Casing Depth (m)		Job No. P4682NW		
Sample/Test key: D Disturbed Sample U Undisturbed sample with Blow Count Da Amber Glass Hp Hand Penetrometer (kg/cm ²) Dp Plastic Tub W Water Sample Dv McCartney Vial IVAN Hand Vane (KPa) B Bulk Sample C/S CPT/SPT N/R No Recovery												





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BOREHOLE LOG

Borehole DCS4

Sheet 1 of 1

Method Competitor 130		Drilled By NJ		Date 20/09/07		Site Sheffield Road, Penistone					
Dia mm 101		Co-ord 425139 403382		Ground Level 207.20 (m AOD)		Client Willstock Construction Ltd					
Soil Samples/Tests						Level mAOD	Depth (m)	Description of Strata	Legend	Inst	
Type	Depth (m)		SPT Results		Field Records						PID (ppm)
	From	To	Type	Depth							
Da 01	0.20	0.20					207.10	0.10	MADE GROUND : Soft dark brown slightly gravelly slightly sandy CLAY. Sand is fine. Gravel is angular to subangular fine brick and sandstone. (TOPSOIL)		
Dp 01	0.20	0.20									
			S	1.00	N=21 (1,1,1,1,18)				MADE GROUND : Medium dense black sandy angular to subangular fine to medium GRAVEL. Sand is fine to coarse. Gravel is ash, coal, clinker, slag and brick.		
							205.90	1.30	MADE GROUND : Firm mottled orange-brown and black slightly sandy slightly gravelly CLAY. Sand is fine. Gravel is subangular fine coal and sandstone.		
Dp 02	1.60	1.60					205.70	1.50	MADE GROUND : Loose to medium dense dark brown-black sandy angular to subangular fine to coarse GRAVEL. Sand is fine to coarse. Gravel is coal, ash, clinker, brick, sandstone and slag. At 1.60m bgl, slight odour, possibly hydrocarbons.		
			S	2.00	N=17 (2,1,7,6,2,2)						
			S	3.00	N=6 (2,1,2,1,2,1)						
			S	4.00	N=13 (2,2,2,3,3,5)		203.20	4.00			
									Very weak yellow-brown and grey thinly bedded fine grained SANDSTONE. (POSSIBLE PENISTONE FLAGS- COAL MEASURES)		
							202.75	4.45	Base of Borehole		
Remarks							Logged by RM / ANT		Scale 1:30	End Casing Depth (m)	Job No. P4682NW
1. Borehole remained dry during drilling.											
2. 50mm diameter standpipe installed to 2.50m bgl. Plain pipe with bentonite seal from ground level to 0.50m bgl. Slotted pipe with gravel from 0.50m to 2.50m bgl. Bung gas valve and chinese cover fitted.											
3. "?" denotes standpipes utilised for gas and groundwater monitoring.											
Sample/Test key:											
D Disturbed Sample							U Undisturbed sample with Blow Count				
Da Amber Glass							Hp Hand Penetrometer (kg/cm ²)				
Dp Plastic Tub							W Water Sample				
Dv McCartney Vial							IVAN Hand Vane (KPa)				
B Bulk Sample							C/S CPT/SPT				
							N/R No Recovery				





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BOREHOLE LOG

Borehole DCS5

Sheet 1 of 1

Method		Drilled By		Date		Site				
Competitor 130		NJ		20/09/07		Sheffield Road, Penistone				
Dia mm 101		Co-ord 425123 403388		Ground Level 206.95 (m AOD)		Client Willstock Construction Ltd				
Soil Samples/Tests						Level mAOD	Depth (m)	Description of Strata	Legend	Inst
Type	Depth (m)		SPT Results		Field Records					
	From	To	Type	Depth						
Da Dp	01 01	0.20 0.20								
			S	1.00	N=24 (6.5,9.5,5.5)		205.85 205.75	1.10 1.20	MADE GROUND : Dark grey-black sandy angular to subangular fine to coarse GRAVEL. Sand is fine to coarse. Gravel is clinker, ash, coal, slag and brick.	
Dp	02	1.40							MADE GROUND : Firm orange-brown slightly gravelly slightly sandy CLAY. Sand is fine. Gravel is subangular fine coal and sandstone.	
			S	2.00	N=10 (2.2,3.2,3.2)				MADE GROUND : Medium dense black sandy angular to subangular fine to coarse GRAVEL. Sand is fine to coarse. Gravel is clinker, ash and coal.	
			S	3.00	N=7 (2.2,1.2,2.2)					
Dp	03	3.70					203.45	3.50	MADE GROUND : Moderately weak thinly laminated orange fine grained SANDSTONE COBBLE.	
			S	4.00	N=11 (3.2,3.2,3.3)		202.95	4.00	MADE GROUND : Medium dense black-orange sandy angular to subangular fine to medium GRAVEL. Sand is fine to coarse. Gravel is sandstone, coal and clinker.	
Dp	04	4.70					202.35	4.60	Firm grey-orange slightly gravelly slightly silty CLAY. Sand is fine. Gravel is subangular fine siltstone and coal. (POSSIBLE WEATHERED COAL MEASURES)	
			S	5.00	N=16 (4.4,3.4,4.5)		201.95	5.00	Base of Borehole	

Remarks

1. Borehole remained dry during drilling.
2. 50mm diameter standpipe installed to 4.00m bgl. Plain pipe with bentonite seal from ground level to 1.00m bgl. Slotted pipe with gravel from 1.00m to 4.00m bgl. Bung gas valve and chinese cover fitted.
3. "P" denotes standpipes utilised for gas and groundwater monitoring.

Logged by

RM

Scale

1:30

End Casing Depth (m)

Job No.

P4682NW

Sample/Test key:

D Disturbed Sample

Da Amber Glass

Dp Plastic Tub

Dv McCartney Vial

B Bulk Sample

U Undisturbed sample with Blow Count

Hp Hand Penetrometer (kg/cm²)

W Water Sample

IVAN Hand Vane (KPa)

C/S CPT/SPT

N/R No Recovery

AGS



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BOREHOLE LOG

Borehole DCS6

Sheet 1 of 1

Method Competitor 130		Drilled By NJ		Date 20/09/07		Site Sheffield Road, Penistone				
Dia mm 101		Co-ord 425151 403378		Ground Level 207.30 (m AOD)		Client Willstock Construction Ltd				
Soil Samples/Tests										
Type	Depth (m)		SPT Results Type Depth	Field Records	PID (ppm)	Level mAOD	Depth (m)	Description of Strata	Legend	Inst
	From	To								
			S	1.00	N>50 (6.7,10,19,21/65mm)	206.30	1.00	MADE GROUND : Dark brown-black sandy angular to subangular fine to coarse GRAVEL. Sand is fine to coarse. Gravel is clinker, ash, coal, slag and brick.		
								Base of Borehole		

Remarks

1. Borehole remained dry during drilling.
2. Borehole backfilled with arisings on completion.
3. Borehole abandoned at 1.00m bgl.

Logged by
RM

Scale
1:30

End Casing Depth (m)

Job No.
P4682NW

Sample/Test key:

D	Disturbed Sample	U	Undisturbed sample with Blow Count
Da	Amber Glass	Hp	Hand Penetrometer (kg/cm ²)
Dp	Plastic Tub	W	Water Sample
Dv	McCartney Vial	IVAN	Hand Vane (KPa)
B	Bulk Sample	C/S	CPT/SPT
		N/R	No Recovery





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BOREHOLE LOG

Borehole DCS7

Sheet 1 of 1

Method Competitor 130	Drilled By NJ	Date 20/09/07	Site Sheffield Road, Penistone
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Dia mm 101	Co-ord 425150 403380	Ground Level 207.35 (m AOD)	Client Willstock Construction Ltd
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Soil Samples/Tests						Level mAOD	Depth (m)	Description of Strata	Legend	Inst
Type	Depth (m)		SPT Results		Field Records					
	From	To	Type	Depth		PID (ppm)				

MADE GROUND : Dark brown-black sandy
angular to subangular fine to coarse
GRAVEL. Sand is fine to coarse. Gravel is
clinker, ash, coal, slag and brick.

S 1.00 N>50 (9,8,21,29)

206.35

1.00

Base of Borehole

Remarks

1. Borehole remained dry during drilling.
2. Borehole backfilled with arisings on completion.
3. Borehole abandoned at 1.00m bgl.

Logged by
RM

Scale
1:30

End Casing Depth (m)

Job No.
P4682NW

Sample/Test key:

D	Disturbed Sample	U	Undisturbed sample with Blow Count
Da	Amber Glass	Hp	Hand Penetrometer (kg/cm ²)
Dp	Plastic Tub	W	Water Sample
Dv	McCartney Vial	IVAN	Hand Vane (KPa)
B	Bulk Sample	C/S	CPT/SPT
		N/R	No Recovery



APPENDIX B(ii)

Method Soilmec 400		Drilled By G Pilkington		Date 25/10/07		Site Sheffield Road, Penistone					
Dia mm		Co-ord 425104 403397		Ground Level 206.75 (m AOD)		Client Willstock Construction Ltd					
Soil Samples/Tests							Level mAOD	Depth (m)	Description of Strata	Legend	Inst
Type	Depth (m) From To		SPT Results Type Depth		Field Records	PID (ppm)					
			S	3.00	N=6 (3,2,2,1,1,2)		203.30	3.45	MADE GROUND : Ash. (Drillers description)		
							201.15	5.60	MADE GROUND : Ash and brown mudstone mix. (Drillers description)		
									Brown silty MUDSTONE. (Drillers description)		
			S	8.00	N=50 (5,9,11,10,13,16)		198.30	8.45	Base of Borehole		
Remarks 1. Borehole remained dry during drilling. 2. Borehole backfilled with arisings on completion. 3. All descriptions are using Rotary Open Hole techniques.							Logged by Driller		Scale 1:50	End Casing Depth (m)	Job No. P4682NW
							Sample/Test key: D Disturbed Sample U Undisturbed sample with Blow Count Da Amber Glass Hp Hand Penetrometer (kg/cm²) Dp Plastic Tub W Water Sample Dv McCartney Vial IVAN Hand Vane (KPa) B Bulk Sample C/S CPT/SPT N/R No Recovery				
											



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BOREHOLE LOG

Borehole RO2

Sheet 1 of 1

Method Soilmec 400		Drilled By G Pilkington		Date 25/10/07		Site Sheffield Road, Penistone				
Dia mm		Co-ord 425117 403391		Ground Level 206.80 (m AOD)		Client Willstock Construction Ltd				
Soil Samples/Tests						Level mAOD	Depth (m)	Description of Strata	Legend	Inst
Type	Depth (m) From To		SPT Results Type Depth		Field Records					
								MADE GROUND : Ash. (Drillers description)		
			S	3.00	N=7 (2.3,2.2,1.2)		203.35 3.45	Brown silty MUDSTONE. (Drillers description)		
			S	6.00	N=40 (4.5,5.8,13,14)		200.80 6.00	Base of Borehole		
Remarks 1. 50mm diameter standpipe installed to 5.00m bgl. Plain pipe with bentonite seal from ground level to 1.00m bgl. Slotted pipe with gravel from 1.00m to 5.00m bgl. Bung gas valve and stopcock cover fitted. 2. Borehole remained dry during drilling. 3. All descriptions are using Rotary Open Hole techniques.										
Logged by Driller						Scale 1:50		End Casing Depth (m)		Job No. P4682NW
Sample/Test key: D Disturbed Sample U Undisturbed sample with Blow Count Da Amber Glass Hp Hand Penetrometer (kg/cm ²) Dp Plastic Tub W Water Sample Dv McCartney Vial IVAN Hand Vane (KPa) B Bulk Sample C/S CPT/SPT N/R No Recovery										





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BOREHOLE LOG

Borehole RO3

Sheet 1 of 1

Method Soilmec 400		Drilled By G Pilkington		Date 25/10/07		Site Sheffield Road, Penistone					
Dia mm		Co-ord 425126 403385		Ground Level 207.15 (m AOD)		Client Willstock Construction Ltd					
Soil Samples/Tests											
Type	Depth (m)		SPT Results		Field Records	PID (ppm)	Level mAOD	Depth (m)	Description of Strata	Legend	Inst
	From	To	Type	Depth							
			S	3.00	N=10 (2.2,2.2,2.4)				MADE GROUND : Ash. (Drillers description)		
							203.70	3.45	Brown silty MUDSTONE. (Drillers description)		
			S	5.50	N=52 (4,7,7,9,18,18)						
							201.20	5.95	Base of Borehole		
Remarks 1. 50mm diameter standpipe installed to 5.00m bgl. Plain pipe with bentonite seal from ground level to 1.00m bgl. Slotted pipe with gravel from 1.00m to 5.00m bgl. Bung gas valve and stopcock cover fitted. 2. Borehole remained dry during drilling. 3. All descriptions are using Rotary Open Hole techniques.											
Logged by Driller						Scale 1:50		End Casing Depth (m)		Job No. P4682NW	
Sample/Test key: D Disturbed Sample U Undisturbed sample with Blow Count Da Amber Glass Hp Hand Penetrometer (kg/cm ²) Dp Plastic Tub W Water Sample Dv McCartney Vial IVAN Hand Vane (KPa) B Bulk Sample C/S CPT/SPT N/R No Recovery											





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BOREHOLE LOG

Borehole RO4

Sheet 1 of 1

Method Soilmec 400		Drilled By G Pilkington		Date 24/10/07		Site Sheffield Road, Penistone				
Dia mm		Co-ord 425135 403380		Ground Level 207.43 (m AOD)		Client Willstock Construction Ltd				
Soil Samples/Tests						Level mAOD	Depth (m)	Description of Strata	Legend	Inst
Type	Depth (m) From To		SPT Results Type Depth		Field Records					
								MADE GROUND : Ash. (Drillers description)		
			S	3.00	N=15 (3,3,3,4,4,4)		203.98	3.45	MADE GROUND : Ash. (Drillers description)	
							202.93	4.50	Brown silty MUDSTONE. (Drillers description)	
			S	6.50	N=62 (7,12,13,14,17,18)		200.48	6.95	Base of Borehole	

Remarks

- 1.50mm diameter standpipe installed to 5.00m bgl. Plain pipe with bentonite seal from ground level to 1.00m bgl. Slotted pipe with gravel from 1.00m to 5.00m bgl. Bung gas valve and stopcock cover fitted.
2. Borehole remained dry during drilling.
3. All descriptions are using Rotary Open Hole techniques.

Logged by
Driller

Scale
1:50

End Casing Depth (m)

Job No.
P4682NW

Sample/Test key:

D	Disturbed Sample	U	Undisturbed sample with Blow Count
Da	Amber Glass	Hp	Hand Penetrometer (kg/cm ²)
Dp	Plastic Tub	W	Water Sample
Dv	McCartney Vial	IVAN	Hand Vane (KPa)
B	Bulk Sample	C/S	CPT/SPT
		N/R	No Recovery





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BOREHOLE LOG

Borehole RO5

Sheet 1 of 1

Method Soilmec 400		Drilled By G Pilkington				Date 24/10/07		Site Sheffield Road, Penistone			
Dia mm		Co-ord 425141 403378				Ground Level 207.40 (m AOD)		Client Willstock Construction Ltd			
Type	Depth (m)		SPT Results		Field Records	PID (ppm)	Level mAOD	Depth (m)	Description of Strata	Legend	Inst
	From	To	Type	Depth							
			S	3.00	N=17 (2,2,3,5,5,4)		203.95	3.45	MADE GROUND : Ash. (Drillers description)		
			S	6.00	N=15 (2,3,4,4,3,4)		200.95	6.45	MADE GROUND : Ash. (Drillers description)		
			S	9.50	N=47 (2,2,13,11,10,13)		199.90	7.50	Brown silty MUDSTONE. (Drillers description)		
							197.45	9.95			

Remarks

1. Borehole remained dry during drilling.
2. Borehole backfilled with arisings on completion.
3. All descriptions are using Rotary Open Hole techniques.

Base of Borehole

Logged by

Driller

Scale

1:50

End Casing Depth (m)

Job No.

P4682NW

Sample/Test key:

D	Disturbed Sample	U	Undisturbed sample with Blow Count
Da	Amber Glass	Hp	Hand Penetrometer (kg/cm ²)
Dp	Plastic Tub	W	Water Sample
Dv	McCartney Vial	IVAN	Hand Vane (KPa)
B	Bulk Sample	C/S	CPT/SPT
		N/R	No Recovery





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BOREHOLE LOG

Borehole RO6

Sheet 1 of 2

Method Soilmec 400		Drilled By G Pilkington		Date 22/10/07		Site Sheffield Road, Penistone					
Dia mm		Co-ord 425146 403378		Ground Level 207.35 (m AOD)		Client Willstock Construction Ltd					
Soil Samples/Tests							Level mAOD	Depth (m)	Description of Strata	Legend	Inst
Type	Depth (m) From To		SPT Results Type Depth		Field Records	PID (ppm)					
			S	3.00	N=13 (2,2,3,4,3,3)		203.90	3.45	MADE GROUND : Ash. (Drillers description)		
			S	6.00	N=26 (2,3,4,7,7,8)		200.90	6.45	MADE GROUND : Ash. (Drillers description)		
			S	9.00	N=15 (3,3,4,4,3,4)		197.90	9.45	MADE GROUND : Ash. (Drillers description)		
									MADE GROUND : Ash and brown mudstone mix. (Drillers description) Continued on next sheet		

Remarks

1. Borehole remained dry during drilling.
2. Borehole backfilled with arisings on completion.
3. All descriptions are using Rotary Open Hole techniques.

Logged by

Driller

Scale

1:50

End Casing Depth (m)

Job No.

P4682NW

Sample/Test key:

D	Disturbed Sample	U	Undisturbed sample with Blow Count
Da	Amber Glass	Hp	Hand Penetrometer (kg/cm ²)
Dp	Plastic Tub	W	Water Sample
Dv	McCartney Vial	IVAN	Hand Vane (KPa)
B	Bulk Sample	C/S	CPT/SPT
		N/R	No Recovery





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BOREHOLE LOG

Borehole RO6

Sheet 2 of 2

Method Soilmec 400		Drilled By G Pilkington		Date 22/10/07		Site Sheffield Road, Penistone				
Dia mm		Co-ord 425146 403378		Ground Level 207.35 (m AOD)		Client Willstock Construction Ltd				
Soil Samples/Tests						Level mAOD	Depth (m)	Description of Strata	Legend	Inst
Type	Depth (m) From To		SPT Results Type Depth		Field Records					
			S	11.00	N=67 (2,4,4,22,21,20)		195.90	11.45	MADE GROUND : Ash and brown mudstone mix. (Drillers description)	
			S	14.00	N=75 (6,10,18,19,18,20)		192.90	14.45	Brown silty MUDSTONE. (Drillers description)	
									Base of Borehole	
Remarks 1. Borehole remained dry during drilling. 2. Borehole backfilled with arisings on completion. 3. All descriptions are using Rotary Open Hole techniques.							Logged by Driller	Scale 1:50	End Casing Depth (m)	Job No. P4682NW
							Sample/Test key: D Disturbed Sample U Undisturbed sample with Blow Count Da Amber Glass Hp Hand Penetrometer (kg/cm ²) Dp Plastic Tub W Water Sample Dv McCartney Vial IVAN Hand Vane (KPa) B Bulk Sample C/S CPT/SPT N/R No Recovery			





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BOREHOLE LOG

Borehole R07

Sheet 1 of 1

Method Soilmec 400		Drilled By G Pilkington		Date 24/10/07		Site Sheffield Road, Penistone								
Dia mm		Co-ord 425151 403382		Ground Level 207.40 (m AOD)		Client Willstock Construction Ltd								
Soil Samples/Tests						Level mAOD		Depth (m)		Description of Strata		Legend	Inst	
Type	Depth (m) From To	SPT Results Type Depth	Field Records	PID (ppm)										
		S 3.00	N=34 (2,4,9,8,10,7)			203.95	3.45	MADE GROUND : Ash. (Drillers description)						
		S 7.00	N=35 (4,4,4,11,11,9)			199.95	7.45	MADE GROUND : Ash. (Drillers description)						
		S 9.50	100/140mm			198.90	8.50	Brown silty MUDSTONE. (Drillers description)						
						197.90	9.50	Brown SANDSTONE. (Drillers description)						
						197.76	9.64	No Recovery. (Drillers description)						
						Base of Borehole								
Remarks 1. Borehole remained dry during drilling. 2. Borehole backfilled with arisings on completion. 3. All descriptions are using Rotary Open Hole techniques.						Logged by Driller		Scale 1:50	End Casing Depth (m)		Job No. P4682NW			
						Sample/Test key: D Disturbed Sample U Undisturbed sample with Blow Count Da Amber Glass Hp Hand Penetrometer (kg/cm ²) Dp Plastic Tub W Water Sample Dv McCartney Vial IVAN Hand Vane (KPa) B Bulk Sample C/S CPT/SPT N/R No Recovery								



APPENDIX B(iii)



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TRIAL PIT LOG

Trial Pit HP1

Sheet 1 of 1

Method Hand dug		Date 22/10/07		Site Sheffield Road, Penistone																
OS Grid Ref. -		Local Co-ord		Ground Level (m AOD)		Client Willstock Construction Ltd														
Soil Samples/Tests						PID (ppm)	Level (m AOD)	Depth (m)	Description of Strata	Legend										
Type	Depth From To		Type	Depth (m)	Field Records															
									MADE GROUND : Dark brown sandy clayey angular fine to medium GRAVEL. Gravel is quartz and clinker. (TOPSOIL)											
							0.90		Base of Trial Pit											
Remarks						Logged by AB/ANT		Scale 1:25		Job No. P4682NW										
1. Pit remained dry and stable on completion. 2. Pit terminated at 0.90m bgl. due to encountering possible rock at base.						Sample/Test key: <table><tr><td>D Disturbed Sample</td><td>B Bulk Sample</td></tr><tr><td>Da Amber Glass</td><td>W Water Sample</td></tr><tr><td>Dp Plastic Tub</td><td>C Core Sample</td></tr><tr><td>Dv McCartney Vial</td><td>IVAN Hand Vane (KPa)</td></tr><tr><td>CBR California Bearing Ratio</td><td>Hp Hand Penetrometer Result</td></tr></table>					D Disturbed Sample	B Bulk Sample	Da Amber Glass	W Water Sample	Dp Plastic Tub	C Core Sample	Dv McCartney Vial	IVAN Hand Vane (KPa)	CBR California Bearing Ratio	Hp Hand Penetrometer Result
D Disturbed Sample	B Bulk Sample																			
Da Amber Glass	W Water Sample																			
Dp Plastic Tub	C Core Sample																			
Dv McCartney Vial	IVAN Hand Vane (KPa)																			
CBR California Bearing Ratio	Hp Hand Penetrometer Result																			



GEOTECHNICAL DEVELOPMENTS (UK) LTD.

GEOTECHNICAL INVESTIGATION SERVICES

Telephone (01926) 813747 Fax (01926) 813302

E-mail. enq@geotechnical.co.uk

TRIAL PIT LOG

Trial Pit HP2

Sheet 1 of 1

Method	Hand dug	Date	22/10/07	Site	Sheffield Road, Penistone
OS Grid Ref.		Local Co-ord		Client	Willstock Construction Ltd

Soil Samples/Tests					PID (ppm)	Level (m AOD)	Depth (m)	Description of Strata	Legend
Type	Depth		Type	Depth (m)					
	From	To							
Dp 01	0.50	0.90						MADE GROUND : Brown sandy clayey subangular fine to medium GRAVEL. Gravel is quartz and clinker. (TOPSOIL)	
							0.90	Base of Trial Pit	

Remarks

1. Pit remained dry and stable on completion.
2. Pit terminated at 0.90m bgl, due to encountering possible rock.

Logged by	Scale	Job No.
AB/ANT	1:25	P4682NW

Sample/Test key:

D	Disturbed Sample	B	Bulk Sample
Da	Amber Glass	W	Water Sample
Dp	Plastic Tub	C	Core Sample
Dv	McCartney Vial	IVAN	Hand Vane (KPa)
CBR	California Bearing Ratio	Hp	Hand Penetrometer Result



Method Hand dug		Date 22/10/07		Site Sheffield Road, Penistone	
OS Grid Ref.		Local Co-ord		Client Willstock Construction Ltd	
Soil Samples/Tests		Ground Level (m AOD)		Description of Strata	
Type	Depth From To	Type	Depth (m)	Field Records	PID (ppm)
Dp	01 0.50 0.90				
				MADE GROUND : Brown sandy CLAY.	
				MADE GROUND : Brown angular fine to coarse GRAVEL. Gravel is sandstone and mudstone. From 0.90m bgl, gravel of sandstone and mudstone.	
				Base of Trial Pit	
Remarks 1. Pit remained dry and stable on completion. 2. Pit terminated at 1.20m bgl, due to encountering possible rock.					
Logged by AB/ANT		Scale 1:25		Job No. P4682NW	
Sample/Test key: D Disturbed Sample B Bulk Sample Da Amber Glass W Water Sample Dp Plastic Tub C Core Sample Dv McCartney Vial IVAN Hand Vane (KPa) CBR California Bearing Ratio Hp Hand Penetrometer Result					
					



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TRIAL PIT LOG

Trial Pit HP4

Sheet 1 of 1

Method Hand dug		Date 22/10/07		Site Sheffield Road, Penistone					
OS Grid Ref.		Local Co-ord		Ground Level (m AOD)					
Client Willstock Construction Ltd									
Soil Samples/Tests					PID (ppm)	Level (m AOD)	Depth (m)	Description of Strata	Legend
Type	Depth From To	Type	Depth (m)	Field Records					
							0.60	MADE GROUND : Dark brown sandy clayey angular fine to coarse GRAVEL. Gravel is clinker, brick, pottery, concrete, mudstone, and sandstone.	
								Base of Trial Pit	
Remarks 1. Pit remained stable on completion. 2. Groundwater encountered at 0.50m bgl.									
Logged by AB/ANT				Scale 1:25		Job No. P4682NW			
Sample/Test key: D Disturbed Sample B Bulk Sample Da Amber Glass W Water Sample Dp Plastic Tub C Core Sample Dv McCartney Vial IVAN Hand Vane (KPa) CBR California Bearing Ratio Hp Hand Penetrometer Result									





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TRIAL PIT LOG

Trial Pit HP5

Sheet 1 of 1

Method Hand dug

Date 22/10/07

Site Sheffield Road, Penistone

OS Grid Ref.

Local Co-ord

Ground Level
(m AOD)

Client Willstock Construction Ltd

Soil Samples/Tests

Type	Depth From	To	Type	Depth (m)	Field Records	PID (ppm)	Level (m AOD)	Depth (m)	Description of Strata	Legend
								0.90	MADE GROUND : Dark brown angular fine to medium GRAVEL. Gravel is clinker and glass fragments.	
									Base of Trial Pit	

Remarks

1. Pit remained dry and stable on completion.

Logged by
AB/ANT

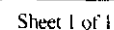
Scale
1:25

Job No.
P4682NW

Sample/Test key:

D Disturbed Sample B Bulk Sample
Da Amber Glass W Water Sample
Dp Plastic Tub C Core Sample
Dv McCartney Vial IVAN Hand Vane (KPa)
CBR California Bearing Ratio Hp Hand Penetrometer Result





Legend

Base of Trial Pit

D	Disturbed Sample	B	Bulk Sample
Da	Amber Glass	W	Water Sample
Dp	Plastic Tub	C	Core Sample
Dv	McCartney Vial	IVAN	Hand Vane (KPa)
CBR	California Bearing Ratio	Hp	Hand Penetrometer Result



APPENDIX C(i)



TEST REPORT

SOIL SAMPLE ANALYSIS



TES Report No. EFS/074747 (Ver. 1)

Geotechnical Developments
The Wharf
Marston Doles
Warwickshire
CV47 7SS

Site: Sheffield Rd, Penistone

The 9 samples described in this report were logged for analysis by TES Bretby on 06-Oct-2007.

The analysis was completed by: 18-Oct-2007

Tests where the accreditation is set to N or No, and any individual data items marked with a * are not UKAS accredited
Any opinions or interpretations expressed herein are outside the scope of any UKAS accreditation held by TES Bretby Laboratories.

The following tables are contained in this report:

Table 1 Main Analysis Results (Page 2)

Table of Report Notes (Page 3)

On behalf of
TES Bretby :
J Hannah

J. Hannah
Project Co-ordinator

Date of Issue: 18-Oct-2007

Tests marked '^' have been subcontracted to another laboratory.

TES Bretby accepts no responsibility for any sampling not carried out by our personnel.

Report Notes

Soil/Solid analysis specific:

Results expressed as mg/kg on an air dried basis unless stated otherwise
S04 analysis not conducted in accordance with BS1377 unless otherwise stated
Water Soluble Sulphate on 2:1 water:soil extract
AR denotes analysis conducted on the As Received sample

Water analysis specific:

Results expressed as mg/l unless stated otherwise

Oil analysis specific:

Results expressed as mg/kg unless stated otherwise
S.G. expressed as $g/cm^3 @ 15^\circ C$

Filter analysis specific:

Results expressed as mg on filter unless stated otherwise

VOC analysis specific:

Explanatory notes for data flagging
U = undetected above reporting limit
J = concentration at instrument was below lowest calibration standard
E = concentration at instrument was above top calibration standard
B = compound was detected in method blank

Gas (Tedlar bag) analysis specific:

Results expressed as ug/l unless stated otherwise

Air (Carbon tube) analysis specific:

Results expressed as ug on tube unless stated otherwise

Asbestos analysis specific:

CH denotes Chrysotile
CR denotes Crocidolite
AM denotes Amosite
NADIS denotes No Asbestos Detected in Sample
NBFO denotes No Bulk fibres Observed

General notes:

^ this analysis was subcontracted to another laboratory
\$ Within laboratory tolerances
\$\$ unable to analyse due to nature of sample
¥ Results for guidance only, possible interference
& Blank corrected
I.S insufficient sample for analysis
Intf Unable to analyse due to interferences
N.D Not determined
N.R Not recorded
N.Det Not detected
Req Analysis Requested, see attached sheets for results
P Raised detection limit due to nature of sample
* denotes that all accreditation has been removed by the laboratory for this result.
‡ denotes that Mcerts accreditation has been removed by the laboratory for this result.
Note: The Laboratory may only claim that data is accredited when all of the requirements of our Quality System have been met. Where these requirements have not been met the laboratory may elect to include the data in its final report and remove the accreditation from individual data items if it believes that the validity of the data has not been affected.

If you require further details of the circumstances leading to the removal of the accreditation from any data item please do not hesitate to contact the laboratory

END OF REPORT

APPENDIX C(ii)



**SUMMARY OF CHEMICAL ANALYSES ON SOILS AND
COMPARISON WITH PUBLISHED GUIDELINES
FOR THE PROTECTION OF HUMAN HEALTH**

PROJECT: Sheffield Road, Penistone
PROJECT NO: P4682NW

Table C1

Determinand	No. of Tests	Soil Concentrations (mg/kg)			Inlier/ Outlier	Soil Guideline Value (mg/kg)			Generic Assessment ^{1,4} Criteria (mg/kg)		
		Min	Max	Mean Value Test (US ₉₅)		SGV	No. > SGV	Mean Value > SGV	GAC	No. > GAC	Mean Value > GAC
pH	4	7.9	8.3	8.1							
Total Organic Carbon (%)	3	14.0	22.0	18.7							
Soil Organic Matter (%) ⁶	3	24.1	37.9	32.2							
Arsenic	4	16	92	85.8	Inlier	20	3	Yes			
Cadmium	4	<0.5	0.54	0.53	Outlier	30	0	No			
Chromium (total)	4	20	68	63.1	Inlier	200	0	No			
Lead ²	4	17	150	154	Inlier	450	0	No			
Mercury	4	<0.25	2	1.75	Inlier	15	0	No			
Nickel	4	27	90	89	Inlier	75	1	Yes			
Selenium	4	<0.3	<0.3	<0.3	N/A	260	0	No			
Beryllium	4	0.33	1.4	1.68	Inlier				85	0	No
Copper	4	65	230	220.10	Inlier				2080	0	No
Vanadium	4	41	85	84.00	Inlier				150	0	No
Zinc	4	28	65	66.48	Inlier				8250	0	No
Benzo(a)pyrene	3	<0.5	2.6	3.22	N/A				1.32	1	Yes
Dibenzo(a,h)anthracene	3	<0.5	<0.5	<0.5	N/A				1.32	0	No
Fluorene	3	<0.5	<0.5	<0.5	N/A				2700.0	0	No
Naphthalene ⁷	3	4.3	7.1	8.1	N/A	34	0	No			
Phenol	4	<0.75	1.0	0.97	Outlier	37300	0	No			
TPH Aliphatic >C ₆ to C ₈	3	<0.11	<0.13	N/A	N/A				22.7	0	No
TPH Aliphatic >C ₈ to C ₁₀	3	<0.11	<0.13	N/A	N/A				7.05	0	No
TPH Aliphatic >C ₁₀ to C ₁₂	3	<1.1	<1.3	N/A	N/A				41.7	0	No
TPH Aliphatic >C ₁₂ to C ₁₈	3	<1.2	6.6	N/A	N/A				187	0	No
TPH Aliphatic >C ₁₈ to C ₃₅	3	10.4	63	N/A	N/A				26800	0	No
TPH Aromatic C ₅ to C ₇	3	<0.011	<0.013	N/A	N/A				2.75	0	No
TPH Aromatic >C ₇ to C ₉	3	<0.011	<0.013	N/A	N/A				3.18	0	No
TPH Aromatic >C ₉ to C ₁₀	3	<0.11	<0.13	N/A	N/A				11.6	0	No
TPH Aromatic >C ₁₀ to C ₁₂	3	<1.1	<1.3	N/A	N/A				63.9	0	No
TPH Aromatic >C ₁₂ to C ₁₆	3	3.4	12	N/A	N/A				235	0	No
TPH Aromatic >C ₁₆ to C ₂₁	3	9.2	21	N/A	N/A				362	0	No
TPH Aromatic >C ₂₁ to C ₃₅	3	38	87	N/A	N/A				404	0	No

Footnotes

- Any results recorded below the detection limit are taken at the limit of the test for the purposes of statistical analysis
- Mean value test for lead calculated using the geometric mean rather than arithmetic mean
- Generic Assessment Criteria (GAC) for Human Health Risk Assessment published by Charter Institute of Environmental Health and Land Quality Management Ltd Project 0823 da
- SGV and GAC based on an end-use of residential without plant uptake
- Statistical analysis of results in accordance with Contaminated Land Report 7 (CLR7)
- Soil Organic Matter calculated based on Total Organic Carbon analysis, assuming 58% carbon content. SOM mean is arithmetic mean not upper bound 95th percentile mean.
- SGV Currently DRAFT

Stratum : Made Ground
Maximum Depth of Sample: 0.2 m

Table C1 Soils

Report Summary



1314
0897
1229
1510



STL

Ms Rachel Mayne
Geotechnical Developments
The Wharf

Marston Doles
Nr Southam
Warwickshire
CV47 7SS

Report Number : LL/459427/2007 Issue 2

Job Description : LHL - General Analysis

Job Location : Sheffield Road Penistone

Number of Samples
included in report

4

Job Received : 28 September 2007

Number of Test Results 164
included in report

Analysis Commenced : 28 September 2007

Signed :

Name : J. Rogers

Date : 16 October 2007

Title : Production Manager

STL was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.

Information on the methods of analysis and performance characteristics are available on request

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory

MCerts accreditation refers to analysis carried out at our Lockhurst Lane site only

Analysis carried out on air-dried and ground test portion of the sample(s), unless otherwise stated. Air drying is carried out at not greater than 30 degrees C. Samples are not preserved on site, unless otherwise stated. All results are reported on an air-dried basis

Certificate of Analysis



STL

Matrix : Soil

Sample 1 Laboratory Number : 10195781

of 4 Report Number : LL /459427/2007 Issue 2

Sample Source : Geotechnical Developments

Sample Point Description : Geotechnical Developments

Sample Description : DCS1 0.10m

Visual Description : Black and brown gravel with many stones

Sample Date : 20 September 2007 Sample Time : 1

Sample Received : 28 September 2007

Test Description	Result	Units	Analysis Date	UoM %	Accreditation	Method
Stones BG 2.6/3.0	0.89	%	03/10/2007		L	Stones
Moisture content at 30 C	16	%	03/10/2007		L	33A
Arsenic as As, dry weight	24	mg/kg	05/10/2007		M L	30/30C
Beryllium as Be, dry weight	1.3	mg/kg	05/10/2007		M L	30
Cadmium as Cd, dry weight	<0.50	mg/kg	05/10/2007		M L	30
Chromium as Cr, dry weight	20	mg/kg	05/10/2007		M L	30
Copper, as Dry Weight	82	mg/kg	08/10/2007		M L	30
Lead, as Dry Weight	68	mg/kg	05/10/2007		M L	30
Mercury as Hg, dry weight	<0.25	mg/kg	06/10/2007		M L	30C
Nickel as Ni, dry weight	27	mg/kg	05/10/2007		M L	30
Selenium as Se, dry weight	<0.30	mg/kg	04/10/2007		M L	30C
Vanadium, Total as dry weight	45	mg/kg	05/10/2007		M L	30
Zinc as Zn, dry weight	65	mg/kg	05/10/2007		M L	30
Tot. Steam Dist. Monophenols	1.0	mg/kg	03/10/2007		M L	40A
TOC by Ignition in Oxygen	20	%	08/10/2007		L	27
pH	8.3	pH units	03/10/2007		L	39
>C6 to C8 Aliphatics	<0.12	mg/kg	09/10/2007		L	304
>C8 to C10 Aliphatics	<0.12	mg/kg	09/10/2007		L	304
>C10 to C12 Aliphatics	<1.2	mg/kg	09/10/2007		L	317EPH
>C12 to C16 Aliphatics	<1.2	mg/kg	09/10/2007		L	317EPH
>C16 to C21 Aliphatics	3.0	mg/kg	09/10/2007		L	317EPH
>C21 to C40 Aliphatics	8.7	mg/kg	09/10/2007		L	317EPH
Total Aliphatics (>C6 to C40)	12	mg/kg	09/10/2007		L	304/317EPH
>C5 to C7 Aromatics	<0.012	mg/kg	09/10/2007		L	304
>C7 to C8 Aromatics	<0.012	mg/kg	09/10/2007		L	304
>C8 to C10 Aromatics	<0.12	mg/kg	09/10/2007		L	304
>C10 to C12 Aromatics	<1.2	mg/kg	09/10/2007		L	317EPH
>C12 to C16 Aromatics	12	mg/kg	09/10/2007		L	317EPH
>C16 to C21 Aromatics	21	mg/kg	09/10/2007		L	317EPH
>C21 to C40 Aromatics	87	mg/kg	09/10/2007		L	317EPH
Total Aromatics (>C6 to C40)	120	mg/kg	09/10/2007		L	304/317EPH
Total EPH (>C6 to C40)	130	mg/kg	09/10/2007		L	304/317EPH
naphthalene	7.1	mg/kg	06/10/2007		M L	307
acenaphthylene	<0.50	mg/kg	06/10/2007		M L	307
acenaphthene	0.75	mg/kg	06/10/2007		M L	307
fluorene	<0.50	mg/kg	06/10/2007		M L	307
phenanthrene	7.5	mg/kg	06/10/2007		M L	307
anthracene	1.9	mg/kg	06/10/2007		M L	307

Certificate of Analysis



STL

Matrix : Soil

1314
0897
1229
1510

Sample 1 Laboratory Number : 10195781

of 4 Report Number : LL /459427/2007 Issue 2

Sample Source : Geotechnical Developments

Sample Point Description : Geotechnical Developments

Sample Description : DCS1 0.10m

Visual Description : Black and brown gravel with many stones

Sample Date : 20 September 2007 Sample Time : 1

Sample Received : 28 September 2007

Test Description	Result	Units	Analysis Date	UoM %	Accreditation	Method
fluoranthene	8.5	mg/kg	06/10/2007		M L	307
pyrene	7.3	mg/kg	06/10/2007		M L	307
benzo(a)anthracene	3.4	mg/kg	06/10/2007		M L	307
chrysene	2.9	mg/kg	06/10/2007		M L	307
benzo(b)fluoranthene	2.6	mg/kg	06/10/2007		M L	307
benzo(k)fluoranthene	1.4	mg/kg	06/10/2007		M L	307
benzo(a)pyrene	2.6	mg/kg	06/10/2007		M L	307
dibenzo(ah)anthracene	<0.50	mg/kg	06/10/2007		M L	307
benzo(ghi)perylene	1.5	mg/kg	06/10/2007		M L	307
indeno(123cd)pyrene	1.3	mg/kg	06/10/2007		M L	307
PAH (Total - SUM EPA16)	49	mg/kg	06/10/2007		M L	307

Analyst Comment for 10195781 :

Accreditation Codes : ' = Not UKAS accredited, B = Analysed at STL Bridgend, C = Analysed at STL Coventry, R = Analysed at STL Runcorn, L = Analysed at STL Midlands, S = Sub-contracted, M = MCerts
For Microbiological determinands 0 or ND = Not Detected, DET = Detected, For Legionella ND=Not detected in volume of sample filtered, I/S = Insufficient sample

Certificate of Analysis



STL

Matrix : Soil

Sample 2 Laboratory Number : 10195782

of 4 Report Number : LL/459427/2007 Issue 2

Sample Source : Geotechnical Developments

Sample Point Description : Geotechnical Developments

Sample Description : DCS2 0.10m

Visual Description : Black and grey gravel with many stones and occasional red bricks

Sample Date : 20 September 2007 Sample Time : 2

Sample Received : 28 September 2007

Test Description	Result	Units	Analysis Date	UoM %	Accreditation	Method
Stones BG 2.6/3.0	2.7	%	03/10/2007		L	Stones
Moisture content at 30 C	12	%	03/10/2007		L	33A
Arsenic as As, dry weight	50	mg/kg	05/10/2007		M L	30/30C
Beryllium as Be, dry weight	0.33	mg/kg	05/10/2007		M L	30
Cadmium as Cd, dry weight	<0.50	mg/kg	05/10/2007		M L	30
Chromium as Cr, dry weight	68	mg/kg	05/10/2007		M L	30
Copper, as Dry Weight	230	mg/kg	05/10/2007		M L	30
Lead, as Dry Weight	150	mg/kg	05/10/2007		M L	30
Mercury as Hg, dry weight	2.0	mg/kg	04/10/2007		M L	30C
Nickel as Ni, dry weight	90	mg/kg	05/10/2007		M L	30
Selenium as Se, dry weight	<0.30	mg/kg	04/10/2007		M L	30C
Vanadium, Total as dry weight	85	mg/kg	05/10/2007		M L	30
Zinc as Zn, dry weight	51	mg/kg	05/10/2007		M L	30
Tot. Steam Dist. Monophenols	<0.75	mg/kg	03/10/2007		M L	40A
TOC by Ignition in Oxygen	14	%	08/10/2007		L	27
pH	8.2	pH units	03/10/2007		L	39
>C6 to C8 Aliphatics	<0.11	mg/kg	09/10/2007		L	304
>C8 to C10 Aliphatics	<0.11	mg/kg	09/10/2007		L	304
>C10 to C12 Aliphatics	<1.1	mg/kg	09/10/2007		L	317EPH
>C12 to C16 Aliphatics	6.6	mg/kg	09/10/2007		L	317EPH
>C16 to C21 Aliphatics	10	mg/kg	09/10/2007		L	317EPH
>C21 to C40 Aliphatics	53	mg/kg	09/10/2007		L	317EPH
Total Aliphatics (>C6 to C40)	69	mg/kg	09/10/2007		L	304/317EPH
>C5 to C7 Aromatics	<0.011	mg/kg	09/10/2007		L	304
>C7 to C8 Aromatics	<0.011	mg/kg	09/10/2007		L	304
>C8 to C10 Aromatics	<0.11	mg/kg	09/10/2007		L	304
>C10 to C12 Aromatics	<1.1	mg/kg	09/10/2007		L	317EPH
>C12 to C16 Aromatics	11	mg/kg	09/10/2007		L	317EPH
>C16 to C21 Aromatics	13	mg/kg	09/10/2007		L	317EPH
>C21 to C40 Aromatics	38	mg/kg	09/10/2007		L	317EPH
Total Aromatics (>C6 to C40)	61	mg/kg	09/10/2007		L	304/317EPH
Total EPH (>C6 to C40)	140	mg/kg	09/10/2007		L	304/317EPH
Description of Sample	Comment	Text	09/10/2007		L	70
Asbestos Identification	Comment	Text	09/10/2007		L	70

Analyst Comment for 10195782 :

Accreditation Codes : * = Not UKAS accredited, B = Analysed at STL Bridgend, C = Analysed at STL Coventry, R = Analysed at STL Runcorn, L = Analysed at STL Midlands, S = Sub-contracted, M = M/Certs
 For Microbiological determinands 0 or ND = Not Detected, DET = Detected, For Legionella ND=Not detected in volume of sample filtered. I/S = Insufficient sample

Certificate of Analysis



STL

Matrix : Soil

Sample 3 Laboratory Number : 10195783

of 4 Report Number : LL/459427/2007 Issue 2

Sample Source : Geotechnical Developments

Sample Point Description : Geotechnical Developments

Sample Description : DCS4 0.20m

Visual Description : Black and brown gravel with many stones

Sample Date : 20 September 2007 Sample Time : 3

Sample Received : 28 September 2007

Test Description	Result	Units	Analysis Date	UoM %	Accreditation	Method
Stones BG 2.6/3.0	0.42	%	03/10/2007		L	Stones
Moisture content at 30 C	24	%	03/10/2007		L	33A
Arsenic as As, dry weight	16	mg/kg	05/10/2007		M L	30/30C
Beryllium as Be, dry weight	1.3	mg/kg	05/10/2007		M L	30
Cadmium as Cd, dry weight	<0.50	mg/kg	05/10/2007		M L	30
Chromium as Cr, dry weight	26	mg/kg	05/10/2007		M L	30
Copper, as Dry Weight	65	mg/kg	05/10/2007		M L	30
Lead, as Dry Weight	17	mg/kg	05/10/2007		M L	30
Mercury as Hg, dry weight	0.28	mg/kg	04/10/2007		M L	30C
Nickel as Ni, dry weight	44	mg/kg	05/10/2007		M L	30
Selenium as Se, dry weight	<0.30	mg/kg	04/10/2007		M L	30C
Vanadium, Total as dry weight	41	mg/kg	05/10/2007		M L	30
Zinc as Zn, dry weight	28	mg/kg	05/10/2007		M L	30
Tot. Steam Dist. Monophenols	<0.75	mg/kg	03/10/2007		M L	40A
TOC by Ignition in Oxygen	22	%	08/10/2007		L	27
pH	8.1	pH units	03/10/2007		L	39
>C6 to C8 Aliphatics	<0.13	mg/kg	09/10/2007		L	304
>C8 to C10 Aliphatics	<0.13	mg/kg	09/10/2007		L	304
>C10 to C12 Aliphatics	<1.3	mg/kg	09/10/2007		L	317EPH
>C12 to C16 Aliphatics	1.7	mg/kg	09/10/2007		L	317EPH
>C16 to C21 Aliphatics	2.8	mg/kg	09/10/2007		L	317EPH
>C21 to C40 Aliphatics	7.6	mg/kg	09/10/2007		L	317EPH
Total Aliphatics (>C6 to C40)	12	mg/kg	09/10/2007		L	304/317EPH
>C5 to C7 Aromatics	<0.013	mg/kg	09/10/2007		L	304
>C7 to C8 Aromatics	<0.013	mg/kg	09/10/2007		L	304
>C8 to C10 Aromatics	<0.13	mg/kg	09/10/2007		L	304
>C10 to C12 Aromatics	<1.3	mg/kg	09/10/2007		L	317EPH
>C12 to C16 Aromatics	3.4	mg/kg	09/10/2007		L	317EPH
>C16 to C21 Aromatics	9.2	mg/kg	09/10/2007		L	317EPH
>C21 to C40 Aromatics	42	mg/kg	09/10/2007		L	317EPH
Total Aromatics (>C6 to C40)	55	mg/kg	09/10/2007		L	304/317EPH
Total EPH (>C6 to C40)	67	mg/kg	09/10/2007		L	304/317EPH
naphthalene	4.3	mg/kg	06/10/2007		M L	307
acenaphthylene	<0.50	mg/kg	06/10/2007		M L	307
acenaphthene	<0.50	mg/kg	06/10/2007		M L	307
fluorene	<0.50	mg/kg	06/10/2007		M L	307
phenanthrene	3.3	mg/kg	06/10/2007		M L	307
anthracene	0.91	mg/kg	06/10/2007		M L	307

Certificate of Analysis



STL

Matrix : Soil

Sample 3 Laboratory Number : 10195783

of 4 Report Number : LL/459427/2007 Issue 2

Sample Source : Geotechnical Developments

Sample Point Description : Geotechnical Developments

Sample Description : DCS4 0.20m

Visual Description : Black and brown gravel with many stones

Sample Date : 20 September 2007 Sample Time : 3

Sample Received : 28 September 2007

Test Description	Result	Units	Analysis Date	UoM %	Accreditation	Method
fluoranthene	4.2	mg/kg	06/10/2007		M L	307
pyrene	3.6	mg/kg	06/10/2007		M L	307
benzo(a)anthracene	1.4	mg/kg	06/10/2007		M L	307
chrysene	1.2	mg/kg	06/10/2007		M L	307
benzo(b)fluoranthene	0.98	mg/kg	06/10/2007		M L	307
benzo(k)fluoranthene	0.63	mg/kg	06/10/2007		M L	307
benzo(a)pyrene	0.99	mg/kg	06/10/2007		M L	307
dibenzo(ah)anthracene	<0.50	mg/kg	06/10/2007		M L	307
benzo(ghi)perylene	<0.50	mg/kg	06/10/2007		M L	307
indeno(123cd)pyrene	<0.50	mg/kg	06/10/2007		M L	307
PAH (Total - SUM EPA16)	21	mg/kg	06/10/2007		M L	307

Analyst Comment for 10195783 :

Accreditation Codes : * = Not UKAS accredited, B = Analysed at STL Bridgend, C = Analysed at STL Coventry, R = Analysed at STL Runcorn, L = Analysed at STL Midlands, S = Sub-contracted, M = MCerts
For Microbiological determinands 0 or ND = Not Detected, DET = Detected, For Legionella ND=Not detected in volume of sample filtered. I/S = Insufficient sample

Certificate of Analysis



STL

Matrix Soil

Sample 4 Laboratory Number : 10195784

of 4 Report Number : LL/459427/2007 Issue 2

Sample Source : Geotechnical Developments

Sample Point Description : Geotechnical Developments

Sample Description : DCS5 0.20m

Visual Description : Black and brown gravel with many stones, occasional red bricks and roots

Sample Date : 20 September 2007 Sample Time : 4

Sample Received : 28 September 2007

Test Description	Result	Units	Analysis Date	UoM %	Accreditation	Method
Stones BG 2.6/3.0	0.43	%	03/10/2007		L	Stones
Moisture content at 30 C	7.6	%	03/10/2007		L	33A
Arsenic as As, dry weight	92	mg/kg	05/10/2007		M L	30/30C
Beryllium as Be, dry weight	1.4	mg/kg	05/10/2007		M L	30
Cadmium as Cd, dry weight	0.54	mg/kg	05/10/2007		M L	30
Chromium as Cr, dry weight	38	mg/kg	05/10/2007		M L	30
Copper, as Dry Weight	150	mg/kg	05/10/2007		M L	30
Lead, as Dry Weight	46	mg/kg	05/10/2007		M L	30
Mercury as Hg, dry weight	0.56	mg/kg	04/10/2007		M L	30C
Nickel as Ni, dry weight	67	mg/kg	05/10/2007		M L	30
Selenium as Se, dry weight	<0.30	mg/kg	04/10/2007		M L	30C
Vanadium, Total as dry weight	68	mg/kg	05/10/2007		M L	30
Zinc as Zn, dry weight	50	mg/kg	05/10/2007		M L	30
Tot. Steam Dist. Monophenols	0.81	mg/kg	03/10/2007		M L	40A
pH	7.9	pH units	03/10/2007		L	39
naphthalene	5.7	mg/kg	06/10/2007		M L	307
acenaphthylene	<0.50	mg/kg	06/10/2007		M L	307
acenaphthene	<0.50	mg/kg	06/10/2007		M L	307
fluorene	<0.50	mg/kg	06/10/2007		M L	307
phenanthrene	0.79	mg/kg	06/10/2007		M L	307
anthracene	<0.50	mg/kg	06/10/2007		M L	307
fluoranthene	<0.50	mg/kg	06/10/2007		M L	307
pyrene	<0.50	mg/kg	06/10/2007		M L	307
benzo(a)anthracene	<0.50	mg/kg	06/10/2007		M L	307
chrysene	<0.50	mg/kg	06/10/2007		M L	307
benzo(b)fluoranthene	<0.50	mg/kg	06/10/2007		M L	307
benzo(k)fluoranthene	<0.50	mg/kg	06/10/2007		M L	307
benzo(a)pyrene	<0.50	mg/kg	06/10/2007		M L	307
dibenzo(ah)anthracene	<0.50	mg/kg	06/10/2007		M L	307
benzo(ghi)perylene	<0.50	mg/kg	06/10/2007		M L	307
indeno(123cd)pyrene	<0.50	mg/kg	06/10/2007		M L	307
PAH (Total - SUM EPA16)	6.5	mg/kg	06/10/2007		M L	307

Analyst Comment for 10195784 :

Accreditation Codes : * = Not UKAS accredited, B = Analysed at STL Bridgend, C = Analysed at STL Coventry, R = Analysed at STL Runcorn, L = Analysed at STL Midlands, S = Sub-contracted, M = M-Certs
For Microbiological determinands 0 or ND = Not Detected, DET = Detected, For Legionella ND=Not detected in volume of sample filtered. I/S = Insufficient sample

Signed :

Name : J. Rogers

Date : 16 October 2007

Title : Production Manager

DETERMINAND COMMENTS FOR REPORT LL/459427/2007



STL

Sample No	Description	Determinand	Comments
10195782	DCS2 0.10m	Asbestos Identification	Non Detected
10195782	DCS2 0.10m	Description of Sample	Soil

Signed :

A handwritten signature in black ink, appearing to be "J. Rogers".

Name : **J. Rogers**

Date : 16 October 2007

Title : **Production Manager**

METHOD COMMENTS FOR REPORT LL/459427/2007

Method	Statement
27	
30	Metals are extracted from land samples by boiling with hydrochloric/nitric acids (3:1 ratio). The measurement of metal concentrations is determined directly on an ICP-OES at defined wavelengths.
30/30C	Metals are extracted from land samples by boiling with hydrochloric/nitric acids (3:1 ratio). For the measurement of metal concentrations is determined on an ICP-OES at defined wavelengths. Where a result is 25mg/kg or above results are obtained directly. Otherwise results are obtained via hydride generation.
307	PAH's are extracted from land samples using acetone. The samples are shaken mechanically and then centrifuged. An aliquot of the supernatant liquid is then transferred to a separate vial and analysed by HPLC using a variable wavelength programme.
30C	Metals are extracted from land samples by boiling with hydrochloric/nitric acid (3:1 ratio). The measurement of metal concentrations is determined by means of hydride generation / atomic vapour on an ICP-OES at defined wavelengths.
33A	Moisture Content is the weight difference between an as received sample and the air dried sample at 30 degrees C.
39	The test is carried out by extraction using deionised water with agitation. The pH of this suspension is read directly from an electronic pH meter.
40A	This method determines steam distillable phenolic compounds in land materials. Phenol is extracted from air dried soil using steam distillation. The pH adjusted distillate is measured colorimetrically at a defined wavelength.
70	Representative fibres are mounted in appropriate Refractive Index (RI) liquids on slides and the different fibrous components are identified using PLM. If no asbestos is found then additional searches for small asbestos fibres on random sub-samples are undertaken using PLM.
Stones	The percentage weight of the stones that are naturally occurring and are greater than 10mm in diameter of the total weight of sample.

APPENDIX C(iii)



SUMMARY OF CHEMICAL ANALYSES ON SOIL LEACHATE AND COMPARISON WITH PUBLISHED GUIDELINES

PROJECT: Sheffield Road, Penistone
PROJECT NO: P4682NW

Table C2

Determinand	Units	Number of Tests Undertaken	Minimum	Maximum	Average	Environmental Quality Standard for inland freshwater	Number of samples exceeding Environmental Quality Standard for inland freshwater
pH	-	4	7.1	7.7	7.37	-	-
Hardness	mg/l	4	6.8	50	23.48	-	-
Arsenic	µg/l	4	1	5.6	2.93	50	0
Beryllium	mg/l	4	<10	<10	<10	-	-
Cadmium	µg/l	4	<0.5	<0.5	<0.5	5	0
Chromium	µg/l	4	<2	<2	<2	5	0
Copper	µg/l	4	<5	<5	<5	1	-
Lead	µg/l	4	<1	1.9	1.23	4	0
Mercury	µg/l	4	<0.2	0.2	0.20	1	0
Nickel	µg/l	4	<2	<2	<2	50	0
Selenium	µg/l	4	<0.3	<0.3	<0.3	-	-
Vanadium	µg/l	4	<10	<10	<10	20	-
Zinc	µg/l	4	<5	13	7	8	1

Assuming the primary receptor is inland freshwater

Footnotes

Report Summary

Mr Andy Thompspon
Geotechnical Developments
The Wharf
Marston Doles
Nr Southam
Warwickshire
CV47 7SS



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STL

Date of Issue: 24 October 2007

Report Number: **MID/463525/2007** Issue **1**

Number of Samples
included in this report **4**

Number of Test Results
included in this report **56**

Site Name: **Sheffield Road Penistone**
Job Received: **16 October 2007**
Analysis Commenced: **16 October 2007**
Order No: **459427/2007**

Signed:

A handwritten signature in cursive script, appearing to read 'S. Clancy'.

Name: **S. Clancy**

Date: **24 October 2007**

Title: **Organic Chemistry Manager**

STL was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

Severn Trent Laboratories Ltd.

Rayner House, 80 Lockhurst Lane, Coventry, CV6 5PZ Tel: +44 (0)24 7658 4800 Fax: +44 (0)24 7658 4848

Certificate of Analysis



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SEVERN
TRENT

STL

Report Number: MID/463525/2007 Issue 1

Site Name: Sheffield Road Penistone

Group	Determinand	Unit	Method/ Accreditation	Leachate			
				10223880	10223881	10223882	10223883
				DCS1 0.10m	DCS2 0.10m	DCS4 0.20m	DCS5 0.20m
Sample Preparation	NRA Leachate		NRA Leachate	Y	Y	Y	Y
Metals	Arsenic (Soluble)	ug/l	56 Y Mid	3.0	5.6	1.0	2.1
	Beryllium (Soluble)	mg/l	CASQ N Mid	<0.010	<0.010	<0.010	<0.010
	Cadmium (Soluble)	ug/l	56 Y Mid	<0.50	<0.50	<0.50	<0.50
	Chromium (Soluble)	ug/l	56 Y Mid	<2.0	<2.0	<2.0	<2.0
	Copper (Soluble)	ug/l	56 Y Mid	<5.0	<5.0	<5.0	<5.0
	Lead (Soluble)	ug/l	56 Y Mid	<1.0	1.9	<1.0	<1.0
	Mercury (Soluble)	ug/l	56 Y Mid	<0.20	<0.20	<0.20	<0.20
	Nickel (Soluble)	ug/l	56 Y Mid	<2.0	<2.0	<2.0	<2.0
	Selenium (Soluble)	ug/l	56 Y Mid	<0.30	<0.30	<0.30	<0.30
	Hardness BG 2 6/3 0	mg/l	CALC N Mid	50	6.8	30	7.1
	Vanadium (Soluble)	mg/l	54F Y Mid	<0.010	<0.010	<0.010	<0.010
	Zinc (Soluble)	ug/l	56 Y Mid	13	<5.0	<5.0	<5.0
Inorganics	pH	pH units	31 Y Mid	7.5	7.1	7.7	7.4

Signed:

Ausa Clancy

Name: S. Clancy

Date: 24 October 2007

Title: Organic Chemistry Manager

Accreditation Codes: Y = UKAS Accredited, N = Not UKAS Accredited, M = MCERTS, S = Sub-contracted.

Analysed at: Bri = STL Bridgend, Cov = STL Coventry, Mid = STL Midlands, Rea = STL Reading, Run = STL Runcom.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. I/S=Insufficient sample

Severn Trent Laboratories Ltd.

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ANALYST COMMENTS FOR REPORT

MID/463525/2007

Issue 1

Page 1 of 1

Date of Issue: 24 October 2007

Sample No

10223880

10223881

10223882

10223883

Analyst Comments

Signed:

Susan Clancy

Name: S. Clancy

Date: 24 October 2007

Title: Organic Chemistry Manager

DETERMINAND COMMENTS FOR REPORT

ISSUE 1

Date of Issue : 24 October 2007

Sample No	Description	Determinand	Comments
-----------	-------------	-------------	----------

Signed:

Name:

Date: 24 October 2007

Title:

APPENDIX C(iv)



**SUMMARY OF CHEMICAL ANALYSES ON SURFACE WATER
AND COMPARISON WITH PUBLISHED GUIDELINES**

PROJECT: Sheffield Road, Penistone
PROJECT NO: P4682NW

Table C3

Determinand	Units	Number of Tests Undertaken	Minimum	Maximum	Average	Environmental Quality Standard for inland freshwater	Number of samples exceeding Environmental Quality Standard for inland freshwater
pH	-	2	7.9	8.4	8.08	-	-
Hardness	mg/l	2	95	110	102.50	-	-
Arsenic	µg/l	2	<1	1	1.00	50	0
Beryllium	mg/l	2	<10	<10	<10	-	-
Cadmium	µg/l	2	<0.5	<0.5	<0.5	5	-
Chromium	µg/l	2	<2	<2	<2	20	-
Copper	µg/l	2	<5	<5	<5	10	-
Lead	µg/l	2	<1	<1	<1	10	-
Mercury	µg/l	2	<0.2	<0.2	<0.2	1	-
Nickel	µg/l	2	3	7.7	7.70	150	0
Selenium	µg/l	2	1.20	1.5	1.50	-	-
Vanadium	µg/l	2	<10	<10	<10	20	-
Zinc	µg/l	2	<5	9.3	7.2	75	0

Assuming the primary receptor is inland freshwater

Footnotes

Report Summary



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STL

Mr Andy Thompson
Geotechnical Developments
The Wharf

Marston Doles
Nr Southam
Warwickshire
CV47 7SS

Date of Issue : 08 November 2007

Report Number : LL/467108/2007 Issue 1

Number of Samples 2
included in report

Site Name : **Sheffield Road Penistone**

Job Received : **30 October 2007**

Number of Test Results 26
included in report

Analysis Commenced : **30 October 2007**

Order Number : **459427/2007**

Signed : 

Name : **J. Rogers**

Date : 08 November 2007

Title : **Production Manager**

STL was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.

Information on the methods of analysis and performance characteristics are available on request

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory

Severn Trent Laboratories Ltd

Rayner House, 80 Lockhurst Lane, Coventry CV6 5PZ Tel : 02476 584800 Fax : 02476 584848

Page 1 of 2

Certificate of Analysis



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STL

Report Number : **LL/467108/2007** Issue **1**

Site Name : **Sheffield Road Penistone**

Group	Determinand	Method/Accreditation	Water 10248183 Upstream	Water 10248184 Downstream
Metals	Arsenic (Soluble) ug/l	56 L N	<1.0	<1.0
	Beryllium (Soluble) mg/l *	CASQ L N	<0.010	<0.010
	Cadmium (Soluble) ug/l	56 L N	<0.50	<0.50
	Chromium (Soluble) ug/l	56 L N	<2.0	<2.0
	Copper (Soluble) ug/l	56 L N	<5.0	<5.0
	Lead (Soluble) ug/l	56 L N	<1.0	<1.0
	Mercury (Soluble) ug/l	56 L N	<0.20	<0.20
	Nickel (Soluble) ug/l	56 L N	3.0	7.7
	Selenium (Soluble) ug/l	56 L N	1.5	1.2
	Hardness, BG 2.6/3.0 mg/l *	CALC L N	95	110
	Vanadium (Soluble) mg/l	54F L N	<0.010	<0.010
	Zinc (Soluble) ug/l	56 L N	<5.0	9.3
Inorganics	pH pH units	31 L N	8.4	7.8

Signed :

Name : **J. Rogers**

Date : **08 November 2007**

Title : **Production Manager**

Accreditation Codes : * = Not UKAS accredited, B = Analysed at STL Bridgend, C = Analysed at STL Coventry, R = Analysed at STL Runcorn, L = Analysed at STL Midlands, S = Sub-contracted

For Microbiological determinands 0 or ND = Not Detected, DET = Detected, For Legionella ND=Not detected in volume of sample filtered.

I/S = Insufficient Sample

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Page 2 of 2

ANALYST COMMENTS FOR REPORT

Page 1 of 1

Sample No

Analyst Comments

Signed :

Name :

Date : 08 November 2007

Title :

DETERMINAND COMMENTS FOR REPORT

Sample No	Description	Determinand	Comments
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Signed :

Name :

Date : 08 November 2007

Title :

APPENDIX D

Ground Gas and Groundwater Monitoring Data



Project No: P4682NW
Project: Sheffield Road, Penistone

Date of Monitoring: 05-Oct-07
Phase of Monitoring: 1

[illegible]

Meteorological Data

Weather Conditions:	DRY
Ground Conditions:	DRY
Atmospheric Oxygen:	20.8%
Wind Speed & Direction:	4.6mph SW
Ambient Temperature:	16°C

Instrument Used	GA2000
Monitored by:	AT

Notes

Borehole flow rates recorded before concentration
m bgl stands for metre below ground level
If it takes longer than 3 mins to reach steady state
conditions, then record the trend e.g. rising or
decreasing

Gas Flow Monitoring Data



Project No: P4682NW
Project: Sheffield Road, Penistone

Date of Monitoring: 05-Oct-07
Phase of Monitoring: 1

[illegible]

**Geotechnical
Developments (UK) Ltd**

Date of Monitoring: 16-Oct-07
Phase of Monitoring: 2

[illegible]

Notes

Weather Conditions:	WET
Ground Conditions:	WET
Atmospheric Oxygen:	20.8%
Wind Speed & Direction:	8.1mph SSW
Ambient Temperature:	16°C

Instrument Used	GA2000
Monitored by:	AT

Borehole flow rates recorded before concentration
m bgl stands for metre below ground level
If it takes longer than 3 mins to reach steady state
conditions, then record the trend e.g. rising or
decreasing

**Geotechnical
Developments (UK) Ltd**

Date of Monitoring: 16-Oct-07
Phase of Monitoring: 2

[illegible]

Ground Gas and Groundwater Monitoring Data



Project No: P4682NW
Project: Sheffield Road, Penistone

Date of Monitoring: 24-Oct-07
Phase of Monitoring: 3

[illegible]

Meteorological Data

* Bung stuck in pipe

Weather Conditions:	DRY
Ground Conditions:	DRY
Atmospheric Oxygen:	20.4%
Wind Speed & Direction:	4.6mph NE
Ambient Temperature:	14°C

Instrument Used	GA2000
Monitored by:	AT

Notes

Borehole flow rates recorded before concentration
m bgl stands for metre below ground level
If it takes longer than 3 mins to reach steady state
conditions, then record the trend e.g. rising or
decreasing

**Geotechnical
Developments (UK) Ltd.**

Date of Monitoring: 24-Oct-07
Phase of Monitoring: 3

[illegible]

**Geotechnical
Developments (UK) Ltd**

Date of Monitoring: 23-Nov-07
Phase of Monitoring: 4

[illegible]

Weather Conditions:	DRY
Ground Conditions:	DRY
Atmospheric Oxygen:	20.8%
Wind Speed & Direction:	5.8mph NW
Ambient Temperature:	5°C

Instrument Used	GA2000
Monitored by:	AT

Borehole flow rates recorded before concentration
m bgl stands for metre below ground level
If it takes longer than 3 mins to reach steady state
conditions, then record the trend e.g. rising or
decreasing

**Geotechnical
Developments (UK) Ltd**

Date of Monitoring: 23-Nov-07
Phase of Monitoring: 4

[illegible]



GROUND GAS MONITORING – NOTES

- WAB Denotes borehole wet at base
 (1) Denotes measurement from Geotechnical Instruments Infra Red Gas Analyser 2000 (accuracy as below).
 (2) Denotes measurement obtained from GMI Gasurveyor 4 (accurate to 5-10ppm resolution)
 - Denotes machine not appropriate for this measurement.
 NR Denotes not recorded: (a) Machine Fault
 (b) Machine unavailable

The following table denotes the accuracy of the Geotechnical Instruments Infra Red Gas Analyser.

Gas Ranges

Detection principle	CO ₂ and CH ₄ by dual wavelength infra-red cell with reference channel. O ₂ , CO and H ₂ S by internal electrochemical cells			
Oxygen cell lifetime	Approximately 3 years in air			
Typical Accuracy	Gas	0-5% Volume	5-15% Volume	15% Full Scale
	CH ₄	±0.5%	±1%	±3%
	CO ₂	±0.5%	±1%	±3%
	O ₂	±1%	±1%	±1%
	Gas	0 to Full Scale		
	CO	±10% Full Scale		
	H ₂ S	±10% Full Scale		
Response time, T90	CH ₄	<=20 seconds		
	CO ₂	<=20 seconds		
	O ₂	<=20 seconds		
	CO	<=60 seconds		
	H ₂ S	<=60 seconds		
Range	CH ₄	0-100%		
	CO ₂	0-100%		
	O ₂	0-25%		
	CO	0-500ppm		
	H ₂ S	0-500ppm		

Facilities

Temperature measurement	With optional probe -10°C to + 75°C
Temperature accuracy	±0.2°C (± probe accuracy)
Visual and audible alarm	User selectable CO ₂ , CH ₄ and O ₂ alarm levels via DataField Commis
Communications	RS232 protocol via download with variable baud rate.
Relative pressure	±250mbar from calibration pressure

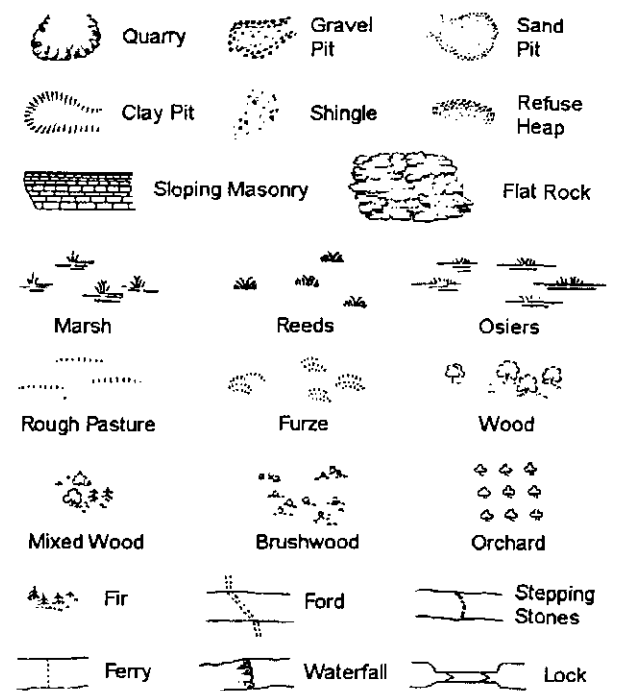
The following table denotes the accuracy of the Gas Data GF60D (Flow Meter)

	Range	Accuracy
Flow Range	+60 to -6 litres per hour	+/- 2% fs
Volume	+9999 to -999ml	+/- 2% fs
Atmospheric Pressure	900 to 1000 mbar	+/- 5 mbar
Borehole Pressure	+300 to -30Pa	+/-2% fs
Test Time	0 to 999s	-

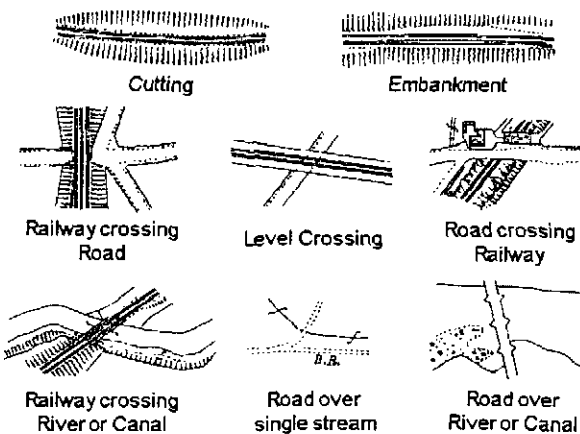
APPENDIX E(i)

Historical Mapping Legends

Ordnance Survey County Series and Ordnance Survey Plan 1:2,500



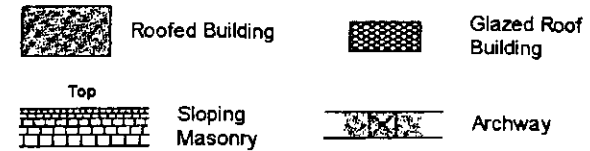
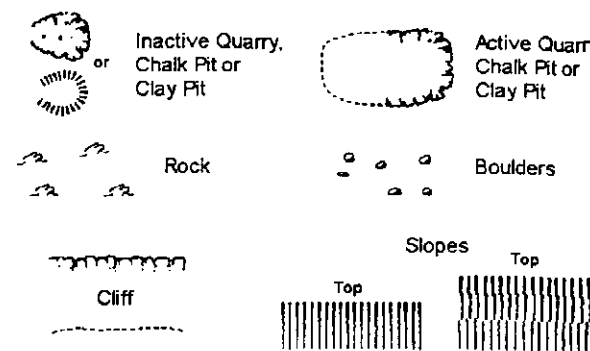
△ Trig. Station 507 △ Altitude at Trig. Station
 B.M. 325.9 ↑ Bench Mark 342 + Surface Level
 ← Arrow denotes flow of water → Antiquities (site of)



--- County Boundary (Geographical)
 --- County & Civil Parish Boundary
 + + + + Administrative County & Civil Parish Boundary
 --- County Borough Boundary (England)
 --- County Burgh Boundary (Scotland)

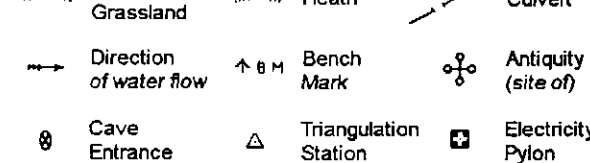
B.P. B.S. Boundary Post or Stone P.C.B. Police Call Box
 B.R. Bridle Road P. Pump
 E.P. Electricity Pylon S.P. Signal Post
 F.B. Foot Bridge S.L. Sluice
 F.P. Foot Path Sp. Spring
 G.P. Guide Post or Board T.C.B. Telephone Call Box
 M.S. Mile Stone Tr. Trough
 M.P. M.R. Mooring Post or Ring W. Well

Ordnance Survey Plan, Additional SIMs and Supply of Unpublished Survey Information 1:2,500 and 1:1,250



Non-Coniferous Tree (surveyed) Coniferous Tree (surveyed)
 Non-Coniferous Trees (not surveyed) Coniferous Trees (not surveyed)

Orchard Tree Scrub Bracken
 Coppice, Osier Reeds Marsh, Saltings
 Rough Grassland Heath Culvert



--- Electricity Transmission Line
 --- County Boundary (Geographical)
 --- County & Civil Parish Boundary
 --- Civil Parish Boundary
 --- Admin. County or County Bor. Boundary
 --- London Borough Boundary
 --- Symbol marking point where boundary mereing changes

BH Beer House P Pillar, Pole or Post
 BP, BS Boundary Post or Stone PO Post Office
 Cn, C Capstan, Crane PC Public Convenience
 Chy Chimney PH Public House
 D Fn Drinking Fountain Pp Pump
 EI P Electricity Pillar or Post SB, S Br Signal Box or Bridge
 FAP Fire Alarm Pillar SP, SL Signal Post or Light
 FB Foot Bridge Spr Spring
 GP Guide Post Tk Tank or Track
 H Hydrant or Hydraulic TCB Telephone Call Box
 LC Level Crossing TCP Telephone Call Post
 MH Manhole Tr Trough
 MP Mile Post or Mooring Post Wr Pt, Wr T Water Point, Water Tap
 MS Mile Stone W Well
 NTL Normal Tidal Limit Wd Pp Wind Pump

Large-Scale National Grid Data 1:2,500 and 1:1,250



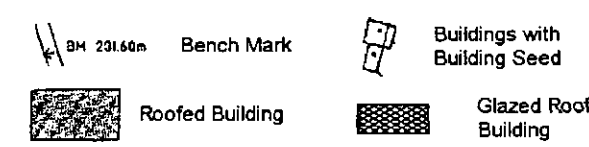
Rock Rock (scattered)
 Boulders Boulders (scattered)

Positioned Boulder Scree
 Non-Coniferous Tree (surveyed) Coniferous Tree (surveyed)

Non-Coniferous Trees (not surveyed) Coniferous Trees (not surveyed)
 Orchard Tree Scrub Bracken

Coppice, Osier Reeds Marsh, Saltings
 Rough Grassland Heath Culvert

Direction of water flow Triangulation Station Antiquity (site of)
 Electricity Transmission Line Electricity Pylon



--- Civil parish/community boundary
 --- District boundary
 --- County boundary
 --- Boundary post/stone
 Boundary mereing symbol (note: these always appear in opposed pairs or groups of three)

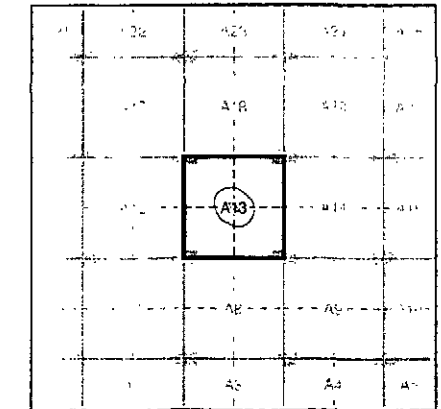
Bks Barracks P Pillar, Pole or Post
 Bty Battery PO Post Office
 Cem Cemetery PC Public Convenience
 Chy Chimney Pp Pump
 Cls Cistern Ppg Sta Pumping Station
 Dismtd Rly Dismantled Railway PW Place of Worship
 El Gen Sta Electricity Generating Station Sewage Ppg Sta Sewage Pumping Station
 EI P Electricity Pole, Pillar SB, S Br Signal Box or Bridge
 El Sub Sta Electricity Sub Station SP, SL Signal Post or Light
 FB Filter Bed Spr Spring
 Fn / D Fn Fountain / Drinking Ftn. Tk Tank or Track
 Gas Gov Gas Valve Compound Tr Trough
 GVC Gas Governor Wd Pp Wind Pump
 GP Guide Post Wr Pt, Wr T Water Point, Water Tap
 MH Manhole Wks Works (building or area)
 MP, MS Mile Post or Mile Stone W Well



Ordnance Survey mapping included:

Mapping Type	Scale	Date	Pg
Yorkshire	1:2,500	1893	2
Yorkshire	1:2,500	1906	3
Yorkshire	1:2,500	1931	4
Ordnance Survey Plan	1:2,500	1960	5
Ordnance Survey Plan	1:2,500	1968	6
Ordnance Survey Plan	1:2,500	1985	7
Additional SIMs	1:2,500	1978 - 1983	8
Additional SIMs	1:2,500	1980	9
Additional SIMs	1:2,500	1981	10
Additional SIMs	1:2,500	1983	11
Large-Scale National Grid Data	1:2,500	1992 - 1993	12
Large-Scale National Grid Data	1:2,500	1993 - 1995	13

Historical Map - Segment A13



Order Details

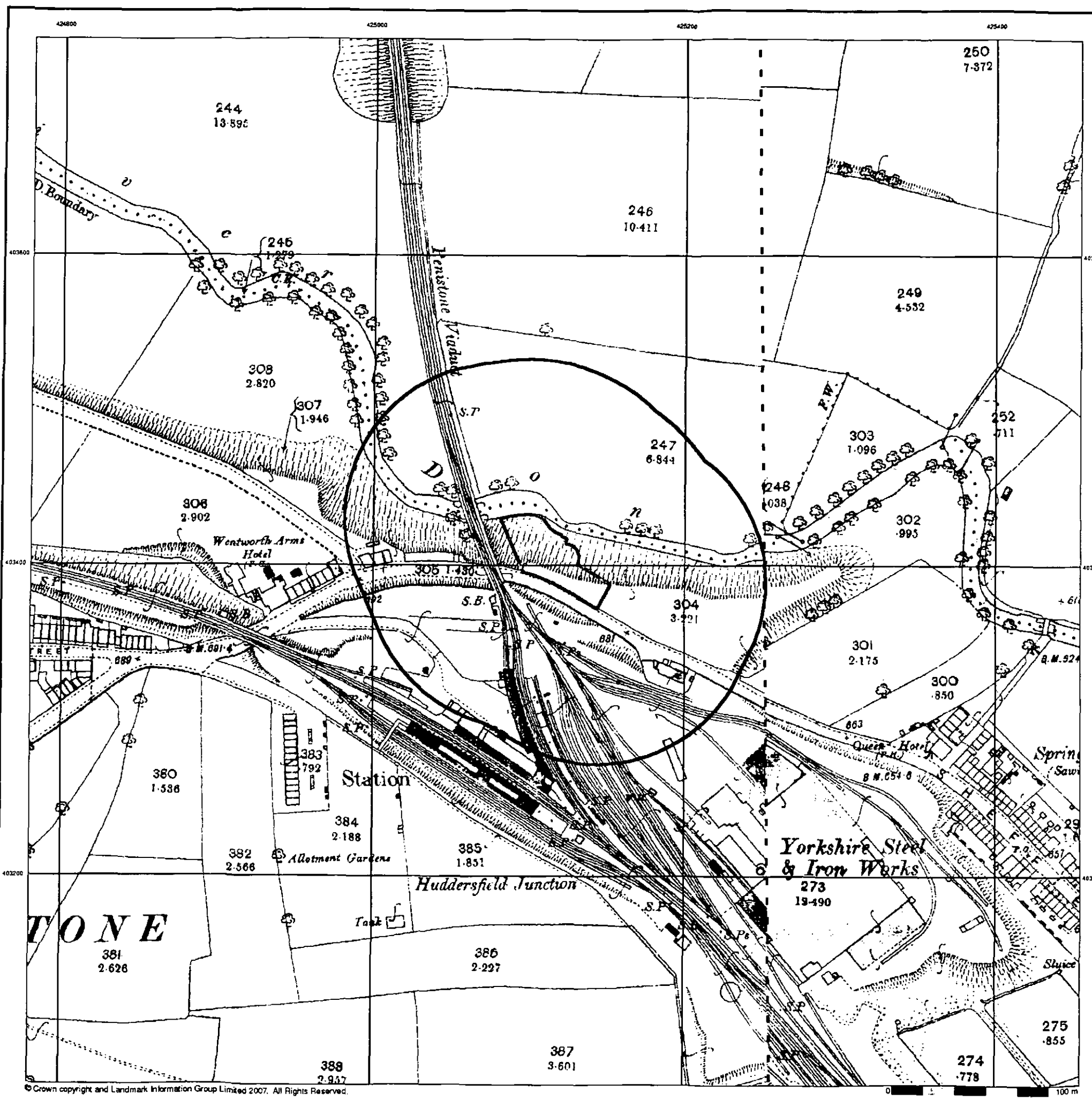
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 Search Buffer (m): 100

Site Details

Sheffield Road, Penistone



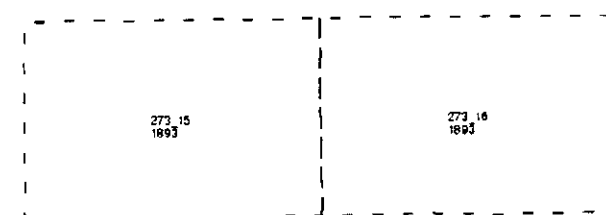
Tel: 0870 850 6670
 Fax: 0870 850 6671
 Web: www.envirocheck.co.uk



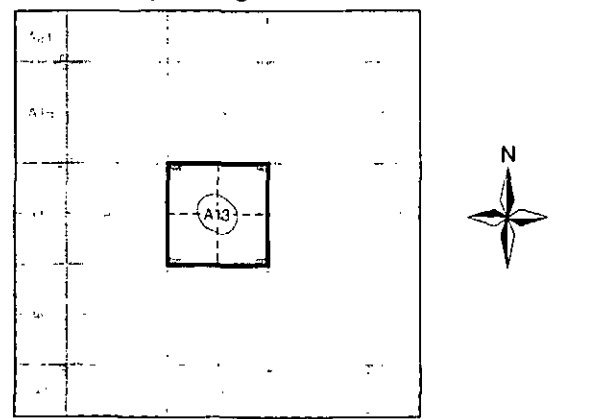
Yorkshire
Published 1893
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number: 22731101_1_1
Customer Ref: P4682/NW
National Grid Reference: 425120, 403400
Slice: A
Site Area (Ha): 0.19
Search Buffer (m): 100

Site Details

Sheffield Road, Penistone

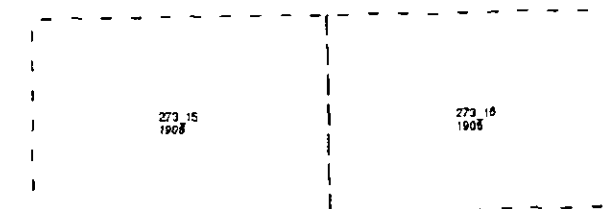
Yorkshire

Published 1906

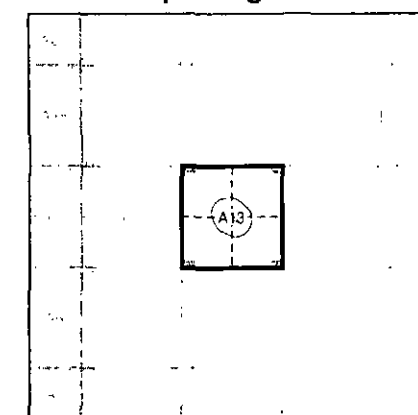
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13

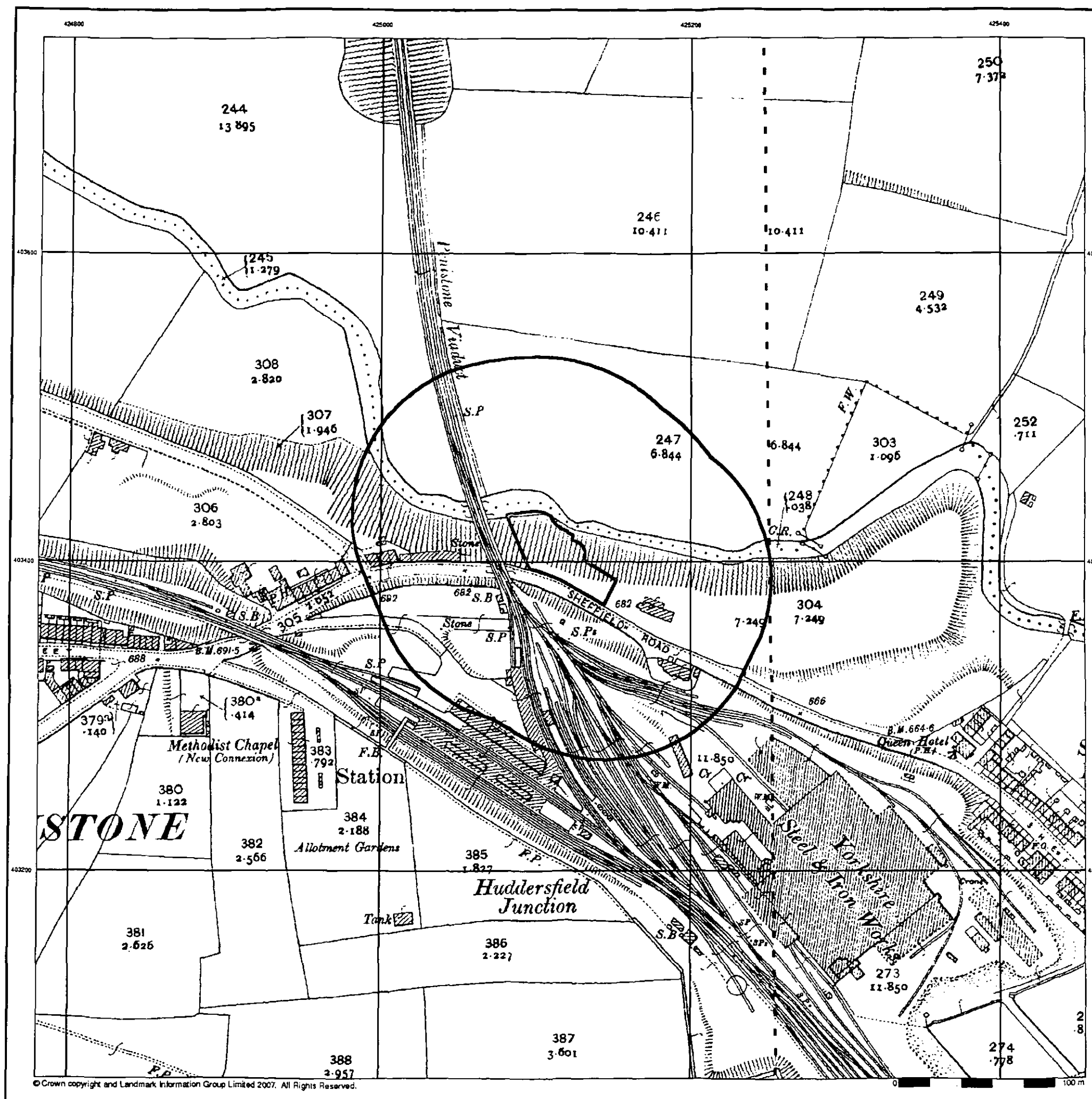


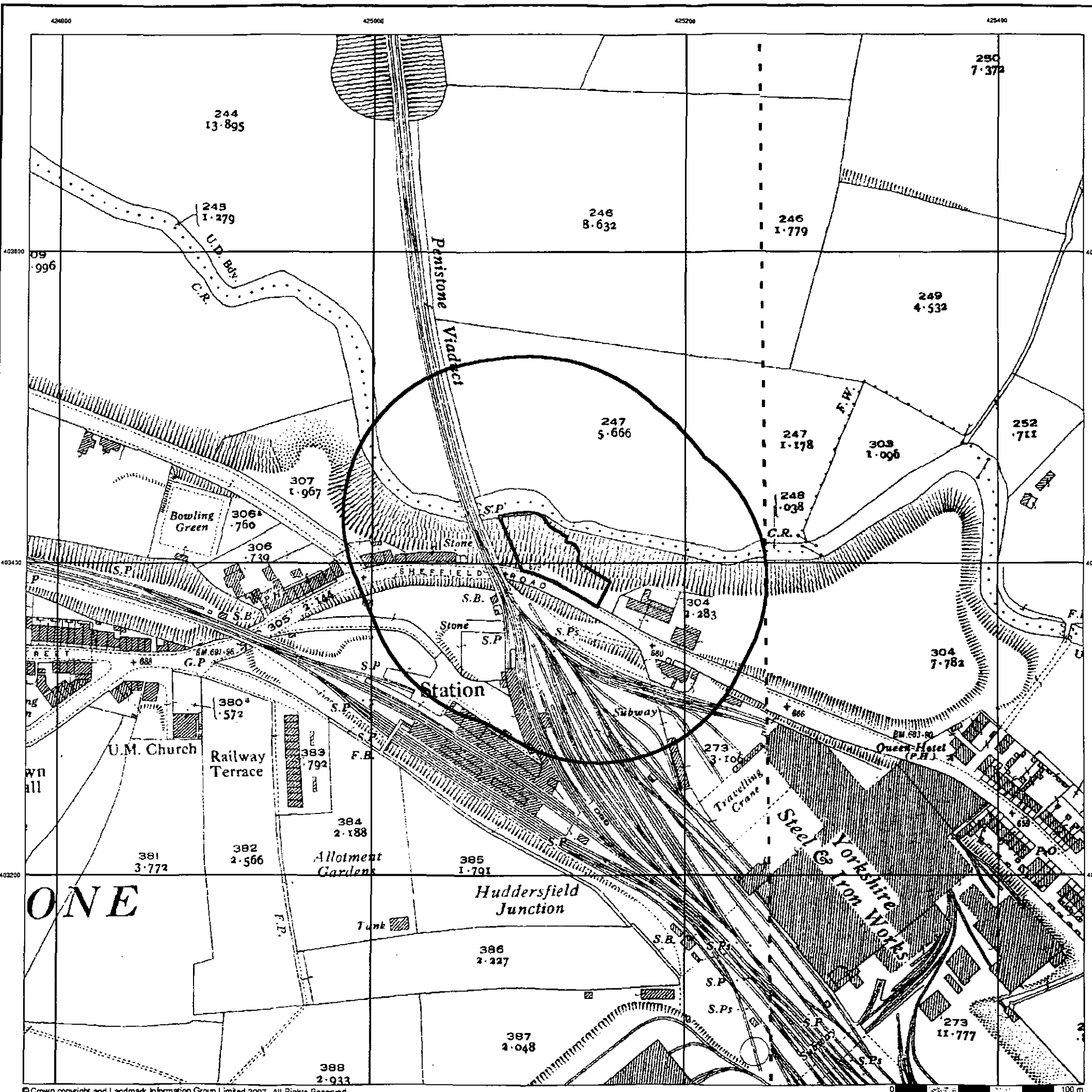
Order Details

Order Number: 22731101_1_1
Customer Ref: P4682/NW
National Grid Reference: 425120, 403400
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Site Area (Ha): 0.19
Search Buffer (m): 100

Site Details

Sheffield Road, Penistone

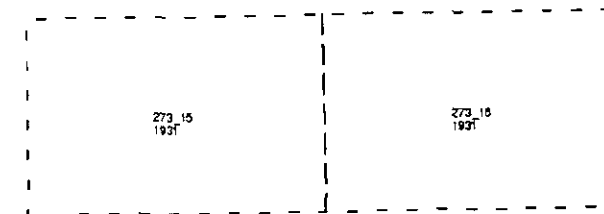




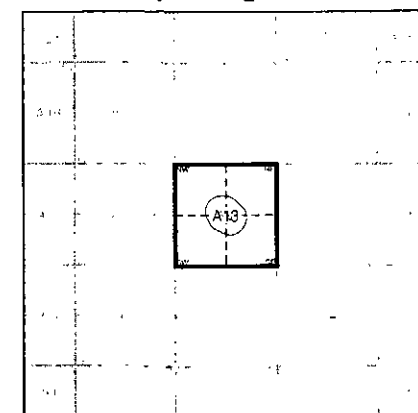
Yorkshire
Published 1931
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13

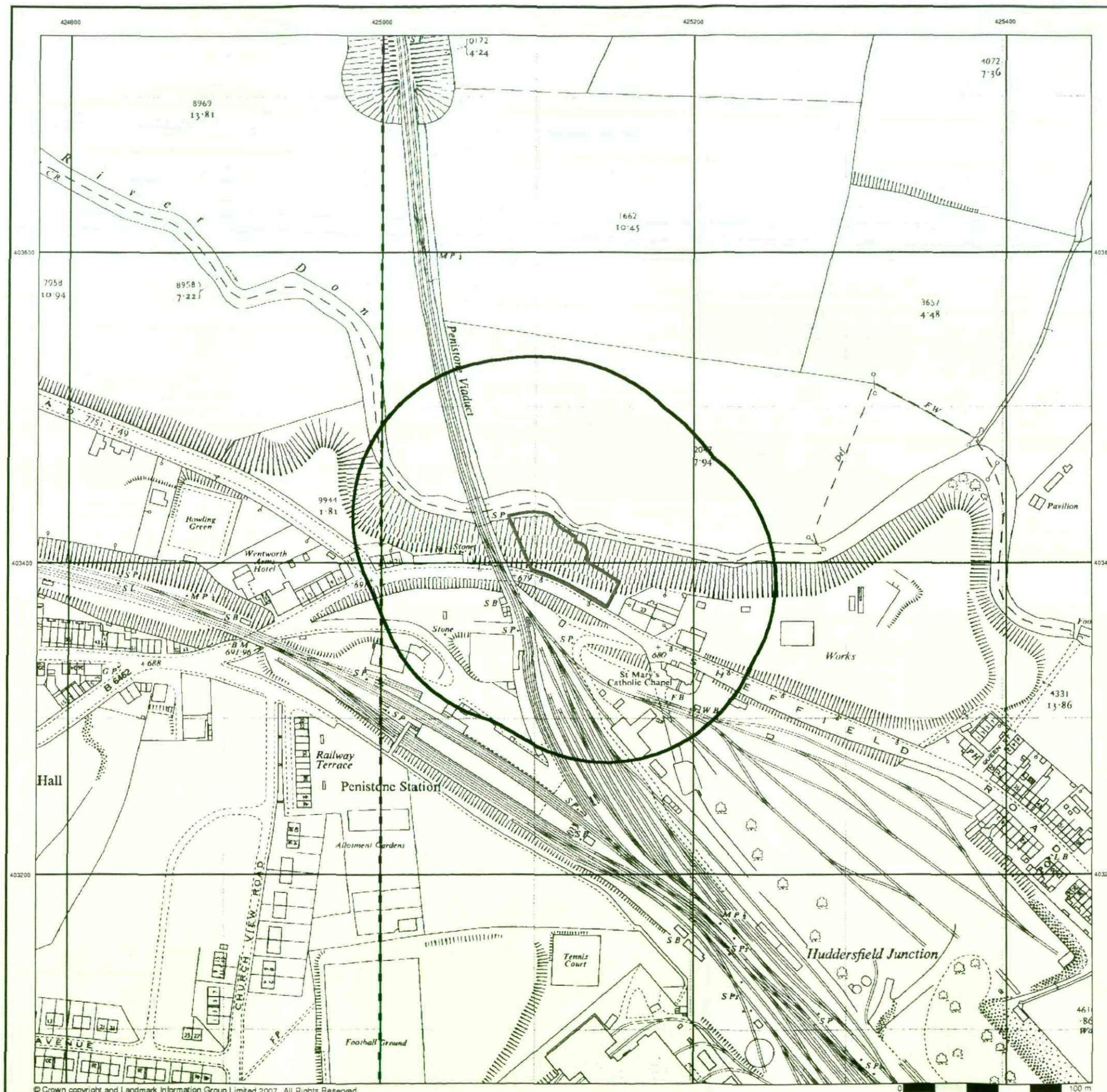


Order Details

Order Number: 22731101_1_1
Customer Ref: P4682/NW
National Grid Reference: 425120, 403400
Slice: A
Site Area (Ha): 0.19
Search Buffer (m): 100

Site Details

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Ordnance Survey Plan

Published 1960

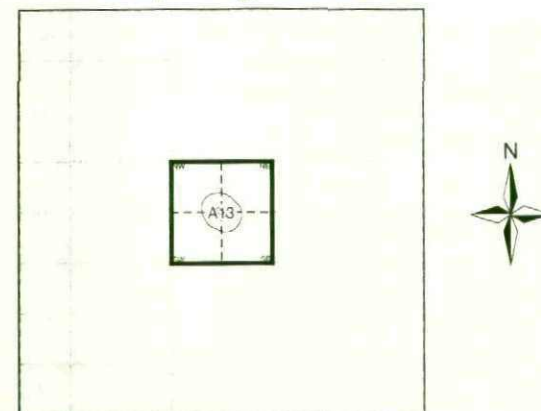
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

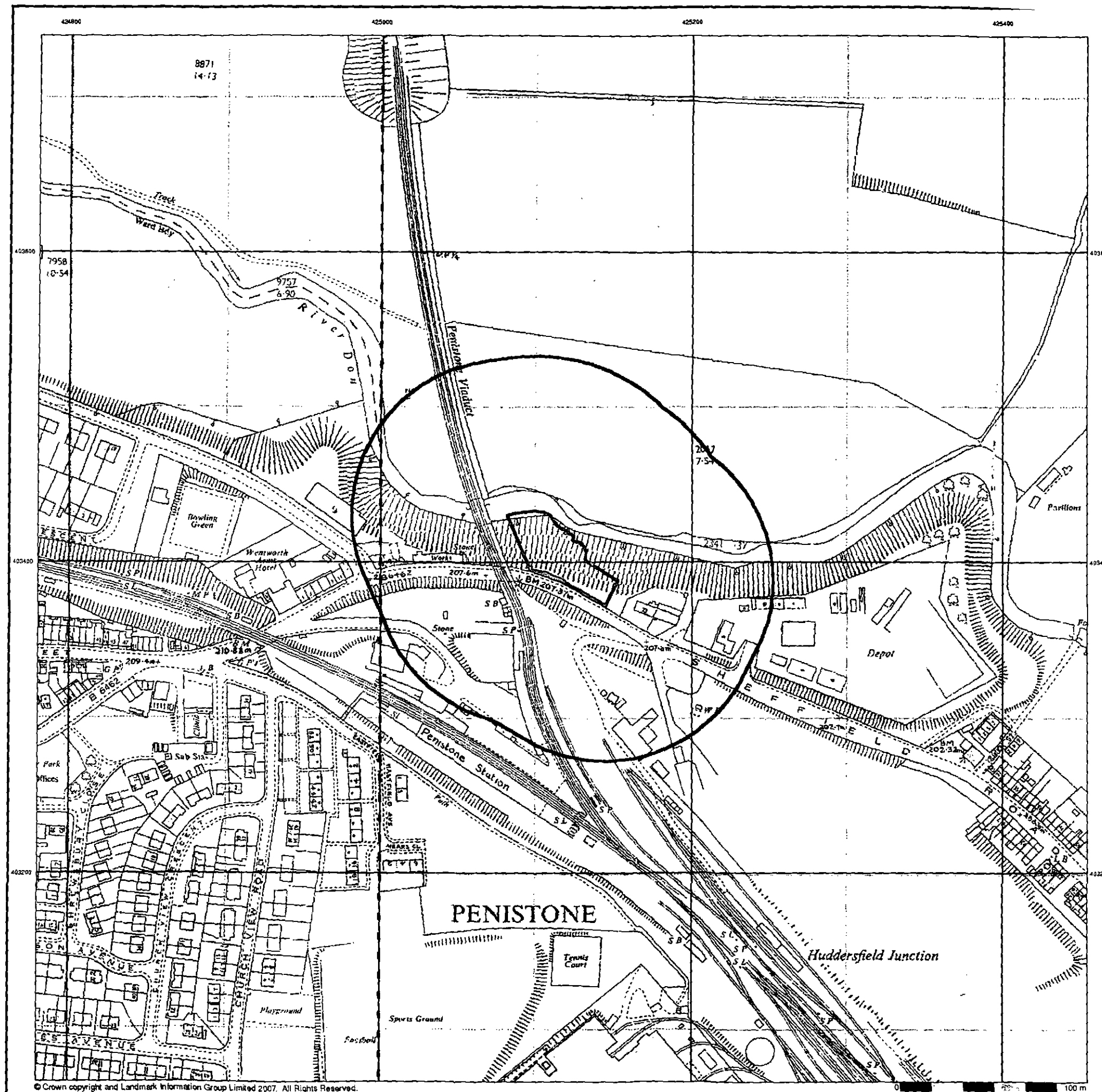
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Customer Ref: P4682/NW
National Grid Reference: 425120, 403400
Slice: A
Site Area (Ha): 0.19
Search Buffer (m): 100

Site Details

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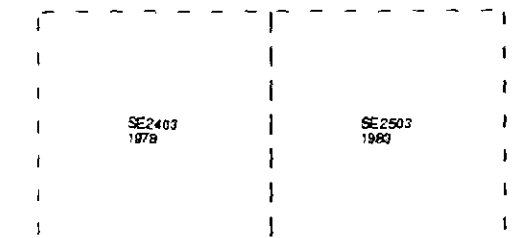
Additional SIMs

Published 1978 - 1983

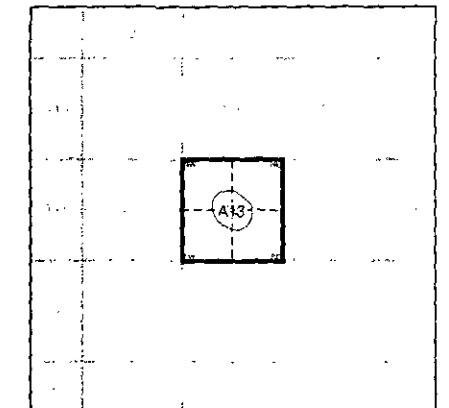
Source map scale - 1:2,500

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13

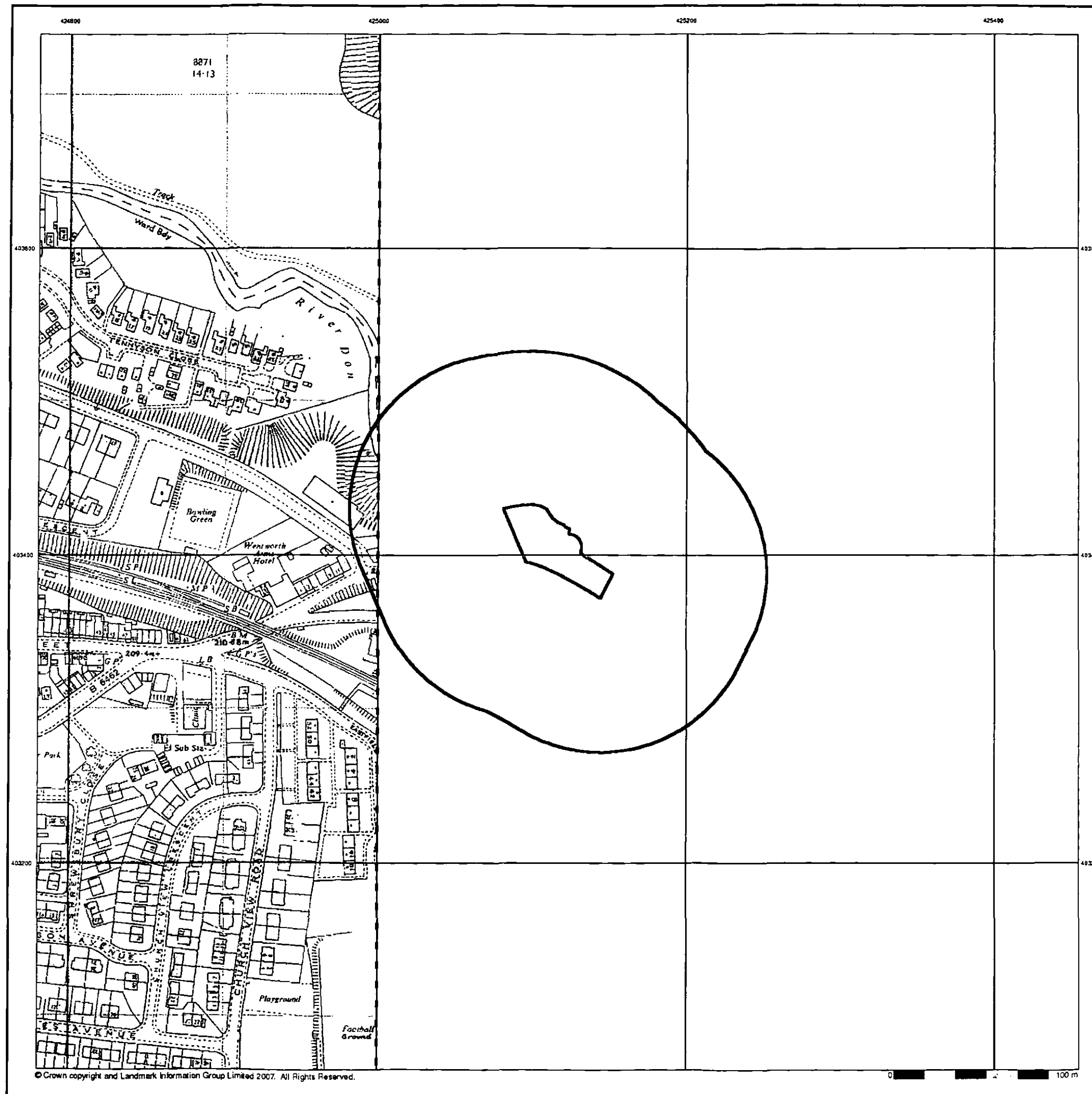


Order Details

Order Number: 22731101_1_1
Customer Ref: P4682/NW
National Grid Reference: 425120, 403400
Slice: A
Site Area (Ha): 0.19
Search Buffer (m): 100

Site Details

Sheffield Road, Penistone



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0 100 m

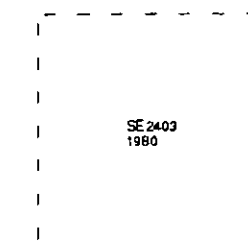
Additional SIMs

Published 1980

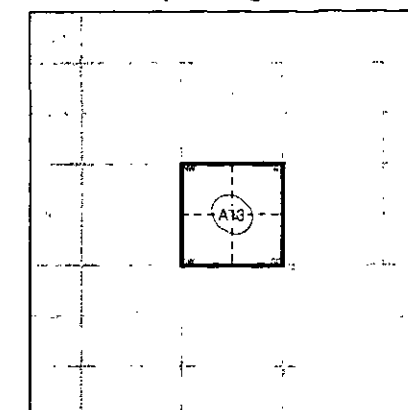
Source map scale - 1:2,500

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13

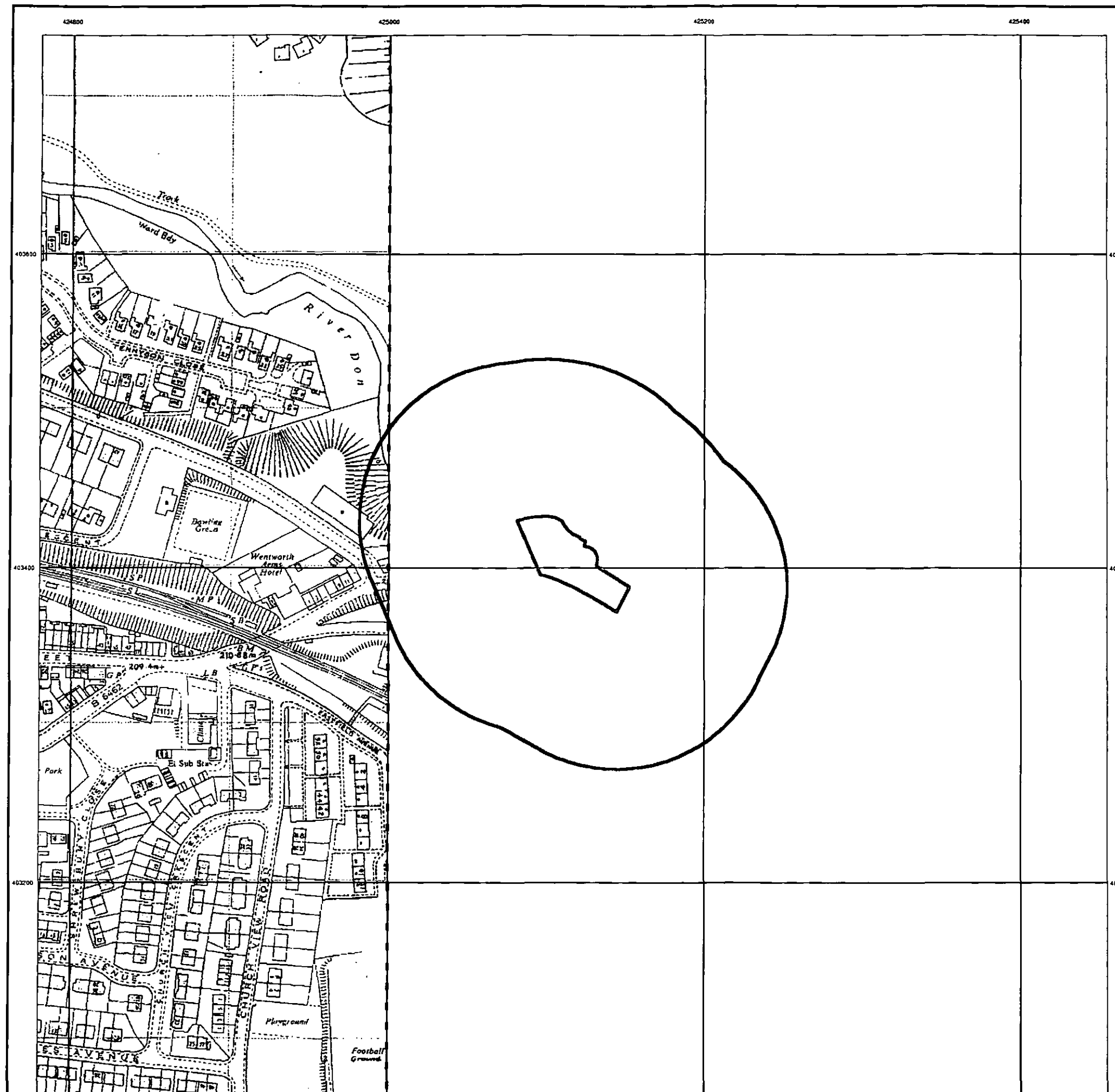


Order Details

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Customer Ref: P4682/NW
National Grid Reference: 425120, 403400
Slice: A
Site Area (Ha): 0.19
Search Buffer (m): 100

Site Details

Sheffield Road, Penistone



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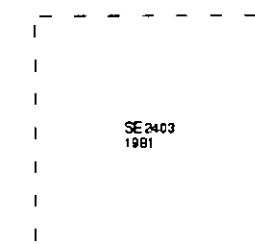
Additional SIMs

Published 1981

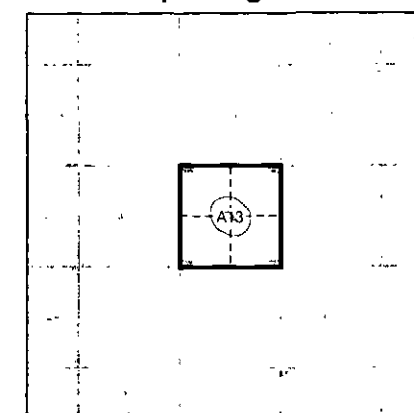
Source map scale - 1:2,500

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13

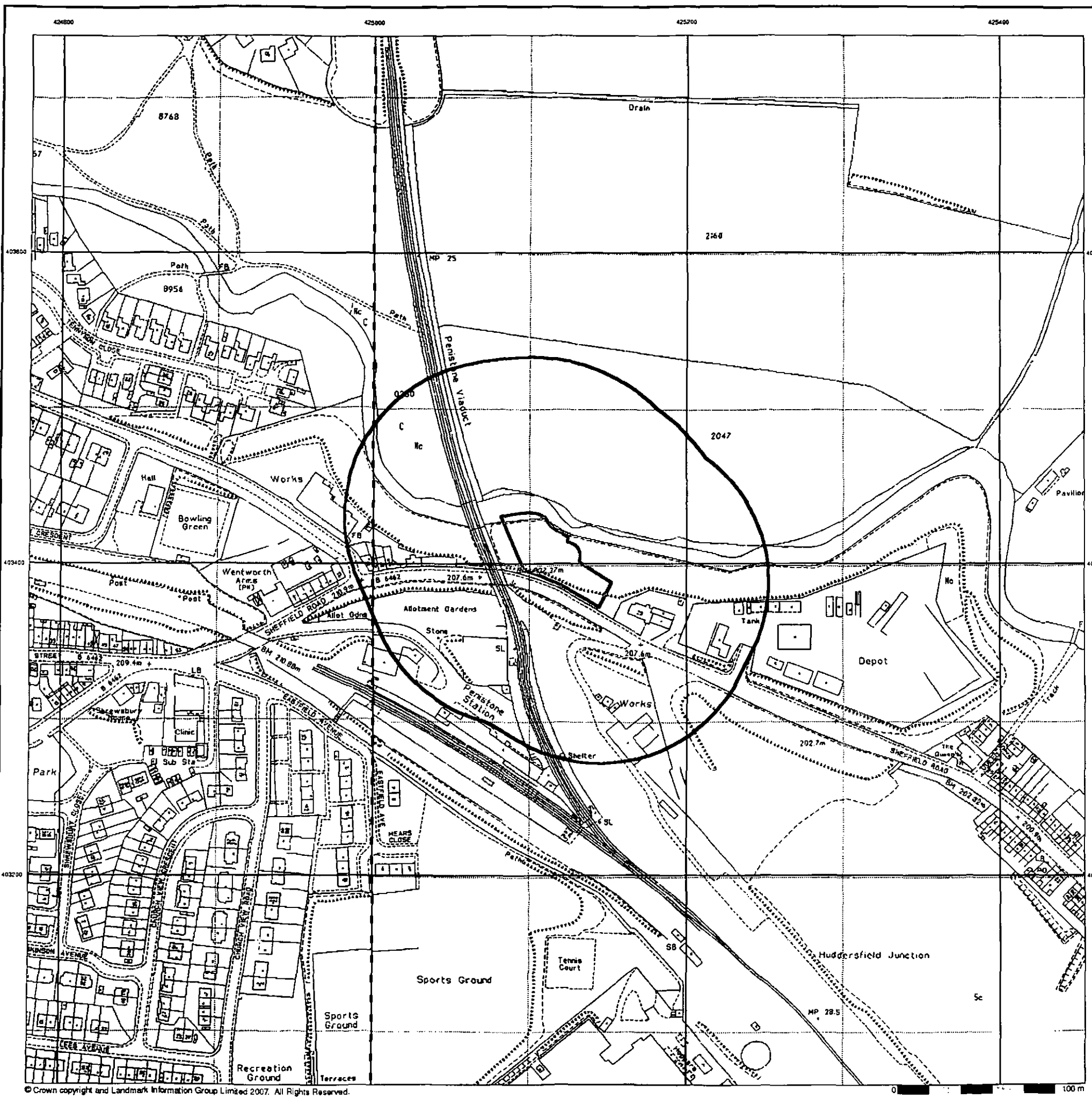


Order Details

Order Number: 22731101_1_1
Customer Ref: P4682/NW
National Grid Reference: 425120, 403400
Slice: A
Site Area (Ha): 0.19
Search Buffer (m): 100

Site Details

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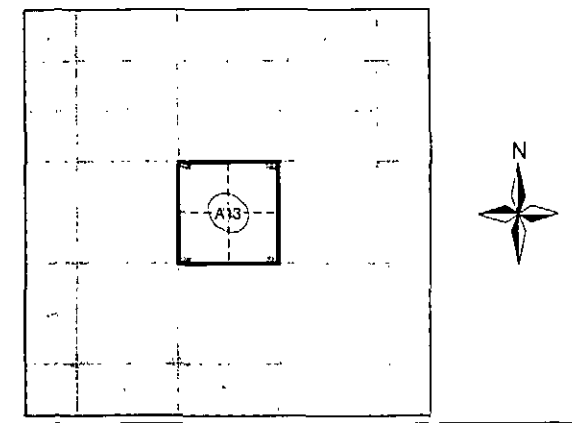
Large-Scale National Grid Data
Published 1992 - 1993
Source map scale - 1:2,500

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)

SE2403 1992	SE2503 1993
----------------	----------------

Historical Map - Segment A13



Order Details

Order Number: 22731101_1_1
 Customer Ref: P4682/NW
 National Grid Reference: 425120, 403400
 Slice: A
 Site Area (Ha): 0.19
 Search Buffer (m): 100

Site Details

Sheffield Road, Penistone



Tel: 0870 850 6670
 Fax: 0870 850 6671
 Web: www.envirocheck.co.uk

Historical Mapping Legends

Ordnance Survey County Series and Ordnance Survey Plan 1:10,560

	Gravel Pit		Sand Pit		Other Pits
	Quarry		Shingle		Orchard
	Osiers		Reeds		Marsh
	Mixed Wood		Deciduous		Brushwood
	Fir		Furze		Rough Pasture
	Arrow denotes flow of water		Trigonometrical Station		
	Site of Antiquities		Bench Mark		
	Pump, Guide Post, Signal Post		Well, Spring, Boundary Post		
	285		Surface Level		
	Sketched Contour		Instrumental Contour		
	Main Roads		Minor Roads		
	Sunken Road		Raised Road		
	Road over Railway		Railway over River		
	Railway over Road		Level Crossing		
	Road over River or Canal		Road over Stream		
	Road over Stream				
	County Boundary (Geographical)				
	County & Civil Parish Boundary				
	Administrative County & Civil Parish Boundary				
	County Borough Boundary (England)				
	County Burgh Boundary (Scotland)				
	Rural District Boundary				
	Civil Parish Boundary				

Ordnance Survey Plan 1:10,000

	Chalk Pit, Clay Pit or Quarry		Gravel Pit
	Sand Pit		Disused Pit or Quarry
	Refuse or Slag Heap		Lake, Loch or Pond
	Dunes		Boulders
	Coniferous Trees		Non-Coniferous Trees
	Orchard		Scrub
	Bracken		Heath
	Marsh		Reeds
	Building		Glasshouse
	Sloping Masonry		Pylon
	Electricity Transmission Line		Pole
	Cutting		Embankment
	Road Under		Road Over
	Level Crossing		Foot Bridge
	Standard Gauge Multiple Track		Standard Gauge Single Track
	Siding, Tramway or Mineral Line		Narrow Gauge
	Geographical County		
	Administrative County, County Borough or County of City		
	Municipal Borough, Urban or Rural District, Burgh or District Council		
	Borough, Burgh or County Constituency		
	Civil Parish		
	Boundary Post or Stone		Police Station
	Church		Post Office
	Club House		Public Convenience
	Fire Engine Station		Public House
	Foot Bridge		Signal Box
	Fountain		Spring
	Guide Post		Telephone Call Box
	Mile Post		Telephone Call Post
	Mile Stone		Well

1:10,000 Raster Mapping

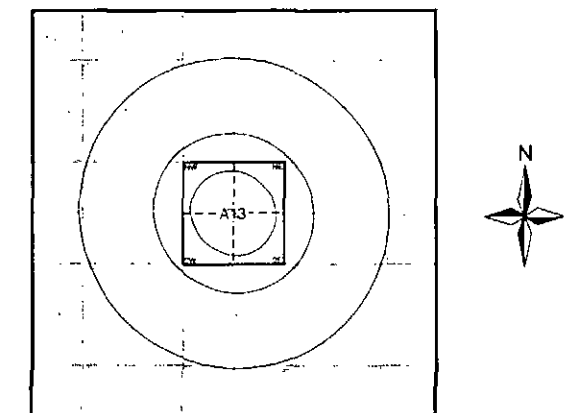
	Gravel Pit		Refuse tip or slag heap
	Rock		Rock (scattered)
	Boulders		Boulders (scattered)
	Shingle		Mud
	Sand		Sand Pit
	Slopes		Top of cliff
	General detail		Underground detail
	Overhead detail		Narrow gauge railway
	Multi-track railway		Single track railway
	County boundary (England only)		Civil, parish or community boundary
	District, Unitary, Metropolitan, London Borough boundary		Constituency boundary
	Area of wooded vegetation		Non-coniferous trees
	Non-coniferous trees (scattered)		Coniferous trees
	Coniferous trees (scattered)		Positioned tree
	Orchard		Coppice or Osiers
	Rough Grassland		Heath
	Scrub		Marsh, Salt Marsh or Reeds
	Water feature		Flow arrows
	Mean high water (springs)		Mean low water (springs)
	Telephone line (where shown)		Electricity transmission line (with poles)
	Bench mark (where shown)		Triangulation station
	Point feature (e.g. Guide Post or Mile Stone)		Pylon, flare stack or lighting tower
	Site of (antiquity)		Glasshouse
	General Building		Important Building



Ordnance Survey mapping included:

Mapping Type	Scale	Date	Pg
Yorkshire	1:10,560	1851 - 1855	2
Yorkshire	1:10,560	1894	3
Yorkshire	1:10,560	1906 - 1907	4
Yorkshire	1:10,560	1938 - 1948	5
Ordnance Survey Plan	1:10,560	1955	6
Ordnance Survey Plan	1:10,560	1965 - 1967	7
Ordnance Survey Plan	1:10,000	1989	8
10K Raster Mapping	1:10,000	2000	9
10K Raster Mapping	1:10,000	2006	10

Historical Map - Slice A



Order Details

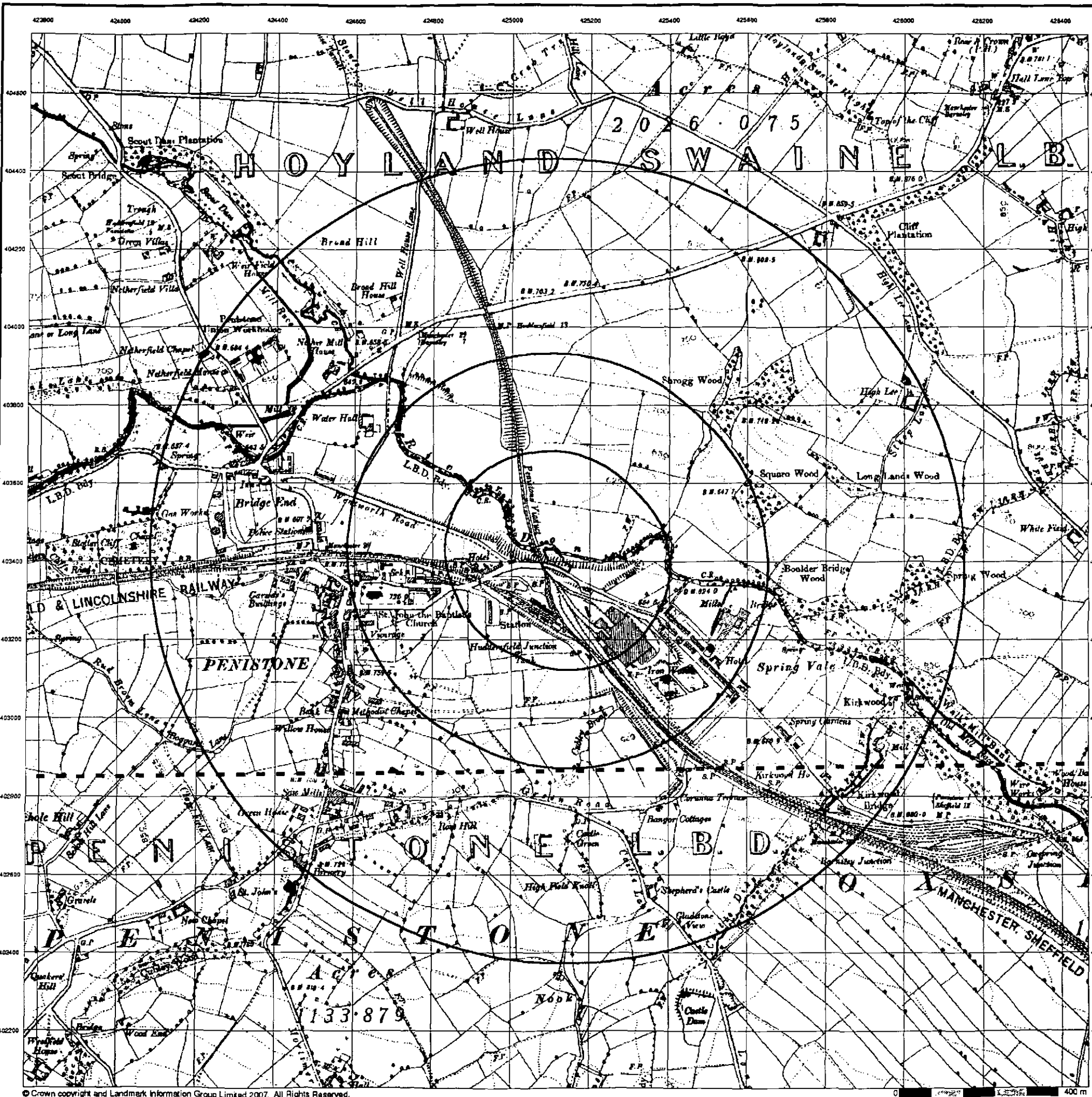
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 National Grid Reference: 425120, 403400
 Slice: A
 Site Area (Ha): 0.19
 Search Buffer (m): 1000

Site Details

Sheffield Road, Penistone



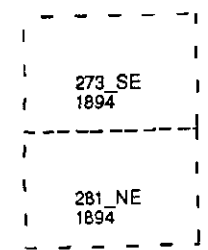
Tel: 0870 850 6670
 Fax: 0870 850 6671
 Web: www.envirocheck.co.uk



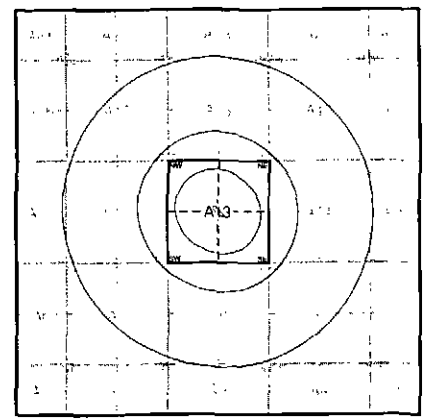
Yorkshire
Published 1894
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A

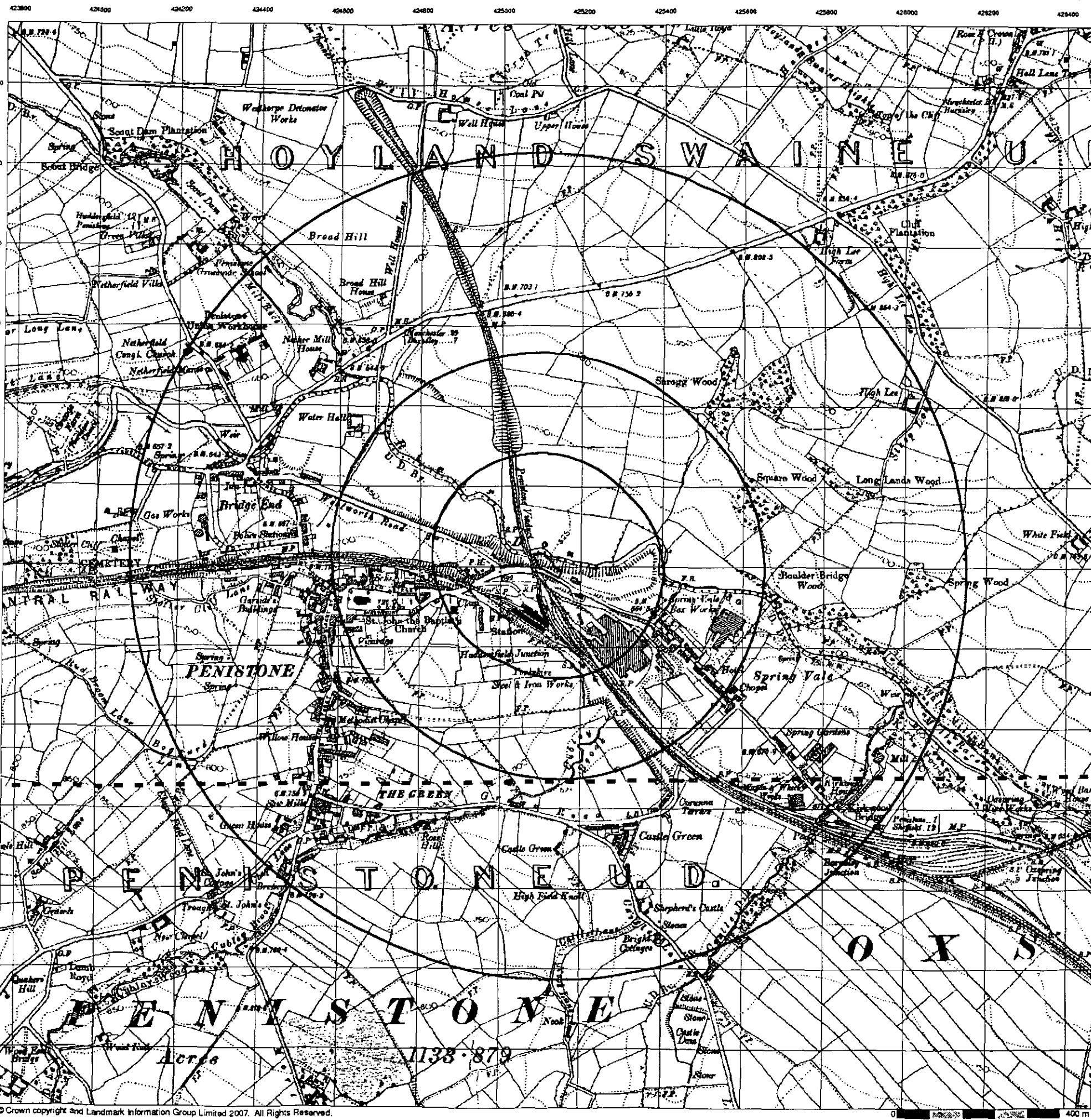


Order Details

Order Number: 22731101_1_1
Customer Ref: P4682/NW
National Grid Reference: 425120, 403400
Slice: A
Site Area (Ha): 0.19
Search Buffer (m): 1000

Site Details

Sheffield Road, Penistone



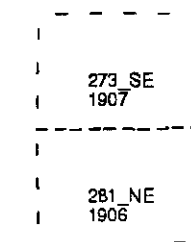
Yorkshire

Published 1906 - 1907

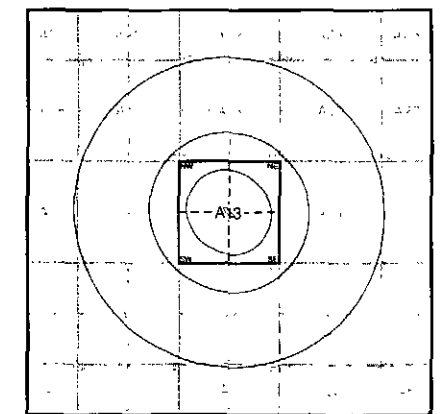
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A

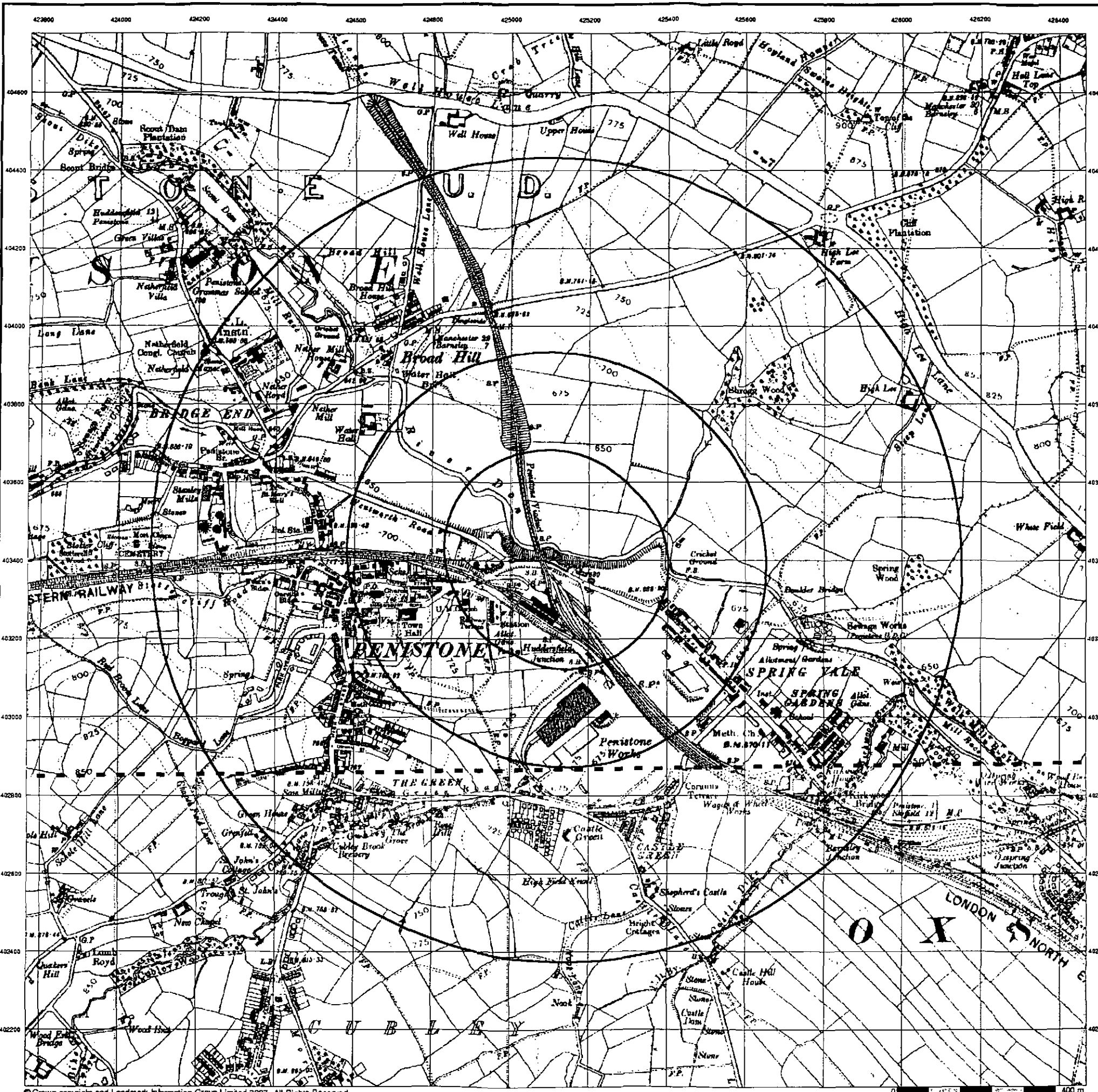


Order Details

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National Grid Reference: 425120, 403400
Slice: A
Site Area (Ha): 0.19
Search Buffer (m): 1000

Site Details

Sheffield Road, Penistone



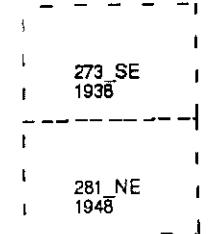
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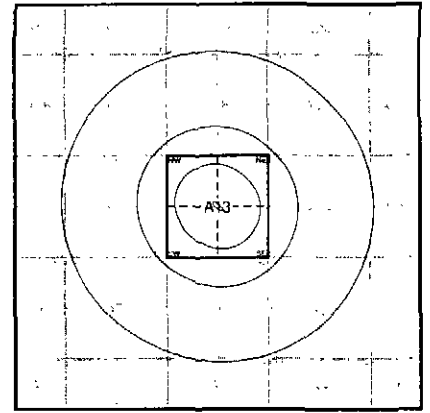
Yorkshire
Published 1938 - 1948
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

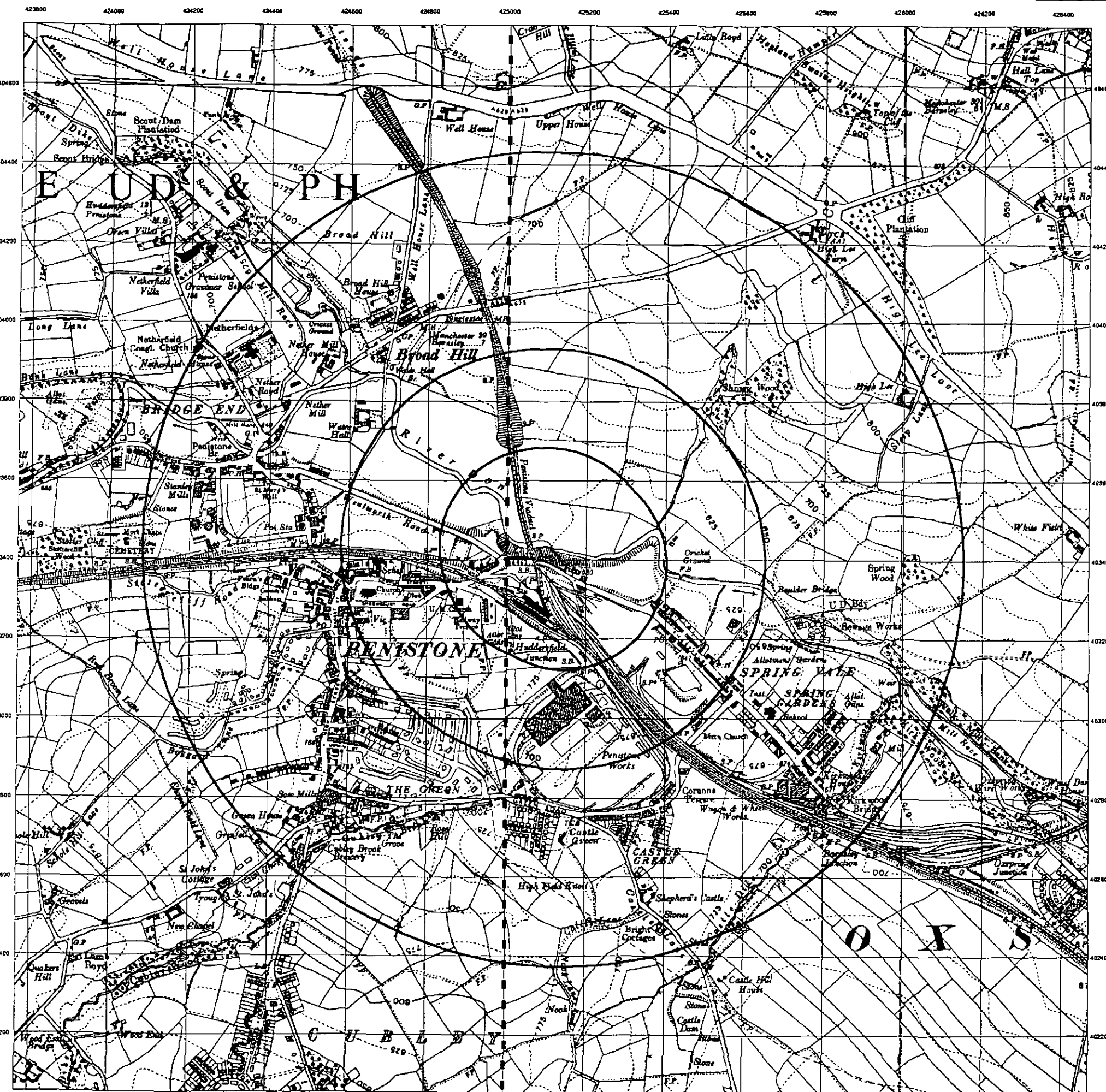
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Customer Ref: P4682/NW
National Grid Reference: 425120, 403400
Slice: A
Site Area (Ha): 0.19
Search Buffer (m): 1000

Site Details

Sheffield Road, Penistone



Tel: 0870 850 6670
Fax: 0870 850 6671
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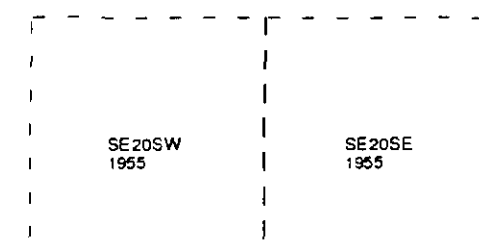


Ordnance Survey Plan Published 1955

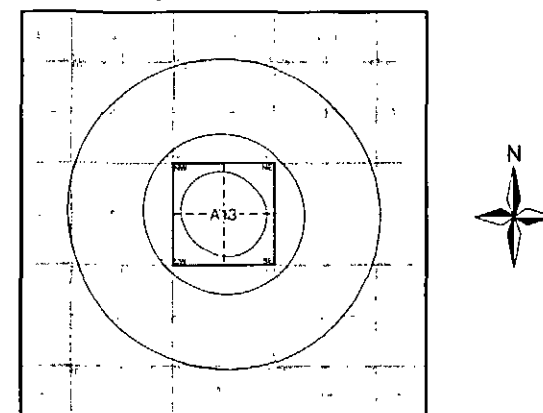
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

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Historical Map - Slice A



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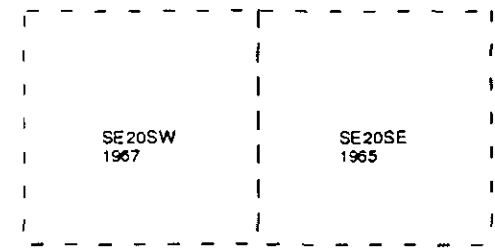
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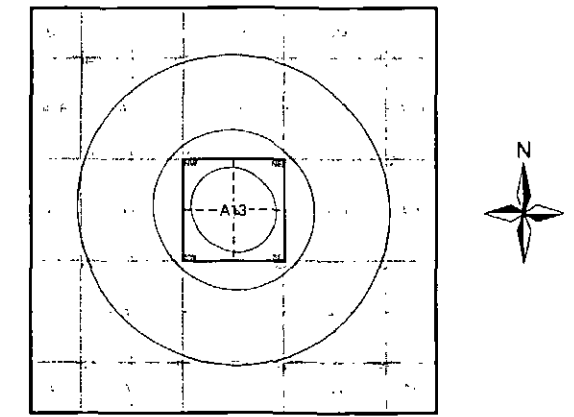
Ordnance Survey Plan
Published 1965 - 1967
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

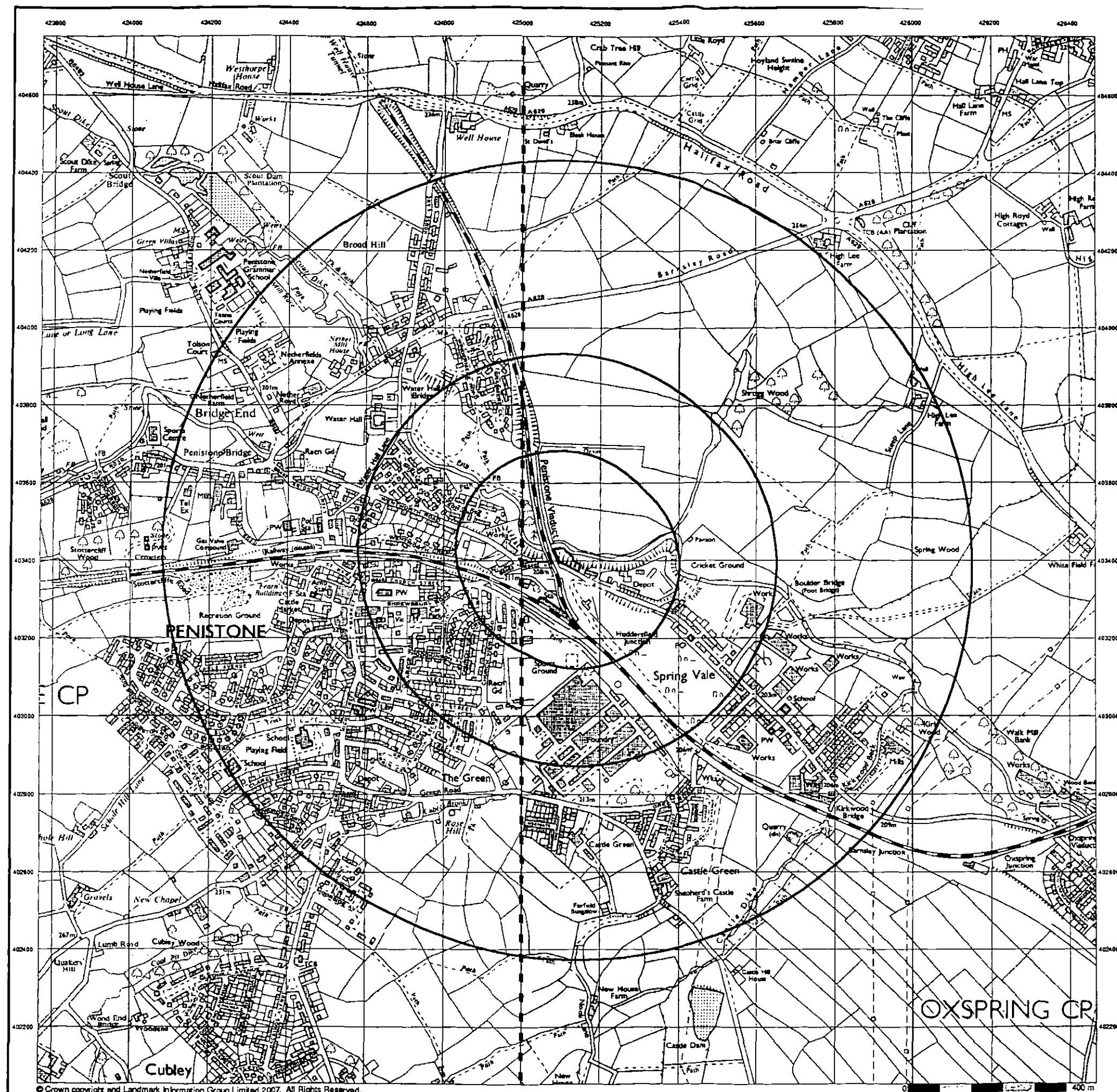
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 Site Area (Ha): 0.19
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Site Details

Sheffield Road, Penistone



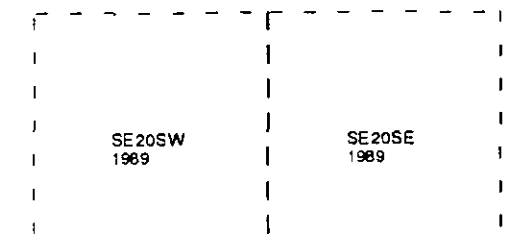
Tel: 0870 850 6670
 Fax: 0870 850 6671
 Web: www.envirocheck.co.uk



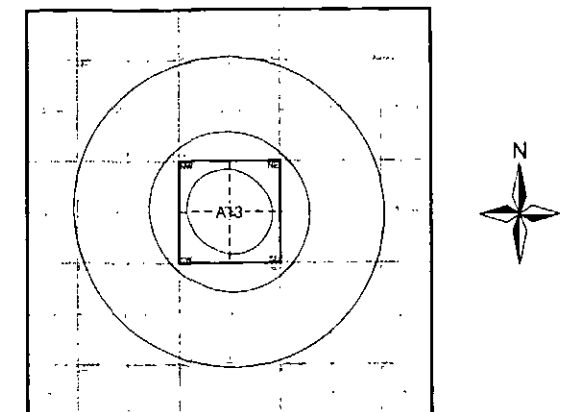
Ordnance Survey Plan
Published 1989
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number: 22731101_1_1
Customer Ref: P4682/NW
National Grid Reference: 425120, 403400
Slice: A
Site Area (Ha): 0.19
Search Buffer (m): 1000

Site Details

Sheffield Road, Penistone



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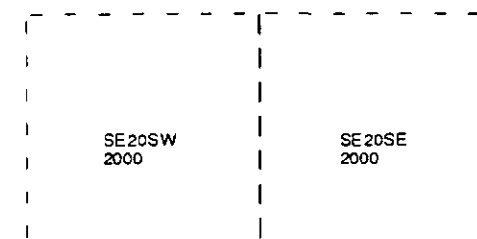
10K Raster Mapping

Published 2000

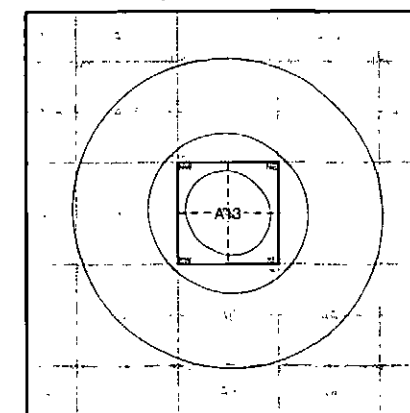
Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number: 22731101_1_1
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 National Grid Reference: 425120, 403400
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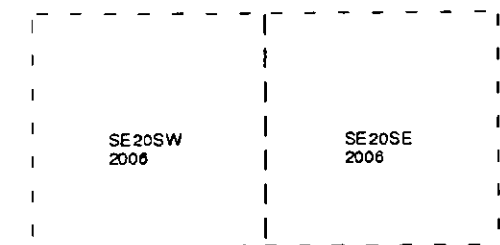
10K Raster Mapping

Published 2006

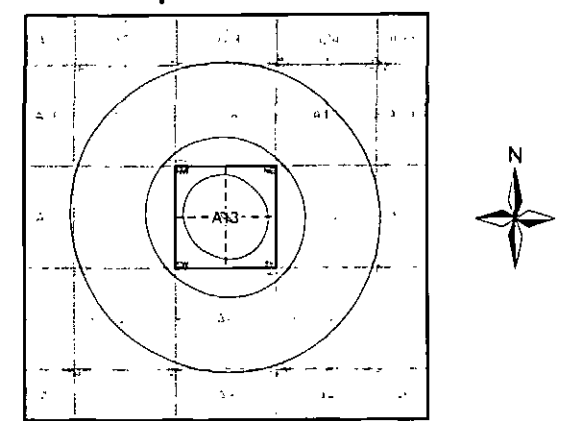
Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

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APPENDIX E(ii)

Site: Sheffield Road, Penistone

Location of Borehole Logs

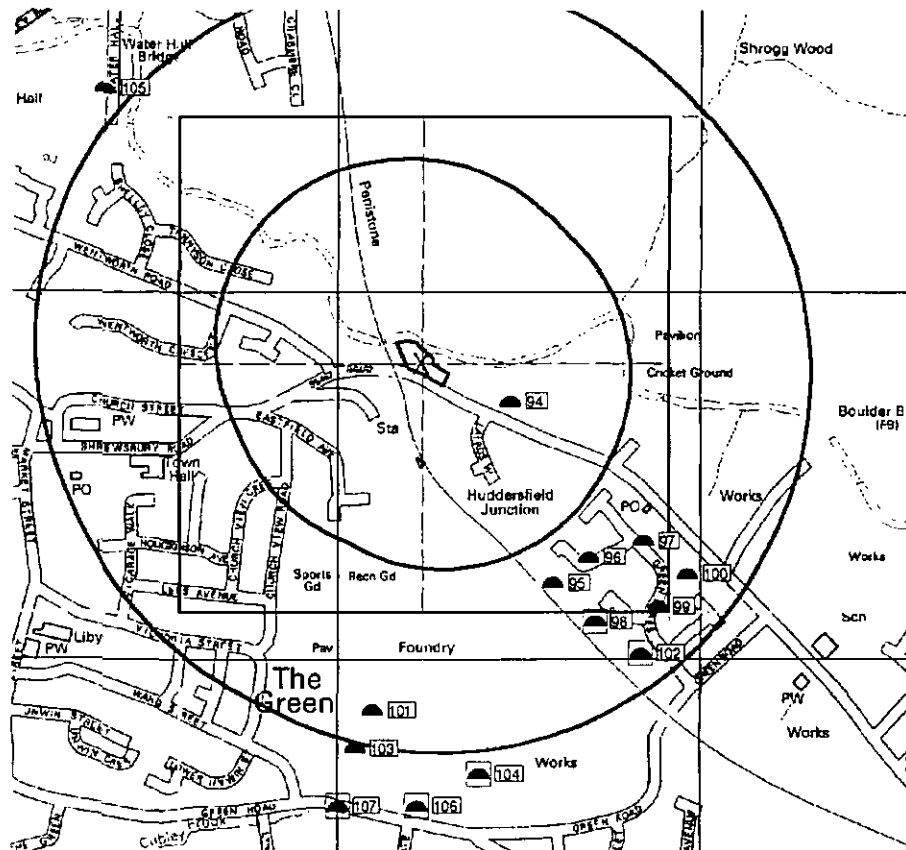
British Geological Survey Database

Scale : 1: 10,000



Date: November 2007

Project No: P4682NW



BGS Borehole No.	Envirocheck Report Datasheet Reference
SE20SE1.A	106
SE20SE3	103
SE20SE67	106
SE20SE68	106
SE20SE69	106
SE20SW13	105

Map Extract taken from Envirocheck Report No. 22731101-1-1

Form 170
2/1/74

COMPLETION OF BOREHOLE
131 JAN 1976

Section of WATER HALL Borehole

Purpose To prove the Halifax Hard and Halifax Soft seams

Exact Site O.S. N.G.R. SE/24670/03787

Level at which ^{shaft} bore commenced relative to O.D. 635.53 ^{drift} A.O.D.

Date of sinking or boring April/May 1975

Sinker or borer Foraky Limited

Cores, other than coal, examined by W. J. Smith and S. Graham.

2-INCH MAP		B.M. REFERENCE
Yorks. 273 SE		
(County, Sheet and Qtr.)		
SE 20 SW	13	
(Nat. Grid, Sheet & Qtr.)		
Attach tracing from a map or sketch map if possible		

SE 20 SW
13

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS		DEPTH	
		Top of 11"	Bottom of 11"	Top of 11"	Bottom of 11"
LOXLEY EDGE ROCK	OPEN HOLE - NO CORE	4850	0	650	0
	Details from electric log:-				
	Grenoside Rock 53' from 56'-108'				
	Hard Bed Band 15" ? at 641'				
	Clay Coal 15" ? at 819'-6"				
	Grey/green siltstone with inclusions of dark shale	0.4	6	651	5
	Massive off-white sandstone with micaceous partings	4.8	1	657	7
	Dark silty shale with sparse fish	1.1	11	659	5
	Dark grey siltstone	5.6	0	671	5
	Massive buff sandstone with abundant burrows	1.2	1	675	4
	Interbedded dark silts and sands with burrows	0.8	11	678	5
	Dark micaceous siltstone, sparse mussels and plants	2.4	1	686	7
	Dark silty shale with sparse plants	3.4	5	698	7
	Dark shale, sparse fish and plants, some silty micaceous horizons	2.2	11	706	7
	Dark grey shaly mudstone with very occasional pyritic nodules	0.3	3	708	2
	Dark grey silty micaceous shale	0.3	5	708	7
	Grey micaceous sandstone	0.5	2	708	3
	Dark grey coarse micaceous siltstone	0.3	1	709	10
	Dark grey silty mudstone, micaceous in part and occasional thin sandstone bands (up to 7 in.) throughout	2.5	4	718	2
	Finely interlaminated micaceous silty mudstone and pale grey sandstone with occasional plant remains	0.9	0	721	2
	Dark grey micaceous silty mudstone with sparse mussels at 721'-6"	0.4	7	722	9
	Fine dark grey siltstone with micaceous sandstone partings	0.6	0	724	5
	Dark grey silty mudstone with fine sandstone interlaminations. Occasional plant remains below 729'-3"	2.2	4	732	1
	Dark grey shaly mudstone with ferruginous horizons below 734'-0"	0.7	7	734	3
	Dark grey sandstone		3	734	11
	Dark grey shaly mudstone with occasional coalified plant remains including Calamites. Ironstone bands throughout	2.0	7	741	6

10.917

Section of WATER HALL Borehole

8-INCH MAP	S.M.
Yorks. 273 SE	
SE 20 SW	13

*Delete as appropriate

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS		DEPTH	
		ft.	in.	ft.	in.
MARINE BAND	Dark grey carbonaceous shale with occasional pyritic nodules. Abundant foraminifera 741'-9" to 742'-3". Pyritic nodules abundant from 742'-3" to 742'-4"	0.25		2782	4
	Dark grey carbonaceous mudstone with scattered <i>Lingula</i>	0.07		2782	5
	Dark grey shaly mudstone with abundant pyritic nodules and occasional veins	0.23		743	52
	Dark grey ferruginous mudstone with occasional pyritic rods	0.15		743	78
	Dark grey shaly mudstone with abundant mussels and occasional ostracods	0.15		744	85
	Dark grey carbonaceous shale with abundant pyritic nodules	1 0.38		745	3
	Dark grey shaly mudstone with pyritic lenses	0.104		745	35
	Dark grey carbonaceous shale with mussels and fish remains at base	0.08	3	745	70
	Dark grey silty mudstone with abundant pyritic nodules above 746'-3". Abundant mussels below and becoming siltier. Ironstone bands and very occasional plant remains below 750 ft. Ostracods below 753'-0"	3 12	4 7	758	17 5
	Dark grey shaly mudstone with mussels and ostracods above 761'-11". Ironstone bands throughout. Occasional coalified plants below 766', pyritic rods below 766'-7" and abundant ostracods in bottom 2 in.	3 10	2	768	2 7
	Grey/brown ferruginous mudstone	0.13	5	769	34 0 59
	Dark grey slightly carbonaceous mudstone with occasional fish remains and pyritic nodules. Scattered foraminifera below 769'-9", sparse <i>Lingula</i> at 770'-1"	1 0.46		770	85
	Dark grey shaly mudstone with very occasional fish remains	0.20	8	771	5 2
	Dark grey silty shale with occasional fish, <i>Posidonia</i> - pyritised in part, <i>Coniatites</i> and occasional coalified plant remains throughout	1 0.50	7 1/2	773	55 9 1/2
MARINE BAND	COAL	0.21	11 1/2	774	23 1/2 49
	Dark grey ganister	0.08	3	775	20
	OPEN HOLE - NO CORE	75 2 1/2	0	850	27 1/2 6
	Grey ferruginous siltstone	0.05	2	850	2
	Grey mudstone with coalified <i>Calamites</i> , <i>Lepidodendron</i> in top 3 in. Mussels throughout. Fish remains below 852'-0"	0.72	7	852	9
	Dark grey carbonaceous shaly mudstone with abundant mussels, ostracods and <i>Spirorbis</i>	0.10	4	853	1
	Dark grey silty shale with occasional fish remains and occasional coalified plants	0.23	9	853	10
	Dark grey silty mudstone with very occasional coalified plant remains	0.33	1	854	11 26 58
	Dark grey silty shale with abundant mussels and occasional coalified plant remains	0.29	3	858	22 1/2 57
	Dark grey shaly mudstone with abundant mussels above 860'-10". Occasional ostracods and fish remains including <i>Rhabdoderma</i> throughout. Ironstone bands. Abundant <i>Carbonicola</i> in lower 2 in.	1 1/2	3	862	0 26 74
	Grey silty mudstone with scattered mussels. Pyritic nodules throughout. Occasional coalified plant remains	2 3/8	6	870	62 5 33
HALIFAX HARDS					

YORKSHIRE 273 SE WATER HALL B.M.		SE 20 SW 1/3 April/May 1975 635-53' AOD	
Principal Formations	Log	Stratigraphic Section & Depth to Important Features	ELECTRIC LOG CASING CORING
	0		
	50		
	100		
Greenwell Rock	100	104' 0"	
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Records SE20SW/13
NATIONAL COAL BOARD

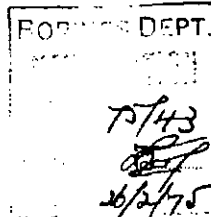
Telephone
Barnsley 710000
(STD Code 0226)

BARNSELY AREA
GRIMETHORPE,
Nr. BARNSELY,
YORKSHIRE.
S72 7AB.

Telegrams
Coalarea
Grimethorpe

Our Ref: C.G.12
Your Ref:

The Director,
Institute of Geological Sciences,
Geological Survey and Museum,
Exhibition Road,
South Kensington,
London, S.W.7.



16th January, 1975.

Dear Sir,

Mining Industry Act, 1926 - Sec. 23(1)
Proposed Boring from Surface at
Penistone, Nr Sheffield

It is proposed in the near future to drill a further borehole in the above locality for the purpose of proving underground strata in the measures below the Whinmoor Seam.

Details of our proposal are as follows:

Name of Borehole:	"Water Hall"
Location:	Penistone, near Sheffield (see attached 6 inch plans)
Depth (Estimated):	900 feet 274.32 m
Inclination:	Vertical
Drilling Contractor:	N.C.B., Barnsley Area 213.36 m
Coring Details:	Open hole to approx. 700 feet, then cored to completion
Lining Details:	Temporary steel lining tubes will be used as and when necessary. The borehole will be sealed throughout with cement grout on completion
Starting Date:	February, 1975.

Attached hereto are duplicate copies of a six inch scale plan showing the approximate location of the proposed borehole.

Please accept this letter as the official Notice required by Section 23(1) of the Mining Industry Act, 1926.

A copy of the drilling log will be supplied later.

Yours faithfully,

R. C. Stables
R. C. Stables,
Area Surveyor & Minerals Manager.

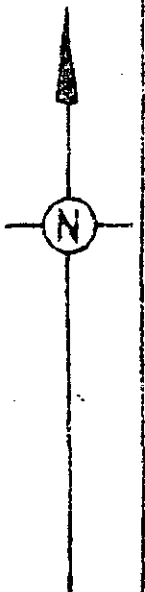
encls.

DD.

SE 2-SW 3

NATIONAL COAL BOARD — BARNESLEY AREA

PROPOSED BOREHOLE FROM SURFACE TO
HALIFAX SOFT SEAM



PROPOSED BOREHOLE
'WATER HALL'
Estimated Depth 900 feet

BASED UPON THE INFORMATION
WITH THE DEPT. OF MINES
OF THE DISTRICT OF
PENISTONE & CO. P.

POWERS DEPT.
CERTIFICATION
SNT/43
26/2/75

SCALE: - 6 INCHES TO A MILE

SE 20 SW

KING at Penistone County Yorkshire 135
 1. WELL. map 1 in. map New Series 86 6 in. map 273 SE
 Made by British Well-Boring Engineering Co. Date 1918
 Sunk feet. Bored 418 feet.
 Communicated by British Well-Boring Eng. Co., Liverpool.
 Height above Ordnance Datum Rest level of water 68 ft. SE 20 21 A
 Yield 9000 gallons per hour at test 86 A
 Quality (with copy of analysis on separate sheet) SE 25 11 0280

GEOLOGICAL FORMATION.	NATURE OF STRATA. <u>No. 1 Bore.</u>	THICKNESS.		DEPTH. Inches.
		Feet.	ft.	
✓ Title:-	Adjoining Penistone Railway Station About 1/4 mile N.W. (Sheffield side of station) Opposite side of Railway to the old Steel Works.			
	#1 Bore. 10" bore.			
	Top soil	2	-	2
	Sandstone with black partings	8	-	10
	Blue shale	24	-	34
	Dark shale	16	-	50
	Light blue shale	5	-	55
	Blue stone bind	4	-	59
	Blue shale	4	-	63
	Sandstone, layers of shale	5	-	68
	White sandstone	64	-	132
	Blue shale	49	6	181
	Blue shale, layers of sandstone	11	6	193
	Sandstone	2	-	195
	Blue shale, layers sandstone	5	-	200
	Blue shale	13	-	213
	White sandstone	4	-	220
	Blue shale	3	-	223
	White sandstone	12	-	235
	Blue shale, layers sandstone	81	-	316
	Hard sandstone	20	-	336
	Blue shale	82	-	418
	A, B, C Visited and sited on Yorks 2735 E/W.			
	All disused since about 1935, because water not potable			
	Former water levels:-			
	A. 8'			
	R.W. (hs.) 83'			
	P.W. (hs.) 278' at 8000 gph.			
		276' at 16000 gph.		
		210' at 16000 gph.		
	No information about trial holes.			
	QD. A. c 696			
	B. c 697.			
	C. c 708.			
				28.9.49 Rm

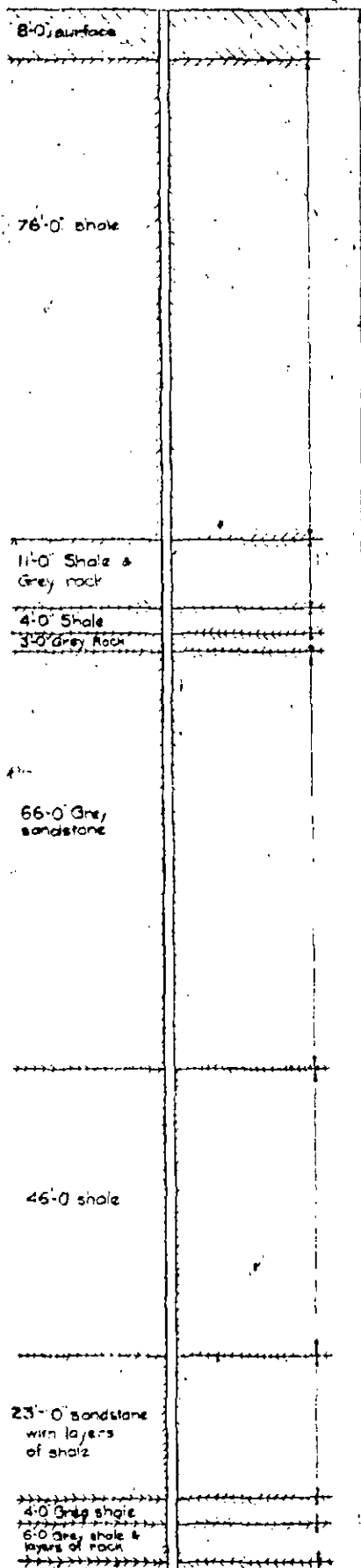
GEOLOGICAL SURVEY AND MUSEUM,
 JERSEY STREET, LONDON, S.W.

G.S.M. 4918/16

86 SE 20 21 AC
20

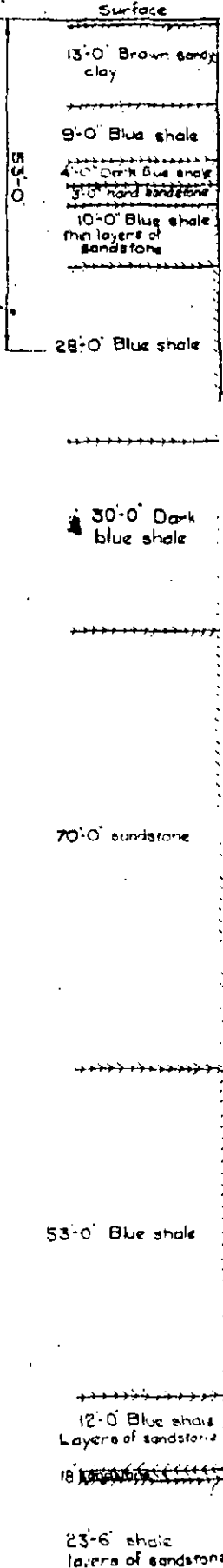
No 1, 2 & 3 BORE HOLES

No 3 14 dia BORE HOLE



Total depth: 563-0'

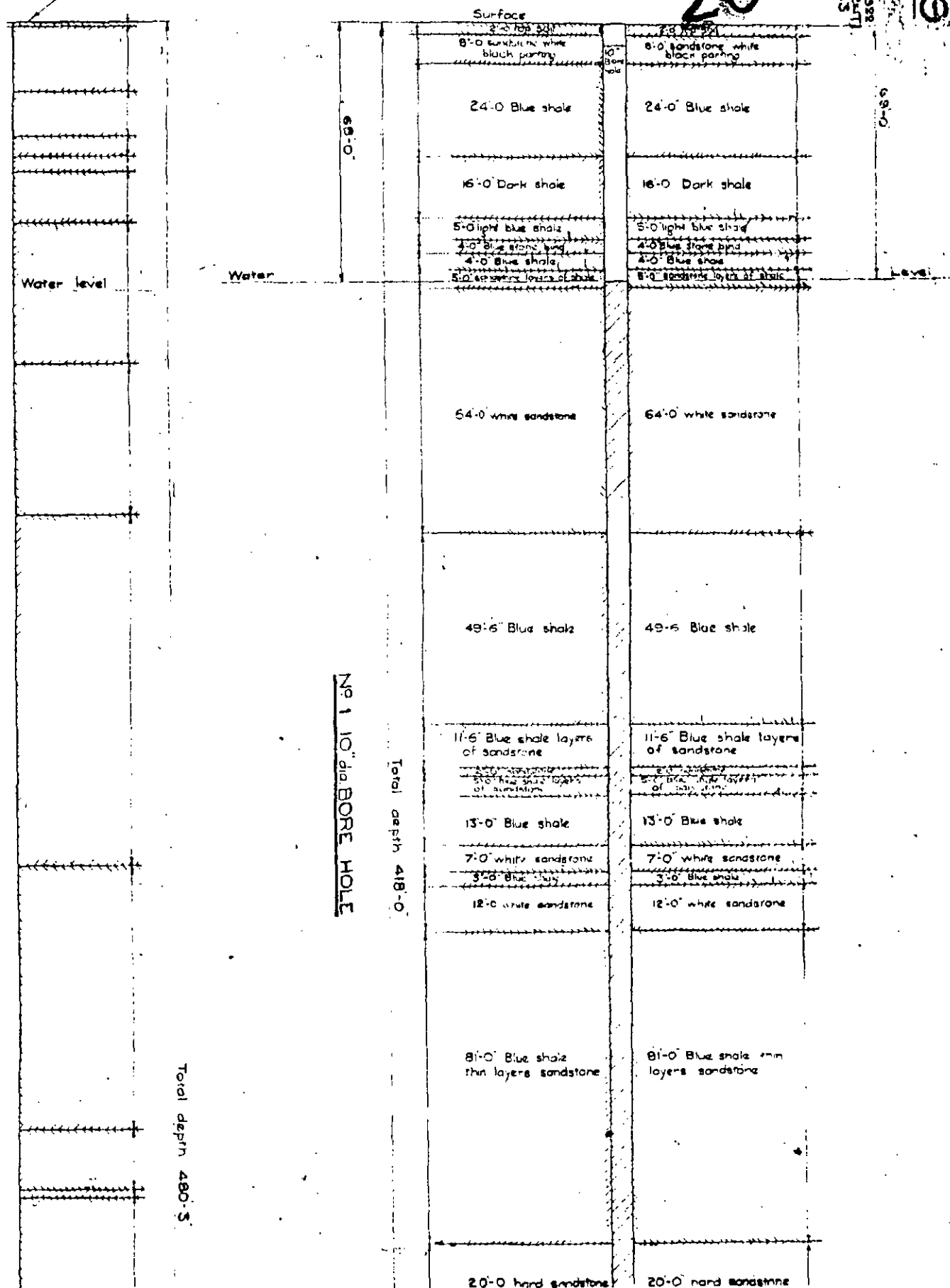
No 2 14 dia BORE HOLE



970

12 Top Soil

6 JAN 1982
FBI WASH DC
FBI NEW YORK



NEW STEEL WORKS - PENISTONE

86-0 Hard Grey sandstone

8-0 sandstone shale

10-0 shale

11-0 sandstone

3-0 grey shale

11-0 sandstone

175-0 shale

12-0 Hard Grey

86

10-0 Hard Sandstone

SE 20/21A-C

20

14-0 Blue shale
layers of sandstone

7-0 hard sandstone

26-6 hard sandstone layers
of stone bind

41-0 hard sandstone

21-0 Grey shale

12-0 Fire clay

4-0 Flag rock

66-9 Grey shale
Black shale
at base

WELL BORING at

Penistone

on map

1 in. map New Series

SE 20 SE 1

County

Yorkshire

6 in. map

273 SE

Made by British Well-Boring Engineering Co.

Date 1918

Sunk

feet.

Bored

418

feet.

Communicated by British Well-Boring Eng. Co., Liverpool

Height above Ordnance Datum

Rest level of water

Yield 9000 gallons per hour at test

Quality (with copy of analysis on separate sheet)

68 ft

80

A

GEOLOGICAL FORMATION.	NATURE OF STRATA.	THICKNESS.		DEPTH.	
		Feet.	In.	Feet.	Inches.
Site:	Not Bore.			20	A
✓	Adjoining Penistone Railway Station About 1/4 mile N.W. (Sheffield side of station) Opposite side of Railway to the old Steel Works.				
	10" bore.				
	Top soil	2	0.61	2	-
	Sandstone with black partings	8	2.44	10	3.05
	Blue shale	24	7.32	34	-
	Dark shale	16	4.88	50	15.24
	Light blue shale	5	1.52	55	16.71
	Blue stone bind	4	1.22	59	17.98
	Blue shale	4	1.22	63	19.20
	Sandstone, layers of shale	5	1.52	68	20.72
	White sandstone	64	19.51	132	40.23
	Blue shale	49	15.09	181	55.32
	Blue shale, layers of sandstone	11	3.35	193	58.83
	Sandstone	2	0.61	195	59.44
	Blue shale, layers sandstone	5	1.52	200	60.96
	Blue shale	13	3.96	213	64.92
	White sandstone	4	1.23	220	67.06
	Blue shale	3	0.91	223	67.97
	White sandstone	12	3.66	235	71.63
	Blue shale, layers sandstone	81	24.69	316	96.32
	Hard sandstone	20	6.10	336	102.41
	Blue shale	82	24.99	418	127.41
A, B, C Visited and sited on Yorks 273 SE/W.					
All disused since about 1935, because water not potable					
Former water levels:-					
	A.	B.	C.		
R.W. (bs.)	83' 25.3'	76' 23.16m	76' 23.16m		
P.W. (bs.)	278' at 8000gph (84.73m)	276' at 16000gph (84.12m)	270' at 16000gph (82.30m)		
No information about trial holes.					
O.D.	A. c 696 211.84m				
	B. c 697. 212.45m				
	C. c 708. 215.8				
28.9.49 Am					

GEOLOGICAL SURVEY AND MUSEUM,

JAMES STREET, LONDON, S.W.

RECORD OF WELL (SHAFT OR BORE)

For Survey use only

N.

SE 20 SE 3

EXACT SITE
OF WELL

At BARNSELEY CORPN. W.W. DEPT. BORE 'I' (KIRKWOOD)

In an old quarry on the S. side of the Sheffield-
Manchester railway, and about 100' W. of the Castle Dike,
Town or Village U.D. and PH. of Penistone.

Licence No.

County Yorks. West Riding. Six-inch quarter sheet Yorks. 281 NE; SE 20 SE.

For Barnsley Corporation. State whether owner, tenant, builder,
contractor, consultant, etc.:—

Address (if different from above) Town Hall, Barnsley, Yorks.

Level of ground surface Est 700 AOD If well-top is not at ground { above:
above sea-level (O.D.) 679 ft. level, state how far .. { below;ft.

SHAFTft.; diameterft.; Full details of headings (dimensions and directions)

34.73 m core 22 0.56 m 17 0.43 m
BORE 278 ft.; diameter of bore: at topins.; at bottomins.

Full details of permanent lining tubes (position, length, diameter, plain, slotted etc.)

0.67m 5.21m
Guide tube 27" to 17'1"; lining tubes 24" surface to 50'1 1/2"; slotted lining
tubes 21" total length 100' 3/4"; base at 147'; slotted lining tubes
18" total length 133' 2" base at 278' 44.3'
0.46m 40.59 34.73m

Water struck at depths offt. below well-top.

TEST
CONDITIONS

Rest level of waterft. above well-top. Suction atft. Yield onhours' test
pumping atgalls. perwith depression toft. below well-top.
Recovery to rest-level inmins. Capacity of pumpg.p.h. Date of measurements.....

NORMAL
CONDITIONS

DESCRIPTION OF PERMANENT PUMPING EQUIPMENT:

Make and/or type Motive power

Capacitygallons per hour. Suction atft.

Amount pumpedgalls. per day. Estimated consumptiongalls. per week.

Well made by John Thom, Patricroft, Manchester. Date of well Nov. 1960

Information from Barnsley Corpn.; the Borers; and core examination by C.G. Godwin.

ADDITIONAL NOTES

ANALYSIS (please attach copy if available)

*Gravelly sandstone of 3rd
Greenwich Sandstone bed
Approx. 28.5m*

LOG OF STRATA OVERLEAF.

GEOLOGICAL SURVEY AND MUSEUM,
SOUTH KENSINGTON,
LONDON, S.W.7.

Section 6.

Date
Received

1" O.S. Map
No.

Site marked
on 1" Map

(use symbol)
on 6" Map

(1527) D1574/V157483 12,000 S154 JC&S Gp089

(For Survey use only) GEOLOGICAL CLASSIFICATION	NATURE OF STRATA If measurements start below ground surface, state how far ..	THICKNESS		DEPTH	
		Feet	Inches	Feet	Inches
(PROVISIONAL)	[3-15' Blue Muddy Ground to 70' at least same equivalent to Greeny sandstone.]				
REYNOLDS SANDSTONE	Sandstone coarse grained at top, medium to coarse below, and rather fine in lower part				
	Massive at top, with increasing bands of thin bedding below. Strong false bedding and current bedding, especially in the lower part. Partings micaceous, rather dark at some horizons below, but mostly grey. Occasional coaly scars in the lowest foot. With rock exposed in quarry	51	15.54	51	15.54
	Dark crushed core. REPRESENTATIVE OF CORE	14	4.27	65	-
	Mudstone dark grey shaly micaceous with ironstone bands. Apart from 2' of solid core near base, and partial cores here and there above, the core all broken.				
	? Fish at top of core; scattered plant debris, a bed with possible mussels towards base, and stems at base.	8.6	9.6	28	50
	Mudstone grey silty rooty with siltstone bands.	2	5.4	93	6
	Sandstone grey silty thin and uneven bedded, micaceous.	0.5	6	96	34
	Mudstone grey silty, less so down, with silty sandstone bands, mainly above 103, with carbonaceous debris at top. Straight channel like impressions and a few plant fragments the only fossils seen.	11	3.35	96	3
	Mudstone soft grey rooty, a little darker at top, with greenish white bands. Rather scattered ironstone nodules. All broken up by frost action.	4	1.22	99	4.9
	Mudstone grey silty, some bands weather greenish; scattered ironstone nodules. Plants (Calamites etc.) and root ends.	4	1.30	107	9
GREENHOOR ROCK GROUP (ELLANDRAG GROUP)	Sandstone light grey fine grained thin bedded, most of it with small scale current bedding, or with bedding gently curved. Asymmetrical ripples appear in lower part, and are distinct towards base, with two sets crossing at right angles. The major ripples 4" apart interrupt the lesser ones (at 3" intervals.)				
	Still lower, the 3" set predominate. Core 124-126'6 shows false bedding continuous across it. The beds are even and highly inclined. Above this level there are many grey silty partings.	15	4.57	111	0.6
	Sandstone, fine grained massive, in boulders and core split by joints.	7	2.13	116	-
	Core loss to	20	6.1	116	-
	Mudstone grey silty with occasional siltstone laminae. No fossils seen	7	2.13	124	6.7
	Mudstone grey, somewhat darker than the beds above, rather shaly to shaly, rather silty. Only obscure pits on bedding seen	3	0.24	125	8.1
	Alternation of similar beds (less dark, more silty) with siltstone	0.25	10	130	8.2
	Siltstone rooty, with dark muddy partings containing much plant debris.		10	131	3.3
	Mudstone rooty, silty below, with abundant ironstone nodules.	1	4	132	7.4
	Siltstone grey lenticular to micro-current bedded, passing down into silty mudstone. Ironstone nodules. Roots to base where not frequent.	0.4	1	133	4
	Sandstone grey fine grained thin bedded, with thin dark muddy bands; several of the beds ridged up by disturbance, but not overturned.	3	4	137	7.5
		1	0.2	138	8

Name of Shaft or Bore given by Geological Survey:
HARNSLEY BORE 'I'

6-inch Map
Registered
No.

SE 20 SE 3

GEOLOGICAL CLASSIFICATION	DESCRIPTION OF STRATA	THICKNESS		DEPTH	
		FT	IN.	FT	IN.
(PROVISIONAL)	Brought forward			42.150	-
	Sandstone grey fine grained massive, with occasional thin bedded bands, in which the bedding very uneven. Otherwise beds reduced to wisps.	4.22	13	50.37	10
	Mudstone grey silty with complex sausage like disturbance structures on one of the siltstone bands. No fossils seen	0.79	2	58.16	5
	Sandstone grey fine grained, rather flat bedding, with good ripples. Partings micaceous. Thick bedded to massive at top, thin bedded in the mid part, and very thin bedded at base.	1.96	5	55.12	10
LOWER PART OF GREENMOOR ROCK GROUP.	Alternating series; predominantly fine grey silty sandstone with many disturbed beds in the upper part and uneven to undulating beds below as far as 190; then silty mudstones with silty sandstone laminae to 201'8; below the silty sandstones resume with bedding varying from uneven to small scale current bedding; about 216 this passes into another mainly mudstone band, which rests at 226 on the basal sandstone bed, in which the bedding is thin to shaly, and mostly even.	14.68	2	69.80	-
	Siltstone grey coarse massive hard, with dark partings at top. One bed shows false bedding.	1.37	6	233	6
	Sandstone grey fine to very fine grained; curly bedded with many dark partings	2.95	8	243	2
	Mudstone grey silty with laminae of silty sandstone. Plant debris including a large Calamite. Passing into	3.00	9	253	-
	Sandstone grey silty curly bedded, with many dark partings.	0.61	2	255	7
	Sandstone grey fine grained, mainly massive, with plant debris below.	1.58	6	261	2
	Mudstone grey silty with pits on bedding	1.78	5	267	38
	Mudstone grey hard with scattered plant fragments.	3.35	11	278	73

RECORD OF WELL (SHAFT OR BORE)

For Survey use only

N.

SE 20 SE 3

EXACT SITE
OF WELL

At Barnsley Corporation Waterworks

Borehole No. I - Kirkwood.

Town or Village Penistone

Licence No.

County Yorkshire

Six-inch quarter sheet Yorks No. 281 NE (1931)

For Barnsley Corporation Waterworks State whether owner, tenant, builder, Contractor, consultant, etc.:— Owner

Address (if different from above) —

Level of ground surface 307.01 m
above sea-level (O.D.) 679.16 ft.

If well-top is not at ground level, state how far {above: — below: — ft.

SHAFT — ft.; diameter — ft.; Full details of headings (dimensions and directions)

BORE 278 (84.73 m) ft.; diameter of bore: at top 26 1/2 (0.67 m) ins.; at bottom 20 1/2 (0.52 m) ins.

Full details of permanent lining tubes (position, length, diameter, plain, slotted etc.)
15.28 0.61 30.57 m 0.53 m
50' 1 1/2" of 24" i/d tubes cemented in, 100' 3 3/4" of 21" i/d Tube
40.57 m 0.46 m
slotted, 133' 2" of 18" i/d tube slotted

Water struck at depths of — ft. below well-top.

TEST
CONDITIONS

Rest level of water 112 (34.14 m) ft. above well-top. Suction at 260 (79.25 m) ft. Yield on 28 (75.29 m) 'hours' test
pumping at 7300 galls. per hour with depression to 247 ft. below well-top. 22.10.60
Recovery to rest-level in 24 mins. Capacity of pump 40000 g.p.h. Date of measurements 19.11.60

NORMAL
CONDITIONS

DESCRIPTION OF PERMANENT PUMPING EQUIPMENT:

Make and/or type — Motive power —
Capacity — gallons per hour. Suction at — ft.
Amount pumped — galls. per day. Estimated consumption — galls. per week.
Well made by John Thom Limited, Walkden, Manchester Date of well 1.12.60.
Information from —

ADDITIONAL NOTES

ANALYSIS (please attach copy if available)

LOG OF STRATA OVERLEAF.

GEOLOGICAL SURVEY AND MUSEUM,
SOUTH KENSINGTON,
LONDON, S.W.7.

Section 6.

Date
Received

1" O.S. Map
No.

Site marked
on 1" Map

(use symbol!)
on 6" Map

(1527) D4574/W12383 12 000 8/54 JCS G462

Barnsley Corporation Water Department

SE208E/3

Laboratory: Royd Moor Filter House,
Scot Dike Reservoir, near Penistone.

WATERWORKS OFFICE,
TOWN HALL,
BARNSELY.

Telephone No. Penistone 9295.

Telephone: Barnsley 3282. Extn. 274.

Sampling Report Ref. 30/2/14
Analysis of Sample of Water received on 18.11.60
from BOREHOLE 1 DEPTH 74.07m 243 ft. FLOW 7.000 G.P.H.
Sampling Point Bores from Borehole
Purpose Test pumping
Taken by W. B.R. Witness Date 18.11.60 Time 2.30 p.m.
Temperature of Water at Source Appearance CLEAR
Colour NIL Hazen Units Turbidity NIL Faller's Earth Scale
Odour NIL Taste NORMAL
pH Value 8.75 Free Carbon Dioxide as CO₂ NIL
Electrical Conductivity at 20°C Reciprocal Megohms per Centimetre Cube

RESULT EXPRESSED IN PARTS PER MILLION

Ca	Mg	Na	Fe O 2 3	CO 3	SO 4	Cl	NO 3	SiO 2	Probable Combinations	
4.0	1.68	178.30	2.80	220.8	2.64	34.00		6.40		
4.0				6.0					Calcium Carbonate	10.00
	1.68			4.2					Magnesium	5.88
		161.46		210.6					Sodium	372.06
		131			2.64				Suphate	3.95
		15.53				34.00			Chloride	39.63
			2.80						Oxide of Iron CALCULATED	2.80
							6.40		Silica	6.40
TOTAL SOLIDS DRIED AT 180°C										440.62

HARDNESS: Calculated.
Permanent NIL
Temporary 17
TOTAL 17

By E.D.T.A. test.
NIL
366 (Including all ions alkaline & 372.06 p.p.m. Sodium carbonate)

RESIDUAL CHLORINE: Total Free Chlorine
Ammoniacal Nitrogen as N Albuminoid Nitrogen as N
Nitric Nitrogen as N Nitrous Nitrogen as N
Oxygen Absorbed in 4 hours at 80°F
METALS: Iron 0.02 Manganese Fluoride 0.35
Lead Aluminium

REMARKS:

Signature: A. J. Marshall
Date: 21.11.60

PERFORATIONS 2 1/2" X 0.01"
 IN 10 1/2" DI. TUBES - S.W. 20 S. 3
 SPART 6 BETWEEN ROWS
 STAGGERED.

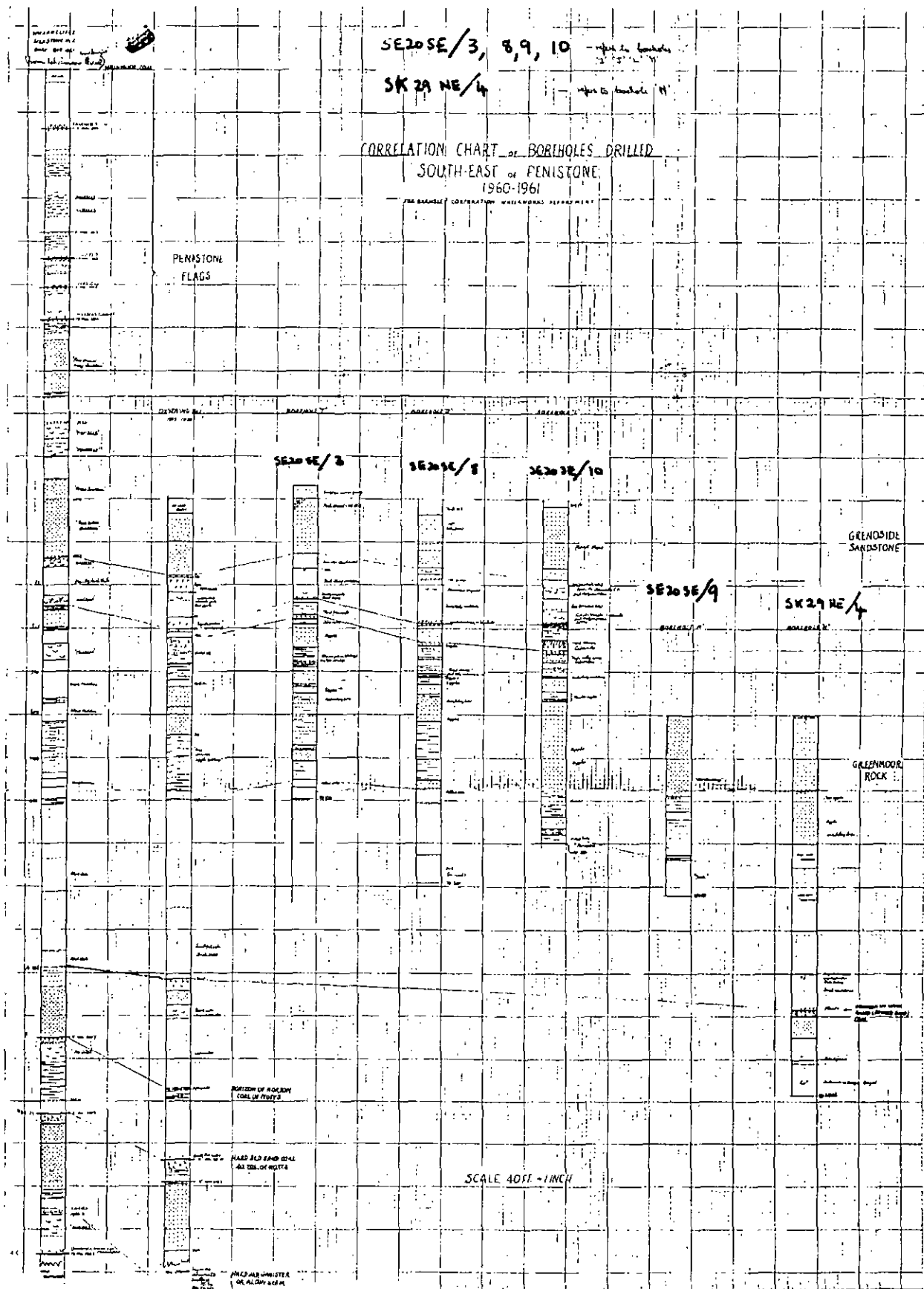
435
 20

GPH	PUMPING LEVEL	YIELD	
		FROM	TO
7300	247.0	22-10-61	24-11-63
	25.0		

3-05-10-0	SANDSTONE, CLAY	1-51-22-0 TUBES	1-53-22-0	50-12 OF 24 TUBES (15-22)	10-0
	SANDSTONE				
12-10-10-0	SOFT			SHALE	31-0 15-54
10-80-10-0				SHALE	52-0 15-55
9-70-13-0				SHALE	45-0 17-51
	GREY			100-33 OF 21 PERFORATED TUBES	
6-40-21-0	BLACK			SHALE	86-0 26-21
1-22-4-0				SHALE	30-0 27-43
	SANDY			SHALE	
6-71-22-0		1-51-22-0 TUBES			118-0 34-14
1-22-10-0	SHALE				116-0 35-36
2-13-7-0	SANDY			SHALE	123-0 37-49
3-35-10-0	GREY			SANDSTONE	134-0 40-24
1-68-5-6	HARD GREY			SANDSTONE	139-6 42-52
1-98-6-6	GREY SANDSTONE			4 SHALE TUBES	146-0 44-50
0-11-10-0				SHALE	147-0 44-51
3-20-10-6	BLUE			SHALE	157-6 48-01
1-07-3-6	SANDY			SHALE	161-0 49-07
	SANDSTONE	1-51-22-0 TUBES			
8-35-10-3				SHALE	171-0 52-52
0-46-14-0	SANDY			SANDSTONE	173-6 52-53
2-18-7-2	GREY			SANDSTONE	180-0 55-07
				1-51-22-0 TUBES	
	SANDY			SHALE	
21-35-73-1					184-0 57-42
2-54-8-3	SANDSTONE				187-0 59-18
6-75-15-7	SHALE				178-0 54-73

SE 20 SE 3

JOHN THOM LTD., CHADDOCK LANE, BOOTHSTOWN, WALKDEN, MANCHESTER.			
NAME OF CLIENT	BARNESLEY CORPORATION WATERWORKS	NO. OF BORE	I
NAME OF SITE	KIRKWOOD I	BOREHOLE RECORD NO.	JOURNAL BOOK N° 17 PAGE 73
LATITUDE	53-31-24 N	DATE OF COMPLETION	1-12-60
LONGITUDE	1-36-46 W	DRAWN	TJL
MAP REF. NO.	ORDNANCE WEST RIDING SHEET N° 281 NE 1031 EDITION	SCALES	HORIZONTAL VERTICAL
			20-7-61 1-12-60
			INCH PER FOOT FEET PER INCH
			DRG. N° 13-427



①

RECORD OF WELL (SHAFT OR BORE)

Copy NOT to be sent to
Keele

For Survey use only

N. 10498

86/84
SE 20 35
Licence No.

EXACT SITE
OF WELL

At Barnsley Corporation Waterworks

Borehole No. I - Kirkwood.

Town or Village Penistone

County Yorkshire

Six-inch quarter sheet Yorks No. 281 NE (1931)

For Barnsley Corporation Waterworks

State whether owner, tenant, builder, Contractor, consultant, etc.:-
SE 28 700269
Owner

Address (if different from above) -

Level of ground surface
above sea-level (O.D.) 679.16 ft.

If well-top is not at ground level, state how far { above: - below: - ft.

SHAFT - ft.; diameter - ft.; Full details of headings (dimensions and directions)

BORE 278 ft.; diameter of bore: at top 26 1/2 ins.; at bottom 20 1/2 ins.

Full details of permanent lining tubes (position, length, diameter, plain, slotted etc.)
50' 1 1/2" of 24" 1/d tubes cemented in, 100' 3 1/2" of 21" 1/d Tube
slotted, 133' 2" of 18" 1/d tube slotted

Water struck at depths of - ft. below well-top.

TEST
CONDITIONS

Rest level of water 112 ft. above well-top. Suction at 260 ft. Yield on 28 - hour test
pumping at 7300 galls. per hour with depression to 247 ft. below well-top.
Recovery to rest-level in 24 min. Capacity of pump 40000 g.p.h. Date of measurements 22.10.6
19.11.6

NORMAL
CONDITIONS

DESCRIPTION OF PERMANENT PUMPING EQUIPMENT:

Make and/or type - Motive power -
Capacity - gallons per hour. Suction at - ft.
Amount pumped - galls. per day. Estimated consumption - galls. per week.
Well made by John Thom Limited, Walkden, Manchester Date of well 1.12.60.
Information from -

ADDITIONAL NOTES

ANALYSIS (please attach copy if available)

LOG OF STRATA OVERLEAF.

Geological Survey and Museum, South Kensington, London, S.W.7.	Section 6.	Date Received	1" O.S. Map No.	Site marked on 1" Map	(use symb- on 6" Ma
--	------------	------------------	--------------------	--------------------------	------------------------

(1937) D4574/W15753 12.000 4/54 J.C.S. Gp463

RECORD OF WELL (SHAFT OR BORE)

(attach copy of analysis if available)

For Survey use only

N/0498

SE 2570 0269

86 SE 205E/3
86/84/84
SE 20/35

At BARNSELY CORPN. W.W. DEPT. BORE "I"

(KIRKWOOD)

Town or Village UD and Ph. of PENISTONE

County Yorks West Riding

Six-inch quarter sheet Yorks 281NE SE 20SE

For Mr. BARNSELY CORPORATION

State whether owner, tenant, builder, contractor, consultant, etc. :-

Address (if different from above) Town Hall, Barnsley

Level of ground surface above sea-level (O.D.) Est 679 ft.

If well-top is not at ground (above; level, state how far ... below; ... ft.)

SHAFT ... ft.; diameter ... ft.; Details of headings ...

BORE 278 ft.; diameter of ^{core} bore at top 22 ins.; at bottom 17 ins.

Details of permanent lining tubes Guide tube (27') to 17' 1. 24" lining tubes 50' 1 1/2' to 52' 0' long

Slotted lining tubes (21") length 100' 3 3/4' base 147' slotted (18") length 133' 2' Bore 278'

Water struck at depths of ... ft. below well-top.

Rest-level of water ... ft. above well-top. Suction at ... ft. Yield on ... hours' test days'

pumping at ... galls. per ... with depression to ... ft. below well-top.

Recovery to rest-level in ... mins. Capacity of pump ... g.p.h. Date of measurements ...

Description of permanent pumping equipment :

Make and/or type ... Motive power ...

Capacity ... gallons per hour. Suction at ... ft.

Amount pumped ... galls. per day. Estimated consumption ... galls. per week.

Well made by John Thon, Walkden, Lancs Date of well ...

Information from Barnsley Corporation, Thidillies and Co. examination (G.G. EDWIN)

ADDITIONAL NOTES

Sited by [] on 6" Yorks. 281NE/E 12 " 62
St 98 2911/62

LOG OF STRATA OVERLEAF.

GEOLOGICAL SURVEY AND MUSEUM,
SOUTH KENSINGTON,
LONDON, S.W.7.

Date
Received

1" O.S. Map
No.

Site marked (use symbol)
on 1" Map on 6" Map

From [] Office
1962

[]

[]

(For Survey use only)
GEOLOGICAL
CLASSIFICATION

NATURE OF STRATA

If measurements start below
ground surface, state how far ...

THICKNESS

Feet Inches
... ..

DEPTH

Feet Inches

(For Survey use only)
GEOLOGICAL
CLASSIFICATION

NATURE OF STRATA

If measurements start below
ground surface, state how far ...

THICKNESS

Feet Inches

Feet Inches

SE 20/35

86/84

PROVISIONAL)

GREENSIDE
SANDSTONE

GREENMOOR
ROCK GROUP
(ELLANDERS
GROUP)

[1/3 - in Cor. Made ground to 96, at least some equivalent
to Quarry Sandstone.]

Sandstone coarse grained at top, medium
to coarse below, and rather fine in lower part

Massive at top, with increasing bands of
thin bedding below. Strong false bedding
and current bedding, especially in the
lower part. Partings micaceous, rather
dark at some horizons below, but mostly
grey. Occasional coaly scars in the

lowest foot. With rock exposed in quarry
Dark drabbed core, with ironstone bands

Mudstone dark grey shaly micaceous with
ironstone bands. Apart from 2' of solid
core near base, and partial cores here
and there above, the core all broken.
? Fish at top of core; scattered plant
debris, a bed with possible mollusks
towards base, and stems at base.

Mudstone grey silty rooty with siltstone
bands.

Sandstone grey silty thin and uneven
bedded, micaceous.

Mudstone grey silty, less so down, with
silty sandstone bands, mainly above 103
with carbonaceous debris at top. Straight
channel like impressions and a few
plant fragments the only fossils seen.

Mudstone soft grey rooty, a little darker
at top, with greenish white bands. Rather
scattered ironstone nodules. All broken
up by frost action.

Mudstone grey silty, some bands weather
greenish; scattered ironstone nodules.
Plants (Calamites etc.) and root ends.

Sandstone light grey fine grained thin
bedded, most of it with small scale
current bedding, or with bedding gently
curved. Asymmetrical ripples appear in
lower part, and are distinct towards
base, with two sets crossing at right
angles. The major ripples 4" apart
interrupt the lesser ones (at 3" intervals.)

Still lower, the 3" set predominate. Core
124-126'6 shows false bedding contin-
uous across it, the beds are even and
highly inclined. Above this level there
are many grey silty partings.

Sandstone, fine grained massive, in
boulders and core split by joints.

Core loss to

Mudstone grey silty with occasional
siltstone laminae. No fossils seen

Mudstone grey, somewhat darker than the
beds above, rather shaly to shaly, rather
silty. Only obscure pits on bedding seen

Alternation of similar beds (less dark,
more silty) with siltstone

Siltstone rooty, with dark muddy partings
containing much plant debris.

Mudstone rooty, silty below, with abundant
ironstone nodules.

Siltstone grey lenticular to micro -
current bedded, passing down into silty
mudstone. Ironstone nodules. Roots to base
where not frequent.

Sandstone grey fine grained thin bedded,
with thin dark muddy bands; several of
the beds ringed up by disturbance, but
not well marked.

Feet	Inches	Feet	Inches
64	-	51	-
14	-	65	-
28	6	93	6
2	9	96	3
	6	96	9
11	-	107	9
4	-	111	9
4	3	116	-
15	-	131	-
7	-	138	-
2	-	140	-
7	-	147	-
3	4	150	4
	10	151	2
	10	152	-
1	4	153	4
3	4	156	8
1	4	158	-

6-inch Map
Registered
No.

6 SE 20/35

C. O. H. 27185 - W. L. 53825 - Dd. 04/09/2000 - 2/56

(2)
(For Survey use only)
GEOLOGICAL
CLASSIFICATION

NATURE OF STRATA

If measurements start below
ground surface, state how far ...

THICKNESS

Feet Inches

DEPTH

Feet Inches

SE 20/35

86

84
Pink brand.

Sandstone clay and soil

10

0

10

0

Sandstone

41

0

51

0

Grey shale

1

0

52

0

Soft shale

13

0

65

0

Grey shale

21

0

86

0

Black shale

4

0

90

0

Sandy shale

22

0

112

0

Shale

4

0

116

0

Sandy shale

7

0

123

0

Grey sandstone

11

0

134

0

Hard grey sandstone

5

6

139

6

Grey sandstone and shale

6

6

146

0

Black shale

1

0

147

0

Blue shale

10

6

157

6

Sandy shale

3

6

161

0

Sandstone

10

8

171

8

Sandy shale

1

10

173

6

Grey sandstone

7

2

180

8

Sandy shale

73

4

254

0

Sandstone

8

5

262

5

Shale

15

7

278

0

②

Barnsley Corporation Water Department

86/84
86/84

Laboratory: Royd Moor Filter House,
Scout Dike Reservoir, near Penistone.

WATERWORKS OFFICE,
TOWN HALL,
BARNSELEY.

SE20/35

Telephone No. Penistone 2295.

Telephone Barnsley 3283 Extn 274.

Sampling Report Ref 20/2/14

Analysis of Sample of Water received on

18.11.60

from BOREHOLE 1

DEPTH 248 ft.

Flow 7050 G.P.H.

Sampling Point

Boyle for Borehole

Purpose

Test pumping

Taken by

W. R.

Witness

Date 18.11.60

Time 2.30 p.m.

Temperature of Water at Source

Appearance

CLEAR

Colour

NIL

Hazen Units

Turbidity

NIL

Feller's Earth Scale

Odour

NIL

Taste

NORMAL

pH Value

8.75

Free Carbon Dioxide as CO_2

NIL

Electrical Conductivity at 20°C

Resistivity at Megohms per Centimetre Cube.

RESULT EXPRESSED IN PARTS PER MILLION

Ca	Mg	Na	Fe	CO	SO	Cl	NO	SiO	Probable Combinations	
2.3			2.3	3	4		1	2		
4.0	1.68	17.30	2.60	220.6	2.64	24.06		6.40		
4.0				6.0					Calcium Carbonate	10.00
	1.68			4.2					Magnesium	5.88
		16.46		210.6					Sodium	372.06
		1.31			2.64				Sulphate	3.95
		15.83				24.06			Chloride	34.63
			2.60						Oxide of Iron	2.80
								6.40	Alumina	6.40
TOTAL SOLIDS DRIED AT 180°C										440.62

HARDNESS.

Calculated.

By E.D.T.A. test.

Permanent

NIL

Temporary

17

TOTAL

17

NIL

366 (Including as lime equivalent)
372.06 p.p.m. Sodium carbonate

17

RESIDUAL CHLORINE:

Total

Free Chlorine

Ammoniacal Nitrogen as N

Albuminoid Nitrogen as N

Nitric Nitrogen as N

Nitrous Nitrogen as N

Oxygen Absorbed in 4 hours at 80°F

STALS:

Iron

0.02

Manganese

Fluoride

0.55

Lead

Aluminium

REMARKS:

Signature:

[Signature]

Date:

21.11.60

RECORD OF WELL (SHAFT OR BORE)

(attach copy of analysis if available)

SE 25N 0280

For Survey use only

N.

At *Barnwell Sands la*

86 SE 20 / 21C
86 / 20 C

Town or Village *Penistone*

County *Yorks.*

Six-inch quarter sheet *273SE/W*

For Mr. *Barnwell Sands Co.*

State whether owner, tenant, builder, contractor, consultant, etc. :-

Address (if different from above)

Level of ground surface above sea-level (O.D.) *c 70.3* ft.

If well-top is not at ground level, state how far (above; below) ft.

SHAFT ft.; diameter ft.; Details of headings

BORE *56.3* ft.; diameter of bore: at top *1 1/4* ins.; at bottom *1 1/4* ins.

Details of permanent lining tubes

Water struck at depths of ft. below well-top.

Rest-level of water *17.6* ft. above well-top. Suction at ft. Yield on hours' test days' test

pumping at galls. per with depression to ft. below well-top.

Recovery to rest-level in mins. Capacity of pump g.p.h. Date of measurements

Description of permanent pumping equipment:

Make and/or type Motive power

Capacity *160.00* gallons per hour. Suction at *2.10* ft. bs

Amount pumped galls. per day. Estimated consumption galls. per week.

Well made by Date of well

Information from

ADDITIONAL NOTES

Visited & sited on Yorks 273SE/W.

Now. Lania Brown Foundries Co., Penistone Works

Drilled since about 1935.

28.9.49 Rhr.

LOG OF STRATA OVERLEAF.

GEOLOGICAL SURVEY AND MUSEUM,
SOUTH KENSINGTON,
LONDON, S.W.7.

Date received

1" O.S. Map

Site marked on 1" Map

Symbol on 6" Map

(*) 555413 W.L. 471310124 12,000 3/18 A.A.E.W.Ltd. GP-445

(For Survey use only)

GEOLOGICAL
CLASSIFICATION

NATURE OF STRATA

If measurements start below
ground surface, state how far ...

THICKNESS

Feet Inches

DEPTH

Feet Inches

4

Soil

8

SE 20/21 C

Shale

76

Shale & grey rock

11

Shale

4

Grey rock

3

Grey sandstone

66

Shale

46

Sandstone with layers of shale

23

Grey shale

4

Grey shale layers of rock

6

Hard grey sandstone

86

Sandstone & shale

5

Shale

10

Sandstone

11

Grey shale

3

Sandstone

11

Shale

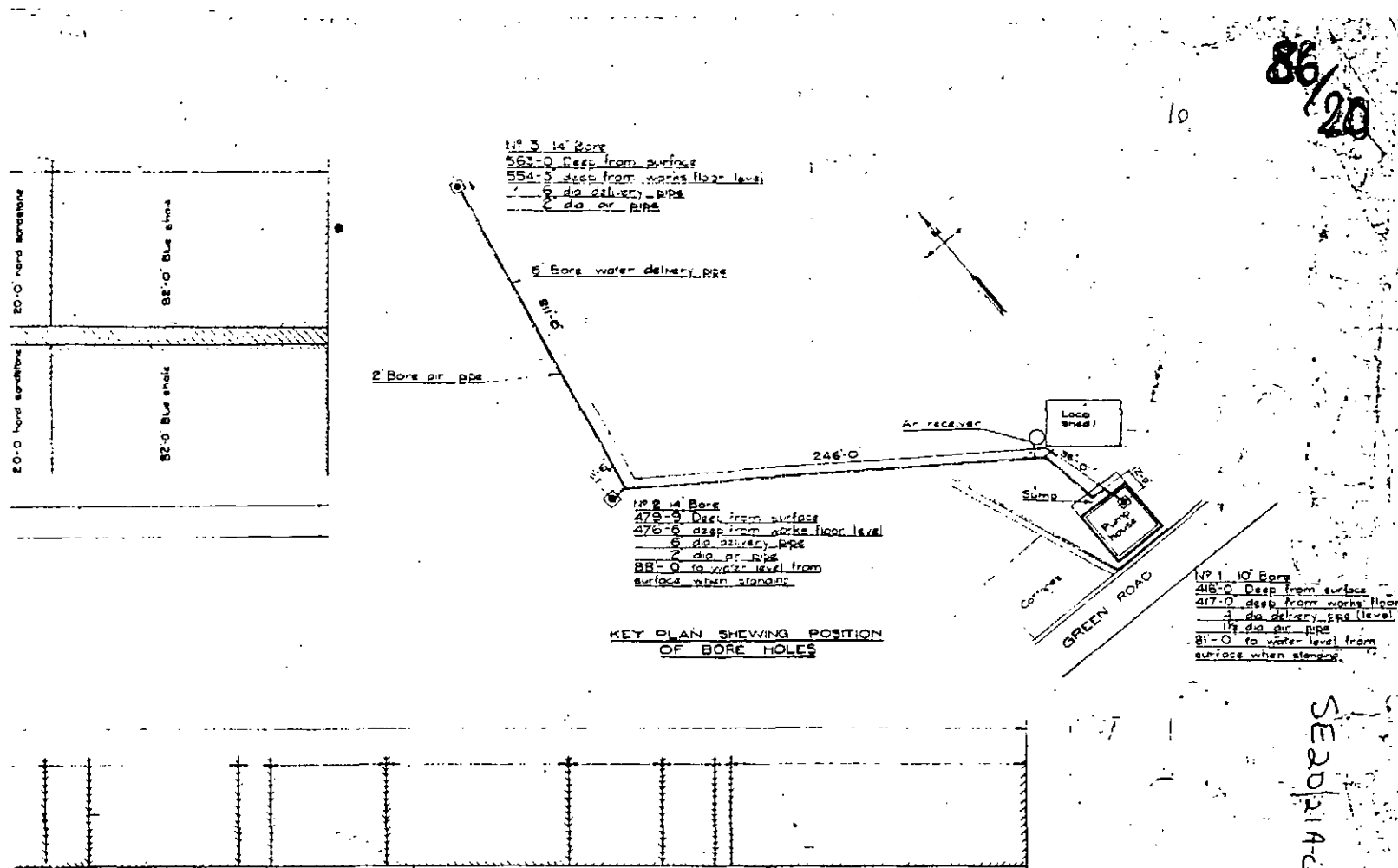
175

Hard grey

12

563

86
20



N ^{os}	1	2	&	3	BORE	HOLES
1						
2						
3						
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5						
6						
7						
8						
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86

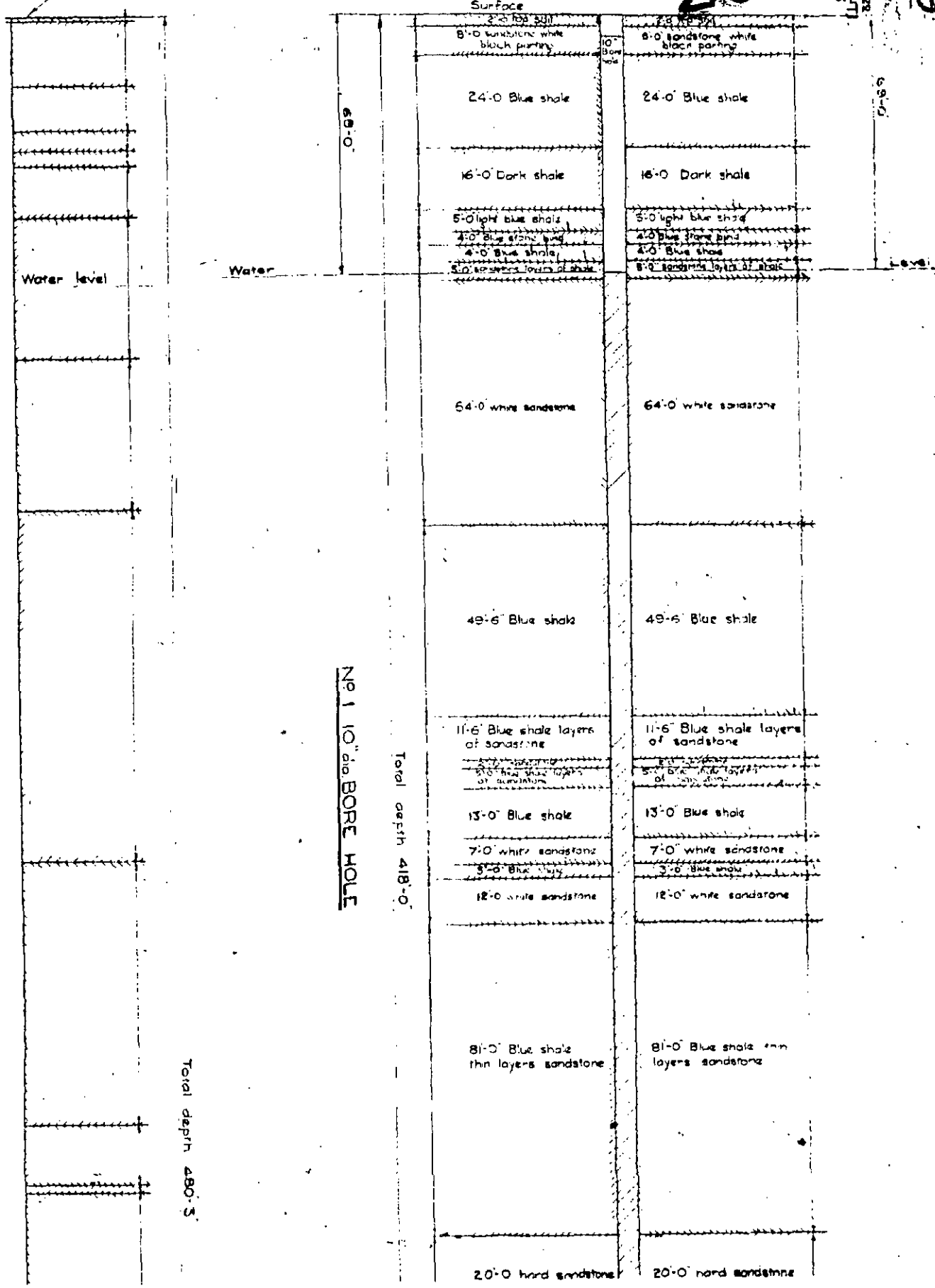
SE 20/21A

10
20

POINT V. (WELL) 6 JAN 1988
Blue 5/2/25

15979

12" Top soil



NEW STEEL WORKS — PENISTONE

86'-0" Hard Grey sandstone

8'-0" sandstone shale

10'-0" shale

11'-0" sandstone

3'-0" Grey shale

11'-0" sandstone

175'-0" shale

12'-0" Hard Grey

86

13'-0" Hard Sandstone

3E20/21A-C

20

24'-0" Blue shale
layers of sandstone

7'-0" hard sandstone

26'-6" hard
sandstone layers
of stone bind

41'-0" hard sandstone

21'-0" Grey shale

12'-0" Fireclay

4'-0" Flag rock

66'-9" Grey shale
Black shale
at finish

2

No 17. 1000. L. D. 2/18.

G. ISLER & Co., Ltd.,
ARTESIAN & CONSULTING WELL ENGINEERS,
SEAR LANE, SOUTHWARK, S.E.1.

Telegraphic Address: "ISLER, LONDON."

Telephone No.: Hop 4460 (3 Lines).

BIRMINGHAM BRANCH: 58 Summer Row.

CHART

No 2

Showing the Soils passed through at

Messrs Cammell Laird & Co. Works
Pewitstone c/o Sheffield

Top Soil	1		
Brown Sandy Clay	13	14	
Blue Shale	9	23	
Dark Blue Shale	4	27	
Hard Sandstone	3	30	
Blue Shale thin layers of Sandstone	10	40	
Blue "	28	68	
Dark Blue Shale	30	98	
Hard Sandstone	70	168	
Blue Shale	53	221	
Blue Shale layers of Sandstone	12	233	
Sandstone	1	234	6
Blue Shale layers of Sandstone	23	258	
Hard Sandstone	10	268	
Shale layers of Sandstone	34	302	
Hard Sandstone	7	309	
Hard Sandstone layers of Shale	26	335	6
Total		335	6

Water Level 53 ft.

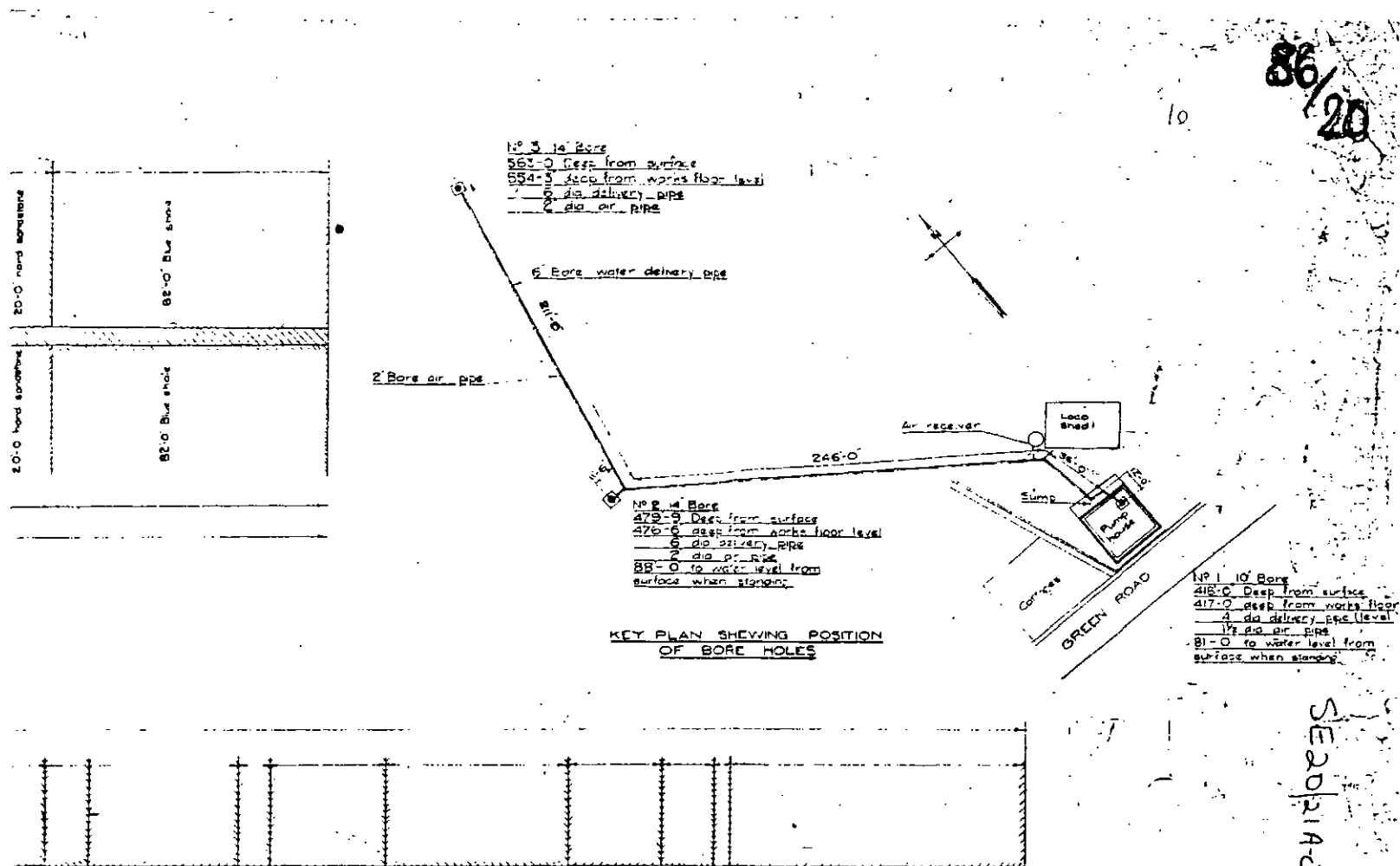
12 x 14 Pipe 1 ft below

1 x Pair of 14" Cams.

Bishops.

(cont) Hard sandstone.	41.	376	6
Grey shale	21.	397	6
Freelay	12.	409	6
Blue shale black at finish	4.	413	6
66 9'		480	3.
TOTAL		480	3"

This is to be accurately filled up at each change of soil. To be returned to Office on completion.



86/20 SE 20/21 AC

N^o 1, 2 & 3 BORE HOLES

N^o 3 14 dia BORE HOLE

8-0' surface	
76-0' shale	
11-0' Shale & Grey rock	
4-0' Shale	
3-0' Grey Rock	
66-0' Grey sandstone	
46-0' shale	
23-0' sandstone with layers of shale	
4-0' Blue shale	
6-0' Grey shale & layers of rock	

Total depth 563-0'

N^o 2 14 dia BORE HOLE

Surface	
13-0' Brown sandy clay	
9-0' Blue shale	
4-0' Dark Blue shale	
3-0' hard sandstone	
10-0' Blue shale thin layers of sandstone	
28-0' Blue shale	
30-0' Dark blue shale	
70-0' sandstone	
53-0' Blue shale	
12-0' Blue shale Layers of sandstone	
18-0' shale	
23-6' shale layers of sandstone	

86

SE 20/21A

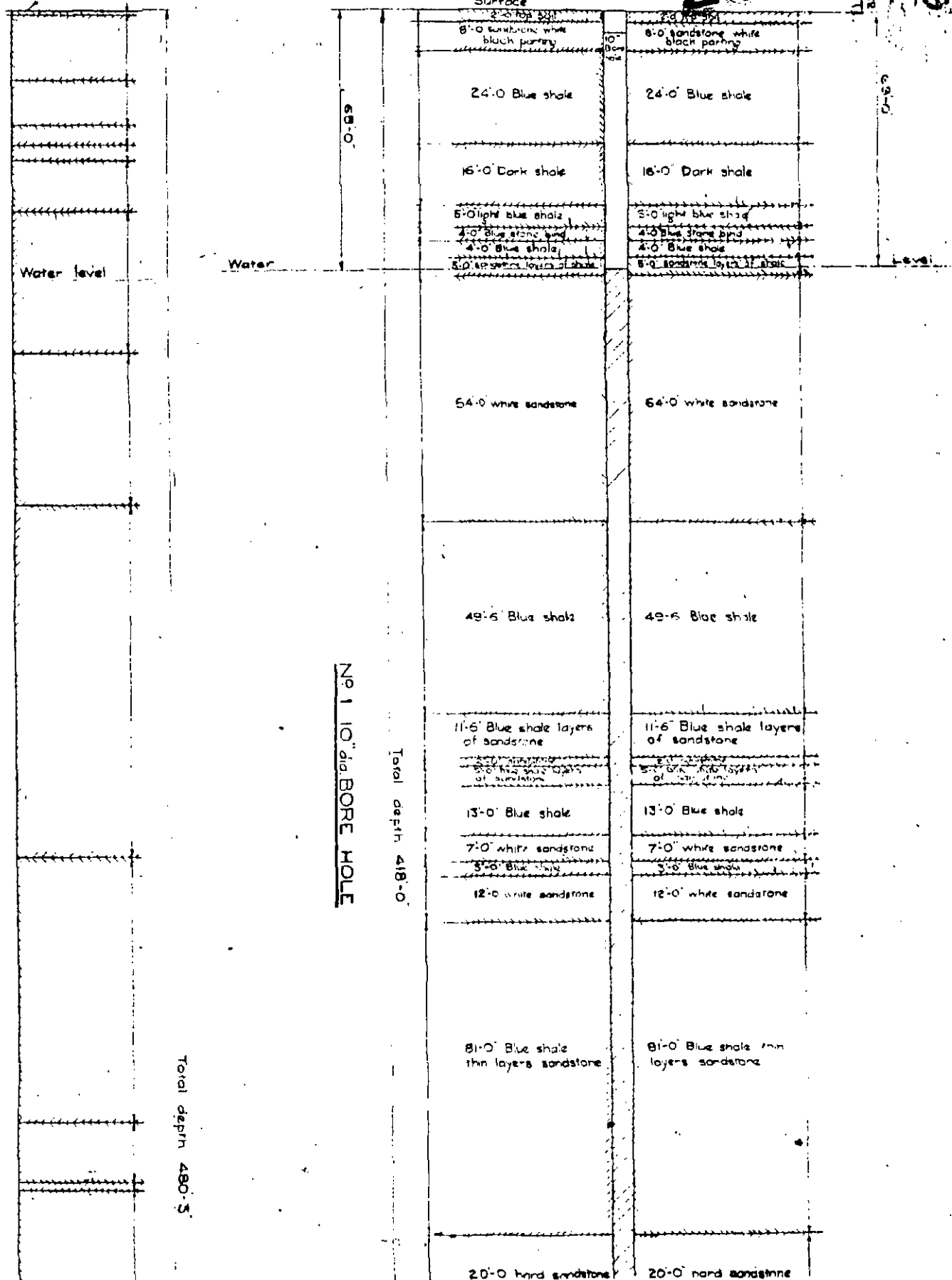
20

10
Blue
5/2/23

15979

FRONT W. WATT 6 JAN 1988
OCT 1987

12" Top soil



NEW STEEL WORKS — PENISTONE

86'-0" Hard Grey sandstone

8'-0" sandstone shale

10'-0" shale

11'-0" sandstone

3'-0" Grey shale

11'-0" sandstone

175'-0" shale

12'-0" Hard Grey

86

10'-0" Hard Sandstone

SE 20/21A-C

20

14'-0" Blue shale
layers of sandstone

7'-0" hard sandstone

26'-6" hard
sandstone layers
of stone bind

41'-0" hard sandstone

21'-0" Grey shale

12'-0" Fire clay

4'-0" Flag rock

66'-0" Grey shale
Black shale
at finish

APPENDIX E(iii)

Issued by:

The Coal Authority, Mining Reports Office, 200 Lichfield Lane, Berry Hill, Mansfield, Nottinghamshire NG18 4RG
On-Line Service: www.coalminingreports.co.uk - Phone: 0845 762 6848 - DX 716176 MANSFIELD 5

GEOTECHNICAL DEVELOPMENTS (UK) LTD,
DOLES WHARF,
PRIORS MARSTON,
SOUTHAM,
WARWICKSHIRE,
CV47 7SS

Person dealing with this matter:

Darren Moody

Our reference:

00091931-07

Your reference:

P4682NW

Electronic Ref:

RRUID:

007.00019902650001

Date of your enquiry:

11 September 2007

Date we received your enquiry:

11 September 2007

Date of issue:

11 September 2007

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

Coal and Brine Report

Site At, Sheffield Road, Penistone, 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	Yes
Brine extraction	No

Information from the Coal Authority

Underground Coal Mining

Past

According to the records in our possession, the property is not within the zone of likely physical influence on the surface from past underground workings.

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 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

At the surface, there are no known faults or other lines of weakness due to coal mining that have made the property unstable.

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

The Coal Authority has not received a damage notice or claim for the property since 1 January 1984. There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Coal Authority has not received a request to carry out preventive work before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

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 not in an area for which a notice of entitlement to withdraw support has been published.

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 report is compliant with Home Information Pack requirements.

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.

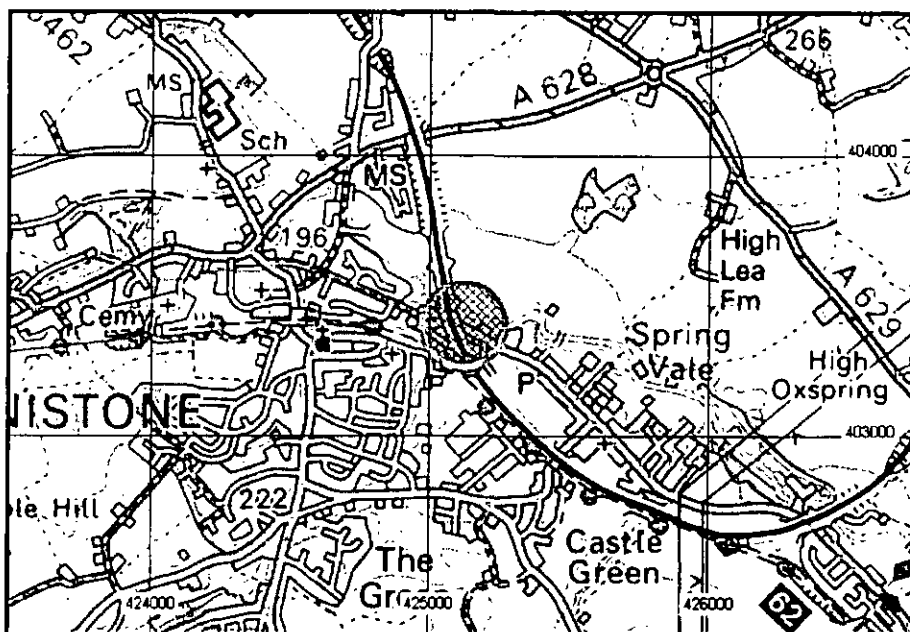
Ordnance Survey (OS) has carried out a Positional Accuracy Improvement Programme to make sure that the maps it produces are accurate. We have no control over who is using the improved information. In some cases, the position of surface features and mining features on the map may change because of this programme. We will update our database in line with Ordnance Survey's improved maps. However, at the moment we are producing mining reports using Ordnance Survey's maps from before the improvement programme.

Issued by:	The Coal Authority, 200 Lichfield Lane, Mansfield, Nottinghamshire, NG18 4RG
Date:	11 Sep 2007
Ground stability report at:	Site A1, Sheffield Road, Penistone, South Yorkshire
Reference number:	00091931-07
VAT registration number:	598 5850 88

Location map



Approximate
position
of property

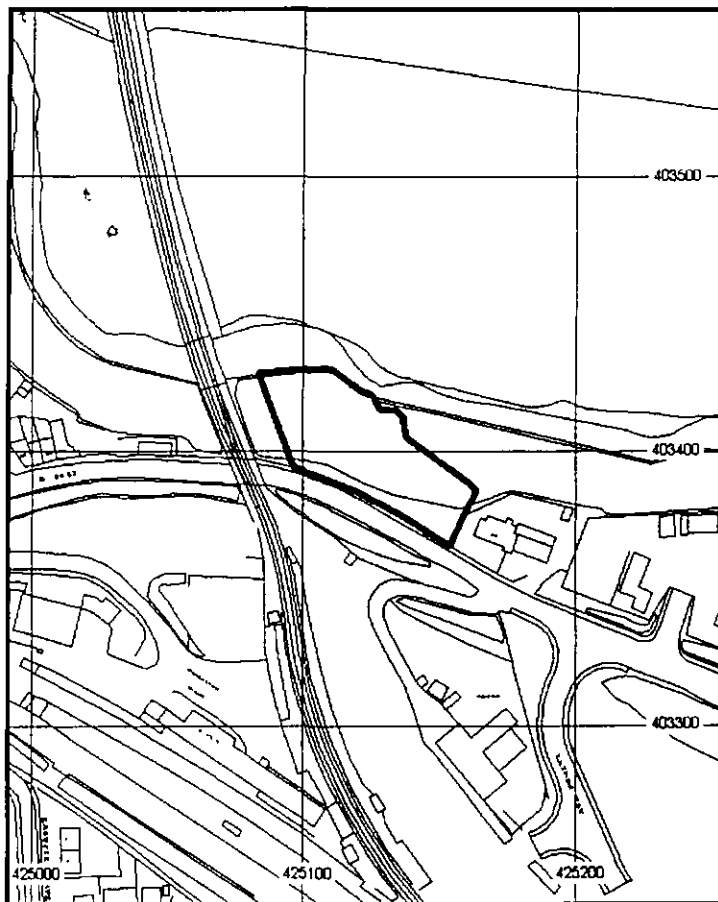


Enquiry boundary

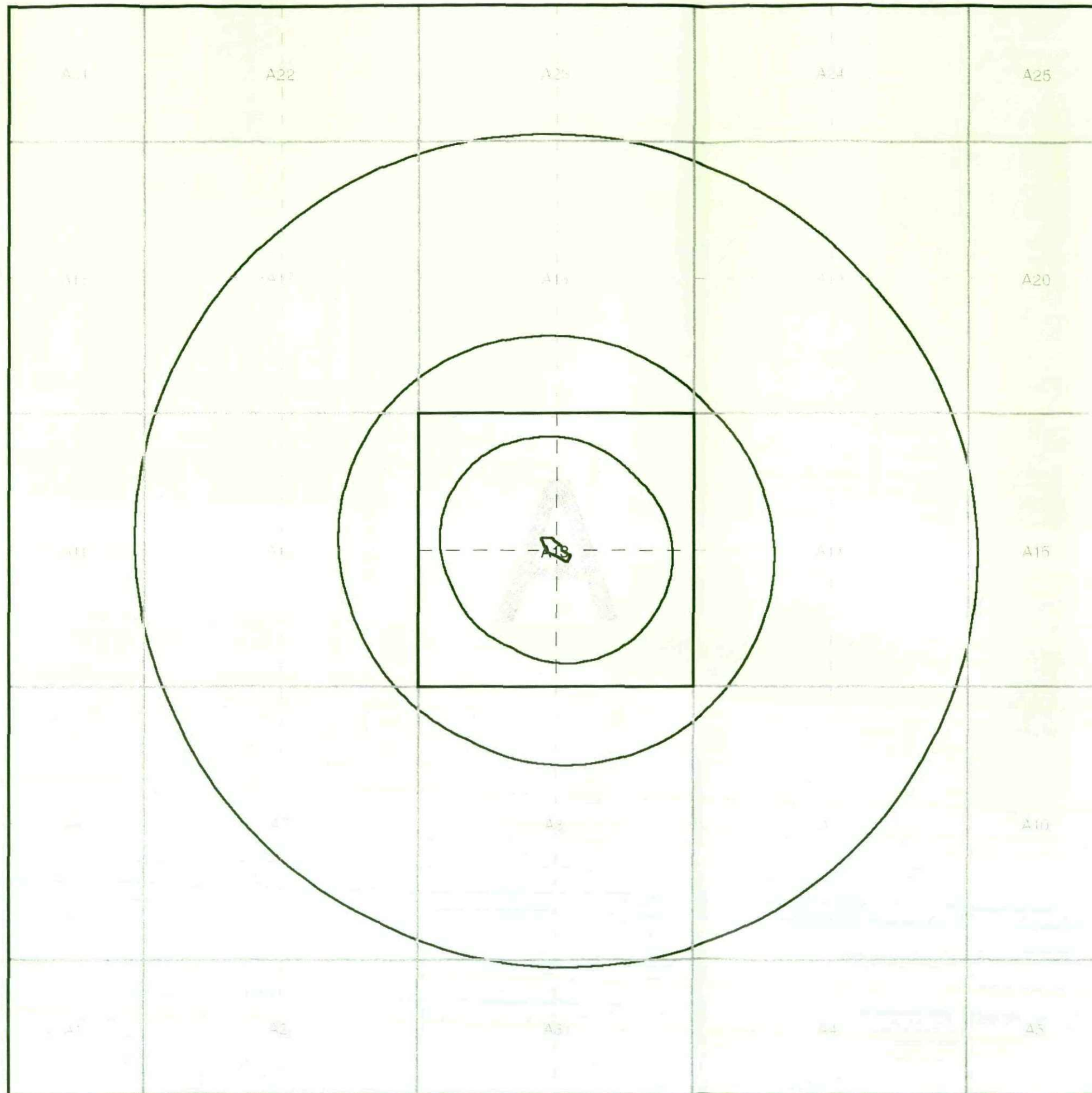
These maps are reproduced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office. © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. The Coal Authority. Licence number: 100020315. [2006]

Key

Approximate position of enquiry boundary shown



APPENDIX E(iv)



Index Map

For ease of identification, your site and buffer have been split into Slices, Segments and Quadrants. These are illustrated on the Index Map opposite and explained further below.

Slice

Each slice represents a 1:10,000 plot area (2.7km x 2.7km) for your site and buffer. A large site and buffer may be made up of several slices (represented by a red outline), that are referenced by letters of the alphabet, starting from the bottom left corner of the slice "grid". This grid does not relate to National Grid lines but is designed to give best fit over the site and buffer.

Segment

A segment represents a 1:2,500 plot area. Segments that have plot files associated with them are shown in dark green, others in light blue. These are numbered from the bottom left hand corner within each slice.

Quadrant

A quadrant is a quarter of a segment. These are labelled as NW, NE, SW, SE and are referenced in the datasheet to allow features to be quickly located on plots. Therefore a feature that has a quadrant reference of A7NW will be in Slice A, Segment 7 and the NW Quadrant.

A selection of organisations who provide data within this report:



Envirocheck reports are compiled from 136 different sources of data.

Client Details

MR G Riches, Geotechnical Developments, The Wharf,
Marston Doles, Warwickshire, CV47 7SS

Order Details

Order Number: 22731101_1_1
Customer Ref: P4682/NW
National Grid Reference: 425120, 403400
Site Area (Ha): 0.19
Search Buffer (m): 1000

Site Details

Sheffield Road, Penistone

LANDMARK TERMS AND CONDITIONS

Version 6.04 28 Jul 2007

Definitions

"Authorised Reseller" means an agent or reseller of Landmark whom Landmark has duly appointed to resell its Reports and Services.

"Content" means any data, computing and information services and software, and other content and documentation or support materials and updates included in and/or supplied by or through the Websites, in Reports or Services or in any other way by Landmark and shall include Landmark developed and Third Party Content.

"First Purchaser" means the first person, or legal entity to purchase the Property Site following provision of a Report.

"First Purchaser's Lender" means the funding provider for the First Purchaser.

"Information Pack" means a pack compiled by or on behalf of the owner or prospective buyer of the Property Site, designed to aid the marketing or purchase of the Property Site and containing information provided by or on behalf of the owner or prospective buyer of the Property Site.

"Intellectual Property Rights" means copyright, patent, design right (registered or unregistered), service or trade mark (registered or unregistered), database right or other data right, moral right or know how or any other intellectual property right.

"Order" means the request for Services from Landmark by You.

"Property Site" means a land site on which Landmark provides a Service.

References to **"We"**, **"Us"** and **"Our"** are references to Landmark Information Group Limited ("Landmark"), whose registered office is 7 Abbey Court, Eagle Way, Exeter, EX2 7HY. Where You are not ordering the Services directly from Landmark, but from an Authorised Reseller, references to "Landmark" or "We", "Us" and "Our" shall be construed so as to mean either Landmark and/or the Authorised Reseller as the context shall indicate.

References to **"You/Your/Yourself"** refer to the contracting party who accesses the Website or places an Order with Landmark.

"Report" includes any information that Landmark supplies to You including all reports, services, datasets, software or information contained in them.

"Services" means the provision of any service by Landmark pursuant to these Terms, including without limitation, any Report.

"Landmark Fees" means any charges levied by Landmark for Services provided to You.

"Suppliers" means any organisation who provides data or information of any form to Landmark.

"Terms" means these Terms & Conditions.

"Third Party Content" means the services, software, information and other content or functionality provided by third parties and linked to or contained in the Services.

"Websites" means websites hosted by Landmark and includes the Content and any report, service, document, data-set, software or information contained therein, derived there from or thereby.

1. Terms & Conditions

a. These Terms govern the relationship between You and Landmark whether You are an unregistered visitor to the Website or are purchasing Services. Where these Terms are not expressly accepted by You they will be deemed to have been accepted by You, and You agree to be bound by these Terms when You place any Order, or pay for any Services provided.

b. If the person communicating with Landmark is an Authorised Reseller, they must ensure that You agree to these Terms.

c. The headings in these Terms are for convenience only and shall not affect the meaning or interpretation of any part of these Terms.

d. Landmark may modify these Terms, and may discontinue or revise any or all other aspects of the Services at its sole discretion, with immediate effect and without prior notice, including without limitation changing the Services available at any given time. Any amendment or variation to these Terms shall be posted on our Websites. Continued use of the Services by You shall be deemed an acceptance by You to be bound by any such amendments to the Terms.

e. These Terms, together with the prices and delivery details set out on our Websites. Landmark's Privacy Policy and Your Order comprise the whole agreement relating to the supply of Services to You by Landmark. No prior stipulation, agreement, promotional material or statement whether written or oral made by any sales or other person or representative on our behalf should be understood as a variation of these Terms. Save for fraud or misrepresentation, Landmark shall have no liability for any such representation being untrue or misleading.

f. These Terms shall prevail at all times to the exclusion of all other terms and conditions including any terms and conditions which You may purport to apply even if such other provisions are submitted in a later document or purport to exclude or override these Terms and neither the course of conduct between parties nor trade practice shall act to modify these Terms.

2. Services

a. Landmark will use reasonable care and skill in providing the Services to You, however, the Services are provided on the express basis that the information and data supplied in the Services are derived from third party sources and Landmark does not warrant the accuracy or completeness of such information or data. Such information is derived solely from those sources specifically cited in the Services and Landmark does not claim that these sources represent an exhaustive or comprehensive list of all sources that might be consulted.

3. Intellectual Property

a. You acknowledge that all Intellectual Property Rights in the Services are and shall remain owned by either Landmark or our Suppliers and nothing in these Terms purports to transfer, assign or grant any rights to You in respect of the Intellectual Property Rights.

b. Subject always to these Terms You may, without further charge, make the Services available to:

- the owner of the Property at the date of the Report,
- any person who purchases the whole of the Property Site,
- any person who provides funding secured on the whole of the Property Site,
- any person for whom You act in a professional or commercial capacity,
- any person who acts for You in a professional or commercial capacity; and
- prospective buyers of the Property Site as part of an Information Pack but for the avoidance of doubt, Landmark shall have no liability to such prospective buyer unless the prospective buyer subsequently purchases the Property Site, and the prospective (or actual) buyer shall not be entitled to make the Service available to any other third party.

Accordingly Landmark shall have the same duties and obligations to those persons in respect of the Services as it has to You.

c. Each of those persons referred to in clause 3 b. shall have the benefit and the burden of Your rights and obligations under these Terms. The limitations of Landmark's liability as set out in clause 6 shall apply to all users of the Service in question in aggregate and Landmark shall not be liable to any other person.

d. All parties given access to the Services agree that they will treat as strictly private and confidential the Services and all information which they obtain from the Services and shall restrict any disclosure to employees or professional advisors to enable the relevant party to conduct its internal business. The requirement in this clause to treat the Services as confidential shall include a requirement to maintain adequate security measures to safeguard the Services from unauthorised access, use or copying.

e. Each recipient of the Services agrees (and agrees it will cause its employees, agents or contractors who may from time to time have access to the Services to agree) it will not, except as permitted herein or by separate agreement with Landmark:-

- effect or attempt to effect any modification, merger or change to the Service, nor permit any other person to do so; or
- copy, use, market, re-sell, distribute, merge, alter, add to or carry on any redistribution, reproduction, translation, publication, reduction to any electronic medium or machine readable form or commercially exploit or in any other way deal with or utilise or (except as expressly permitted by applicable law) reverse engineer, decompile or disassemble the Services, Content or Website; or
- remove, alter or in any way change any trademark or proprietary marking in any element of the Services and You shall acknowledge the ownership of the Content, where such Content is incorporated or used into Your own documents, reports, systems or services whether or not these are supplied to any third party;
- create any product which is derived directly or indirectly from the data contained in the Services

f. The mapping contained in any Services is protected by Crown Copyright and must not be used for any purpose outside the context of the Services or as specifically provided by these Terms.

g. You are permitted to make five copies of any Report, but are not authorised to re-sell the Report, any part thereof or any copy thereof unless you are an Authorised Reseller. Further copies may not be made in whole or in part without the prior written permission of Landmark who shall be entitled to make a charge for each additional copy.

4. Charges

a. VAT at the prevailing rate shall be payable in addition to the Landmark Fees. You shall pay any other applicable indirect taxes related to Your use of the Services.

b. An individual or a monthly invoice showing all Orders created by You will be generated subject to these Terms. You will pay the Landmark Fees at the rates set out in Landmark's or its Authorised Reseller's invoice. The Landmark Fees are payable in full within 30 days without deduction, counterclaim or set off. You acknowledge that time is of the essence with respect to the payment of such invoices. Landmark reserve the right to amend the Landmark Fees from time to time and the Services will be charged at the Landmark Fee applicable at the date on which the Service is ordered.

c. We may charge interest on late payment at a rate equal to 3% per annum above the base lending rate of National Westminster Bank plc.

d. Landmark or its Authorised Reseller shall not be obliged to invoice any party other than You for the provision of Services, but where Landmark or its Authorised Reseller does so invoice any third party at Your request, and such invoice is not accepted or remains unpaid, Landmark or its Authorised Reseller shall have the option at any time to cancel such invoice and invoice You direct for such Services. Where Your order comprises a number of Services or severable elements within any one or more Services, any failure by Landmark or its Authorised Reseller to provide an element or elements of the Services

shall not prejudice Landmark's or its Authorised Reseller's ability to require payment in respect of the Services delivered to You.

5. Termination

a. Landmark may suspend or terminate Your rights under these Terms without any liability to You with immediate effect if at any time:-

- You fail to make any payment due in accordance with clause 4;
- You repeatedly breach or commit or cause to be committed any material breach of these Terms; or
- You commit a breach and You fail to remedy the breach within 7 days of receipt of a written notice to do so; additionally, without prejudice to the foregoing, Landmark may remedy the breach and recover the costs thereof from You.

b. If Your rights are terminated under this clause and You have made an advance payment We will refund You a reasonable proportion of the balance as determined by Us in relation to the value of Services previously purchased.

c. Landmark reserves the right to refuse to supply any or all Services to You without notice or reason.

6. Liability

a. We provide warranties and accept liability only to the extent stated in this clause 6 and clause 7.

b. Nothing in these Terms excludes either party's liability for death or personal injury caused by that party's negligence or wilful default, and the remainder of this clause 6 is subject to this provision and Your statutory rights.

c. As most of the information contained in the Services is provided to Landmark by others, Landmark cannot control its accuracy or completeness, nor is it within the scope of Landmark's Services to check the information on the ground. Accordingly, Landmark will only be liable to You for any loss or damage caused by its negligence or wilful default and subject to clause 6.0 below neither Landmark nor any person providing information contained in any Services shall in any circumstances be liable for any inaccuracies, faults or omissions in the Services, nor shall Landmark have any liability if the Services are used otherwise than in accordance with these Terms.

d. Save as precluded by law, Landmark shall not be liable for any indirect or consequential loss, damage or expenses (including loss of profits, loss of contracts, business or goodwill) howsoever arising out of any problem, event, action or default by Landmark.

e. In any event, and notwithstanding anything contained in these Terms, Landmark's liability in contract, tort (including negligence or breach of statutory duty) or otherwise howsoever arising by reason or in connection with this Contract (except in relation to death or personal injury) shall be limited to an aggregate amount not exceeding £1 million if the complaint is in relation to a Report on residential property and an aggregate amount not exceeding £10 million in respect of any other Report or Service purchased from Landmark.

f. Landmark will not be liable for any defect, failure or omission relating to Services that is not notified to Landmark within six months of the date of the issue becoming apparent and in any event, within twelve years of the date of the Service.

g. You acknowledge that:-

- Subject to clause 6.0 below You shall have no claim or recourse against any Third Party Content supplier nor any of our other Suppliers. You will not in any way hold us responsible for any selection or retention of, or the acts or omissions of Third Party Content suppliers or other Suppliers (including those with whom We have contracted to operate various aspects or parts of the Service) in connection with the Services (for the avoidance of doubt Landmark is not a Third Party Content supplier). Landmark does not promise that the supply of the Services will be uninterrupted or error free or provide any particular facilities or functions, or that the Content will always be complete, accurate, precise, free from defects of any other kind, computer viruses, software locks or other similar code although Landmark will use reasonable efforts to correct any inaccuracies within a reasonable period of time becoming known to us;
- Landmark's only obligation is to exercise reasonable skill and care in providing environmental property risk information to persons acting in a professional or commercial capacity who are skilled in the use of property and environmental information and You hereby acknowledge that You are such a person;
- no physical inspection of the Property Site reported on is carried out as part of any Services offered by Landmark and Landmark do not warrant that all land uses or features whether past or current will be identified in the Services. The Services do not include any information relating to the actual state or condition of any Property Site nor should they be used or taken to indicate or exclude actual fitness or unfitness of a Property Site for any particular purpose nor should it be relied upon for determining saleability or value or used as a substitute for any physical investigation or inspection. Landmark recommends that You inspect and take other advice in relation to the Property Site and not rely exclusively on the Services.
- Subject to clause 6.0 below, Landmark shall not be responsible for error or corruption in the Services resulting from inaccuracy or omission in primary or secondary information and data, inaccurate processing of information and data by third parties;

computer malfunction or corruption of data whilst in the course of conversion, geo-coding, processing by computer or electronic means, or in the course of transmission by telephone or other communication link, or printing.

v. Landmark will not be held liable in any way if a Report on residential property is used for commercial property or more than the one residential property for which it was ordered.

vi. The Services have not been prepared to meet Your or anyone else's individual requirements; that You assume the entire risk as to the suitability of the Services and waive any claim of detrimental reliance upon the same; and You confirm You are solely responsible for the selection or omission of any specific part of the Content;

vii. Landmark offer no warranty for the performance of any linked internet service not operated by Landmark;

viii. You will on using the Services make a reasonable inspection of any results to satisfy Yourself that there are no defects or failures. In the event that there is a material defect You will notify us in writing of such defect within seven days of its discovery;

ix. Any support or assistance provided to You in connection with these Terms is at Your risk;

h. All liability for any insurance products purchased by You rests solely with the insurer. Landmark does not endorse any particular product or insurer and no information contained within the Services should be deemed to imply otherwise. You acknowledge that if You Order any such insurance Landmark will deem such as Your consent to forward a copy of the Report to the insurers. Where such policy is purchased, all liability remains with the insurers and You are entirely responsible for ensuring that the insurance policy offered is suitable for Your needs and should seek independent advice. Landmark does not guarantee that an insurance policy will be available on a Property Site. All decisions with regard to the offer of insurance policies for any premises will be made solely at the discretion of the insurers and Landmark accepts no liability in this regard. The provision of a Report does not constitute any indication by Landmark that insurance will be available on the property.

i. Professional opinions contained in Reports are provided to Landmark by third parties, and such third parties are solely liable for the opinion provided. For the avoidance of doubt, those parties providing assessments or professional opinions on Landmark products include RPS Plc & Wilbourn Associates Limited, and any issues with regard to the provision of such opinion should be taken up with the relevant third party.

If Landmark provides You with any additional service obtained from a third party, including but not limited to any interpretation or conclusion, risk assessment or environmental report or search carried out in relation to a Report on Your Property Site, subject to clause 6.0 below Landmark will not be liable in any way for any information contained therein or any issues arising out of the provision of those additional services to You. Landmark will be deemed to have acted as an agent in these circumstances and the supply of these additional services will be governed by the terms and conditions of those Third Parties.

j. In any event no person may rely on a Service more than 12 months after its original date.

k. If You wish to vary any limitation of liability as set out in these Terms, You must request such variation prior to ordering the Service. Landmark shall use its reasonable endeavours to agree such variation but shall not be obliged to do so.

l. Time shall not be of the essence with respect to the provision of the Services.

m. Ordnance Survey have undertaken a positional accuracy improvement programme which may result in discrepancies between the positioning of features used in datasets in the Services and the updated Ordnance Survey mapping. Subject to clause 6.0 below, Landmark and its Suppliers exclude all and any liability incurred as a result of the implementation of such positional accuracy improvement programme.

n. Where Landmark provides its own risk assessment in connection with any Report, Landmark shall carry out such assessment with all reasonable skill and care but shall have no liability for any such risk assessment conclusion which is provided for information only, save where Landmark conducted the same negligently, in which case the provisions of clause 6 shall apply. Notwithstanding the provision of any such risk assessment conclusion you should carefully examine the remainder of the Report and should not take or refrain from taking any action based solely on the basis of the risk assessment. For the avoidance of doubt, the provisions of this clause 6n apply solely to risk assessments conducted by Landmark, and the provision of any other risk assessment by a third party shall be governed by such third party's terms in accordance with the provisions of clause 6i above.

o. Landmark obtains much of the information contained in its Report from third parties. Landmark will not accept any liability to You for any negligent or incorrect entry, or error or corruption in the Third Party Content supplied to Landmark, but Landmark's Suppliers may be liable for such negligent or incorrect entries, or errors or corruptions, subject to the terms and conditions on which they supply the Third Party Content to Landmark.

7. Contribution

a. Save where expressly provided, this clause 7 shall apply

solely to Envirosearch Residential Reports (regardless of the result of such Report). Nothing in this clause 7 shall operate to override or vary the provisions of clause 6.

b. Landmark are prepared to offer, at their sole discretion, and without any admission or inference of liability a contribution towards the costs of any remediation works required under a Notice (as defined below) on the terms of this clause 7 ("the Contribution").

c. In the event that a Remediation Notice is served on the First Purchaser or First Purchaser's Lender of a Property Site under Part II(A) of the Environmental Protection Act 1990 ("the Notice") Landmark will contribute to the cost of such works as either the First Purchaser or First Purchaser's Lender (but not both) are required to carry out under the Notice subject to the provisions of this clause 7 and on the following terms:

i. the Contribution shall only apply to contamination or a pollution incident present or having occurred prior to the date of the Report;

ii. the Contribution shall only apply where the Property Site is a single residential dwelling house or a single residential flat within a block of flats. For the avoidance of doubt, this obligation does not apply to any commercial property, not to any Property Site being developed or redeveloped whether for residential purposes or otherwise;

iii. the Contribution is strictly limited to the cost of works at the Property Site and at no other site;

iv. the Contribution will not be paid in respect of any of the following:

Radioactive contamination of whatsoever nature, directly or indirectly caused by or contributed to or arising from ionising radiations or contamination by radioactivity from any nuclear fuel or from any nuclear waste from the combustion of nuclear fuel or the radioactive toxic explosive or other hazardous properties of any explosive nuclear assembly or nuclear component thereof.

Asbestos arising out of or related in any way to asbestos or asbestos-containing materials on or in structures or services serving the structures. Naturally occurring materials arising from the presence or required removal of naturally occurring materials except in circumstances where such materials are present in concentrations which are in excess of their natural concentration.

Intentional non-compliance arising from the intentional disregard of or knowing wilful or deliberate non-compliance by any owner or occupier of the Property Site with any statute, regulation, administrative complaint, notice of violation, or notice letter of any Regulatory Authority.

Any condition which is known or ought reasonably to have been known to the First Purchaser or the First Purchaser's Lender prior to the purchase of the Report.

Any condition which is caused by acts of War or an Act of Terrorism.

Any property belonging to or in the custody or control of the First Purchaser which does not form a fixed part of the Property Site or the structure.

Any fines liquidated damages punitive or exemplary damages.

Any bodily injury including without limitation, death, illness or disease, mental injury, anguish or nervous shock.

Any financial loss in respect of any loss of any rental, profit, revenue, savings or business or any consequential indirect or economic loss damage or expense including the cost of rent of temporary premises or business interruption.

Any losses incurred following a material change in use of, alteration or development of the Property Site.

d. The maximum sum that shall be contributed by Landmark in respect of any Contribution shall be limited to £60,000.

e. In the event that more than one Report is purchased on the Property Site the Contribution will only be payable under the first Report purchased by or on behalf of any First Purchaser or First Purchaser's Lender and no Contribution will be made in respect of subsequent Reports purchased by or on behalf of such First Purchaser, First Purchaser's Lender or any person connected to them.

f. Landmark shall only pay a Contribution where the Notice is served within 36 months of the date of the Report.

g. Any rights to a Contribution under this Clause 7 are not assignable in the event of a sale of the Property Site and Landmark will not make any Contribution after the date of completion of such sale.

h. In the event the First Purchaser or First Purchaser's Lender wishes to claim any Contribution, it shall notify Landmark in writing within 3 months of the date of the Notice. The First Purchaser or First Purchaser's Lender (as applicable) shall comply with all reasonable requirements of Landmark with regard to the commission and conduct of the remediation works to be carried out under the Notice, and in the event the First Purchaser or First Purchaser's Lender (as applicable) does not do so, including without limitation, obtaining Landmark's prior written consent to any estimates for such works or complying with any other reasonable request by Landmark, Landmark shall not be required to pay any Contribution. Notwithstanding the payment of the Contribution by Landmark the First Purchaser or First Purchaser's Lender as applicable shall take all reasonable steps to mitigate any costs incurred in connection with the conduct of works required under the

terms of any Notice.

i. In the event that the First Purchaser or First Purchaser's Lender receives any communication from a statutory authority to the effect that there is an intent to serve a notice received under Part II(A) of the Environmental Protection Act 1990 they will advise Landmark within a maximum period of two months from receipt of such communication. This clause 7h and the service of any notice under it shall not affect the provisions of clauses 7 e and g, and any such communications, even if advised to Landmark will not operate as notice under clause 7e.

j. Landmark reserve the right at any time prior to a claim for Contribution being made in accordance with clause 7 g) above, to withdraw the offer of payment of Contributions without further notice.

8. Events Beyond Our Control

a. You acknowledge that Landmark shall not be liable for any delay, interruption or failure in the provision of the Services which are caused or contributed to by any circumstance which is outside our reasonable control including but not limited to, lack of power, telecommunications failure or overload, computer malfunction, inaccurate processing of data, or delays in receiving, loading or checking data, corruption of data whilst in the course of conversion, geo-coding, processing by computer in the course of electronic communication, or printing.

9. Severability

a. If any provision of these Terms are found by either a court or other competent authority to be void, invalid, illegal or unenforceable, that provision shall be deemed to be deleted from these Terms and never to have formed part of these Terms and the remaining provisions shall continue in full force and effect.

10. Governing Law

a. These terms shall be governed by and construed in accordance with English law and each party agrees irrevocably submit to the exclusive jurisdiction of the English courts. If any dispute arises out of or in connection with this agreement (a "Dispute") the parties undertake that, prior to the commencement of Court proceedings, they will seek to have the Dispute resolved amicably by use of an alternative dispute resolution procedure acceptable to both parties with the assistance of the Centre for Dispute Resolution (CEDR) if required, by written notice initiating that procedure. If the Dispute has not been resolved to the satisfaction of either party within 60 days of initiation of the procedure or if either party fails or refuses to participate in or withdraws from participating in the procedure then either party may refer the Dispute to the Court.

11. General; Complaints

a. Landmark may assign its rights and obligations under these Terms without prior notice or any limitation.

b. Landmark may authorise or allow our contractors and other third parties to provide to Landmark and/or to You services necessary or related to the Services and to perform Landmark's obligations and exercise Landmark's rights under these Terms, which may include collecting payment on Landmark's behalf.

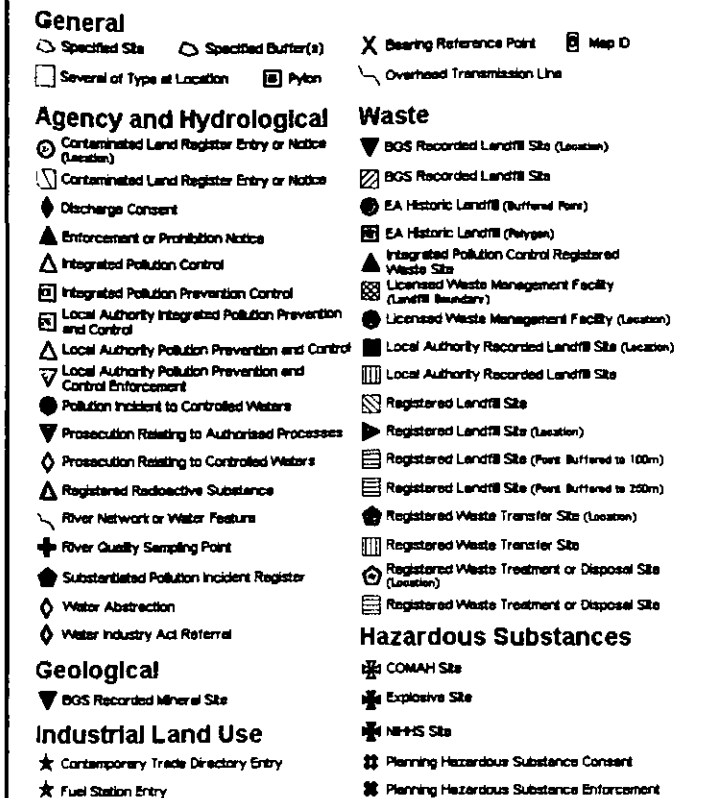
c. No waiver on Landmark's part to exercise, and no delay in exercising, any right, power or provision hereunder shall operate as a waiver thereof, nor shall any single or partial exercise of any right, power or provision hereunder preclude the exercise of that or any other right, power or provision.

d. Unless otherwise stated in these Terms, all notices from You to Landmark must be in writing and sent to the Landmark registered office (or in the case of an Authorised Reseller, to its registered office address) and subject to paragraph e below all notices from Landmark to You will be displayed on our Websites from time to time.

e. Any complaints in relation to the Services should, in the first instance, be in writing addressed to the Customer Service Support Manager at the Landmark registered office. Landmark or its agents will respond to any such complaints in writing as soon as practicably possible.

f. A person who is not a party to any contract made pursuant to these Terms shall have no right under the Contract (Right of Third Parties) Act 1999 to enforce any terms of such contract and Landmark shall not be liable to any such third party in respect of any Services supplied.

g. Landmark's Privacy Policy as displayed on the Website governs the use made of any information You supply to Landmark.



Order Number: 22731101_1_1
Customer Ref: P4682/NW
National Grid Reference: 425120, 403400
Slice: A
Site Area (Ha): 0.19
Plot Buffer (m): 100

Sheffield Road, Penistone





General

- Specified Site
- Specified Buffer(s)
- X Bearing Reference Point
- Map ID
- Several of Type at Location

Agency and Hydrological

- Contaminated Land Register Entry or Notice (Location)
- Contaminated Land Register Entry or Notice
- ▲ Discharge Consent
- ▲ Enforcement or Prohibition Notice
- ▲ Integrated Pollution Control
- Integrated Pollution Prevention Control
- Local Authority Integrated Pollution Prevention and Control
- ▲ Local Authority Pollution Prevention and Control
- ▲ Local Authority Pollution Prevention and Control Enforcement
- Pollution Incident to Controlled Waters
- ▼ Prosecution Relating to Authorised Processes
- ◆ Prosecution Relating to Controlled Waters
- ▲ Registered Radioactive Substance
- River Network or Water Feature
- ◆ River Quality Sampling Point
- ◆ Substantiated Pollution Incident Register
- ◆ Water Abstraction
- ◆ Water Industry Act Referral

Waste

- ▼ BGS Recorded Landfill Site (Location)
- BGS Recorded Landfill Site
- EA Historic Landfill (Buried Part)
- EA Historic Landfill (Hygien)
- ▲ Integrated Pollution Control Registered Waste Site
- Licensed Waste Management Facility (Landfill Boundary)
- Licensed Waste Management Facility (Location)
- Local Authority Recorded Landfill Site (Location)
- Local Authority Recorded Landfill Site
- Registered Landfill Site
- ▶ Registered Landfill Site (Location)
- Registered Landfill Site (Part: Buried to 100m)
- Registered Landfill Site (Part: Buried to 200m)
- Registered Waste Transfer Site (Location)
- Registered Waste Transfer Site
- Registered Waste Treatment or Disposal Site (Location)
- Registered Waste Treatment or Disposal Site

Hazardous Substances

- ◆ COMAH Site
- ◆ Explosive Site
- ◆ NHS Site
- ◆ Planning Hazardous Substance Consent
- ◆ Planning Hazardous Substance Enforcement

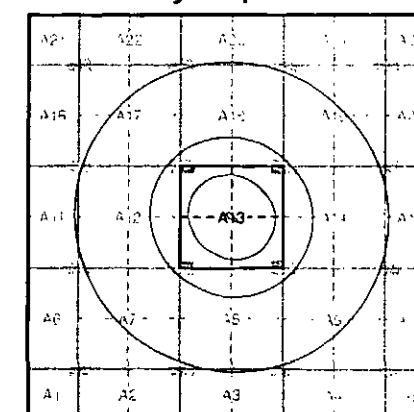
Geological

- ▼ BGS Recorded Mineral Site

Industrial Land Use

- ★ Contemporary Trade Directory Entry
- ★ Fuel Station Entry

Site Sensitivity Map - Slice A



Order Details

Order Number: 22731101_1_1
Customer Ref: P4682/NW
National Grid Reference: 425120, 403400
Slice: A
Site Area (Ha): 0.19
Search Buffer (m): 1000

Site Details

Sheffield Road, Penistone

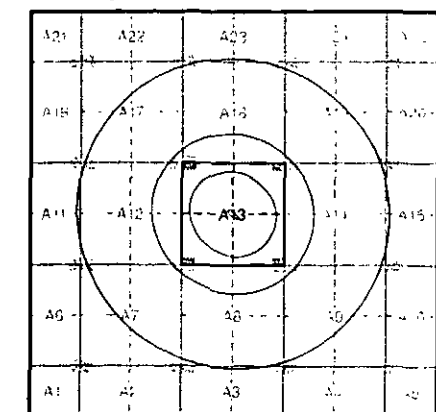
General

- Specified Site
- Specified Buffer(s)
- X Bearing Reference Point

Agency and Hydrological (Flood)

- Extreme Flooding from Rivers or Sea without Defences (Zone 2)
- Flooding from Rivers or Sea without Defences (Zone 3)
- Area Benefiting from Flood Defence
- Flood Water Storage Areas
- Flood Defence

Flood Map - Slice A

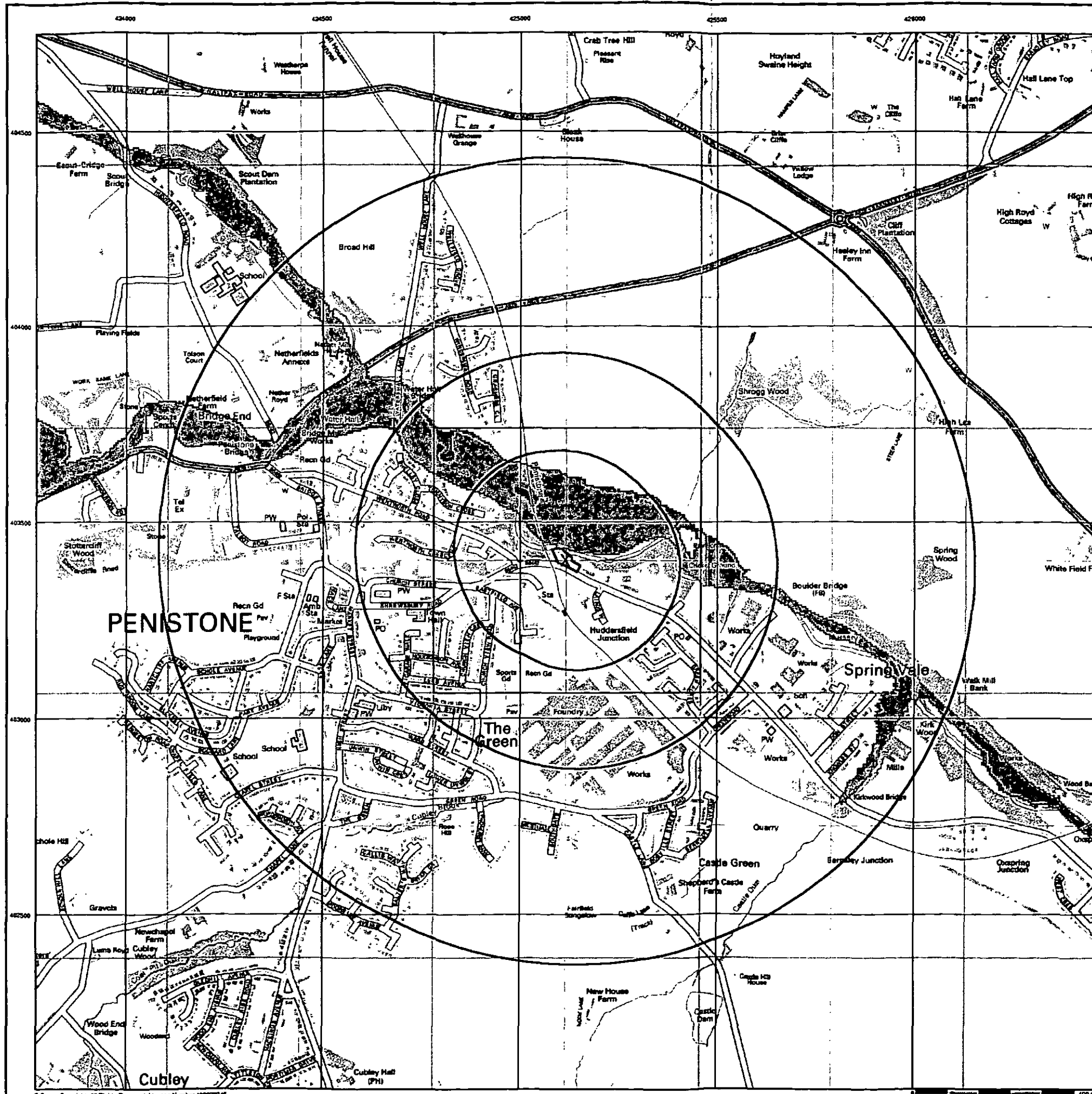


Order Details

Order Number: 22731101_1_1
Customer Ref: P4682/NW
National Grid Reference: 425120, 403400
Slice: A
Site Area (Ha): 0.19
Search Buffer (m): 1000

Site Details

Sheffield Road, Penistone



General

- Specified Site
- Specified Buffer(s)
- X Bearing Reference Point
- Map ID
- Several of Type at Location

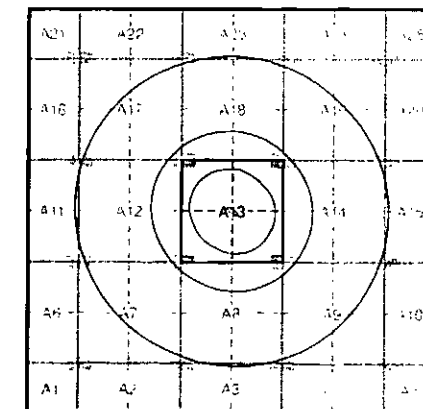
Agency and Hydrological (Boreholes)

- BGS Borehole

For Borehole information please refer to the Borehole datasheet which accompanied this slice.

A copy of the BGS Borehole Ordering Form is available to download from the Support section of www.envirocheck.co.uk.

Borehole Map - Slice A



Order Details

Order Number: 22731101_1_1
Customer Ref: P4682/NW
National Grid Reference: 425120, 403400
Slice: A
Site Area (Ha): 0.19
Search Buffer (m): 1000

Site Details

Sheffield Road, Penistone



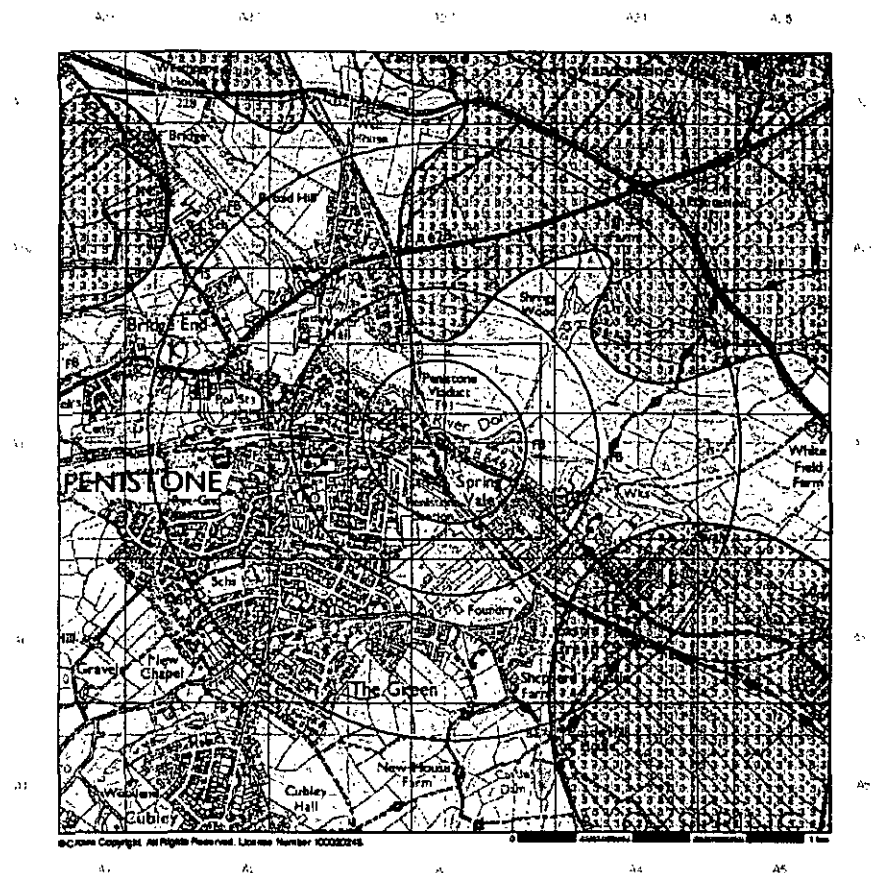
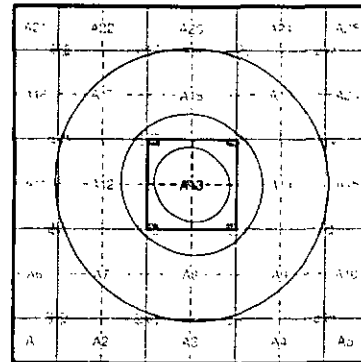
Order Details

Order Number: 22731101_1_1
Customer Ref: P4682/NW
National Grid Reference: 425120, 403400
Slice: A
Site Area (Ha): 0.19
Search Buffer (m): 1000

Site Details

Sheffield Road, Penistone

Groundwater Vulnerability - Slice A



Background	General	Agency & Hydrological	
- Footpath - Bridleway - Byway open to all traffic - Road Used as a Public Path - Other routes with Public Access - National Trail or Long Distance Route - Contour - Fishing - Nature Reserve	- Specified Site - Specified Buffer(s) - Bearing Reference Point	Geological Classes - Major Aquifer (Highly Permeable) - Minor Aquifer (Variably Permeable) - Non Aquifer (Negligibly Permeable) - Water or Sea - Drill Deposit	Soil Classes - High (0, 1, 2, 3, U) - Intermediate (0, 1, 2) - Low - High (0, 1, 2, 3, U) - Intermediate (0, 1, 2) - Low

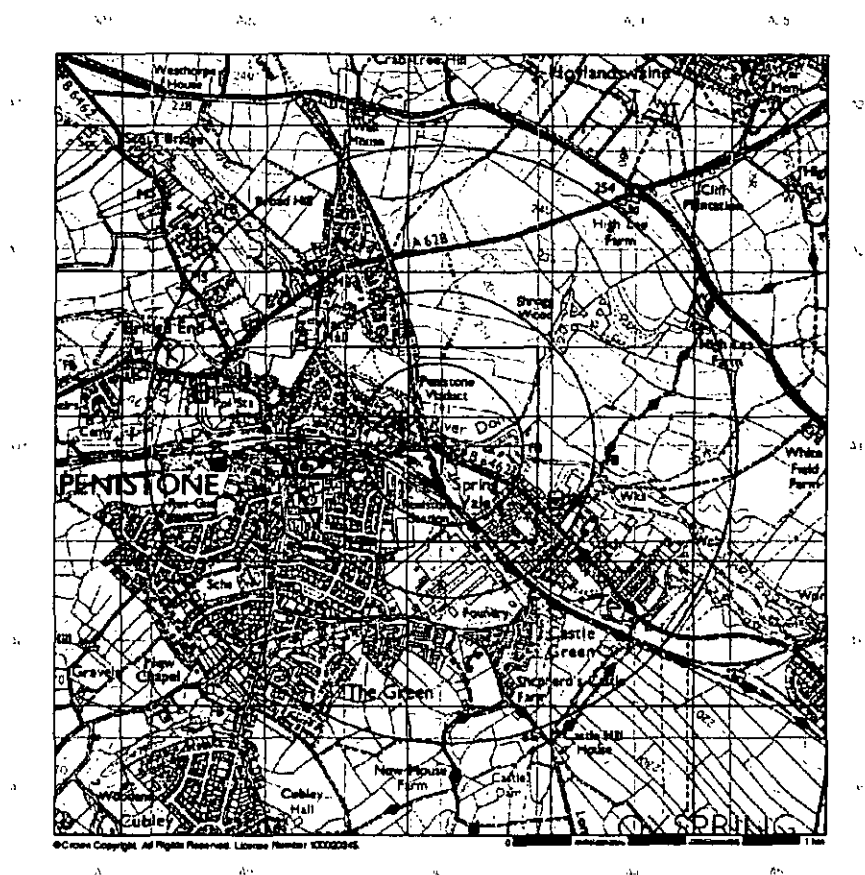
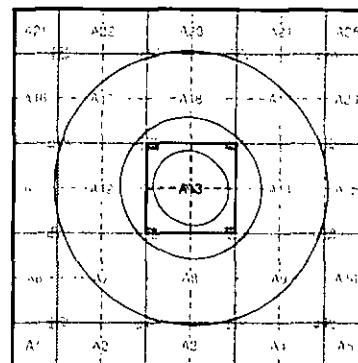
Order Details

Order Number: 22731101_1_1
Customer Ref: P4682/NW
National Grid Reference: 425120, 403400
Slice: A
Site Area (Ha): 0.19
Search Buffer (m): 1000

Site Details

Sheffield Road, Penistone

Source Protection Zones - Slice A



Background

- Footpath
- Bridleway
- Byway open to all traffic
- Road Used as a Public Path
- Other routes with Public Access
- National Trail or Long Distance Route
- Contour
- Fishing
- Nature Reserve

General

- △ Specified Site
- △ Specified Buffer(s)
- X Bearing Reference Point
- Map ID

Agency and Hydrological

- ▨ Source Protection Zone I
- ▨ Source Protection Zone II
- ▨ Source Protection Zone III
- ▨ Zone of Special Interest
- ▨ Source Protection Zone Boundary

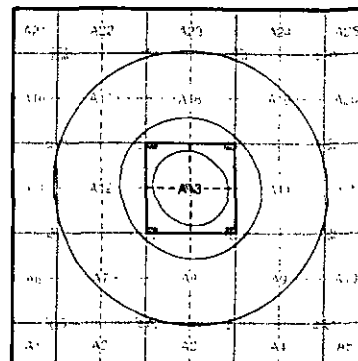
Order Details

Order Number: 22731101_1_1
Customer Ref: P4682/NW
National Grid Reference: 425120, 403400
Slice: A
Site Area (Ha): 0.19
Search Buffer (m): 1000

Site Details

Sheffield Road, Penistone

Sensitive Land Uses - Slice A



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Background	General	☒ Local Nature Reserve
- Footpath	☐ Specified Site	☐ Marine Nature Reserve
- Bridleway	☐ Specified Buffer(s)	☐ National Nature Reserve
- Byway open to all traffic	☒ Bearing Reference Point	☐ National Park
- Road Used as a Public Path	☐ Map ID	☐ Nitrate Sensitive Area
Other routes with Public Access	Sensitive Land Uses	☐ Nitrate Vulnerable Zone
- National Trail or Long Distance Route	☐ Area of Adopted Green Belt	☐ Ramsar Site
- Contour	☐ Area of Unadopted Green Belt	☐ Site of Special Scientific Interest
☐ Fishing	☐ Area of Outstanding Natural Beauty	☐ Special Area of Conservation
☐ Nature Reserve	☐ Environmentally Sensitive Area	☐ Special Protection Area
	☐ Forest Park	

Envirocheck[®] Report: Datasheet

Order Details:

Order Number:

22731101_1_1

Customer Reference:

P4682/NW

National Grid Reference:

425120, 403400

Slice:

A

Site Area (Ha):

0.19

Search Buffer (m):

1000

Site Details:

Sheffield Road

Penistone

Client Details:

MR G Riches

Geotechnical Developments

The Wharf

Marston Doles

Warwickshire

CV47 7SS

Report Section	Page Number
Summary	-
Agency & Hydrological	1
Waste	17
Hazardous Substances	-
Geological	21
Industrial Land Use	23
Sensitive Land Use	27
Data Currency	28
Data Suppliers	32
Useful Contacts	33

Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination. For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client.

In the attached datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

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Report Version v28.2

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Agency & Hydrological					
Contaminated Land Register Entries and Notices					
Discharge Consents	pg 1		2	2	10
Enforcement and Prohibition Notices	pg 4				2
Integrated Pollution Controls	pg 4				4
Integrated Pollution Prevention And Control	pg 5				1
Local Authority Integrated Pollution Prevention And Control					
Local Authority Pollution Prevention and Controls	pg 5		1	1	1
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature	pg 5		Yes		
Pollution Incidents to Controlled Waters	pg 6		1	13	15
Prosecutions Relating to Authorised Processes					
Prosecutions Relating to Controlled Waters					
Registered Radioactive Substances					
River Quality	pg 10		1	2	2
River Quality Biology Sampling Points	pg 11			1	1
River Quality Chemistry Sampling Points	pg 12		1	1	1
Substantiated Pollution Incident Register	pg 14		1		1
Water Abstractions	pg 15			1	1 (*3)
Water Industry Act Referrals					
Groundwater Vulnerability	pg 16	Yes	n/a	n/a	n/a
Source Protection Zones					
Extreme Flooding from Rivers or Sea without Defences	pg 16	Yes		n/a	n/a
Flooding from Rivers or Sea without Defences	pg 16		Yes	n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences				n/a	n/a
Waste					
BGS Recorded Landfill Sites	pg 17				1
Historical Landfill Sites	pg 17		1		2
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)	pg 17				3
Local Authority Recorded Landfill Sites	pg 18		1		2
Registered Landfill Sites	pg 19		1		1
Registered Waste Transfer Sites	pg 19		1		2
Registered Waste Treatment or Disposal Sites					

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Hazardous Substances					
Control of Major Accident Hazards Sites (COMAH)					
Explosive Sites					
Notification of Installations Handling Hazardous Substances (NIHHS)					
Planning Hazardous Substance Consents					
Planning Hazardous Substance Enforcements					
Geological					
BGS Recorded Mineral Sites					
BGS 1:625,000 Solid Geology	pg 21	Yes	n/a	n/a	n/a
Brine Compensation Areas			n/a	n/a	n/a
Coal Mining Affected Areas	pg 21	Yes	n/a	n/a	n/a
Mining Instability	pg 21	Yes	n/a	n/a	n/a
Natural and Mining Cavities					
Potential for Collapsible Ground Stability Hazards				n/a	n/a
Potential for Compressible Ground Stability Hazards	pg 21	Yes		n/a	n/a
Potential for Ground Dissolution Stability Hazards				n/a	n/a
Potential for Landslide Ground Stability Hazards		Yes	Yes	n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 21	Yes		n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 22	Yes		n/a	n/a
Radon Affected Areas			Yes	n/a	n/a
Radon Protection Measures				n/a	n/a
Shallow Mining Hazards	pg 22	Yes		n/a	n/a
Industrial Land Use					
Contemporary Trade Directory Entries	pg 23		3	5	31
Fuel Station Entries	pg 26				2

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Sensitive Land Use					
Areas of Adopted Green Belt	pg 27	1			
Areas of Unadopted Green Belt					
Areas of Outstanding Natural Beauty					
Environmentally Sensitive Areas					
Forest Parks					
Local Nature Reserves					
Marine Nature Reserves					
National Nature Reserves					
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones	pg 27	1	1		
Ramsar Sites					
Sites of Special Scientific Interest					
Special Areas of Conservation					
Special Protection Areas					

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	Discharge Consents Operator: Yorkshire Water Services Ltd Property Type: Sewerage Network - Sewers Location: Thurlstone Bridge, THURLSTONE, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Reference: S/UD/91 Permit Version: Not Supplied Effective Date: Not Supplied Issued Date: 30th June 1993 Revocation Date: Not Supplied Discharge Type: Sewage Effluent Discharge-Storm Effluent Discharge: Unknown Environment: Receiving Water: Not Supplied Status: Not Supplied Positional Accuracy: Located by supplier to within 100m	A13NE (E)	207	1	425340 403475
1	Discharge Consents Operator: Yorkshire Water Services Ltd Property Type: Sewerage Network - Sewers Location: Thurlstone - Thurlstone Bridge, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Reference: S/UD/91 Permit Version: Not Supplied Effective Date: Not Supplied Issued Date: 27th May 1963 Revocation Date: Not Supplied Discharge Type: Sewage Effluent Discharge-Storm Effluent Discharge: Unknown Environment: Receiving Water: Not Supplied Status: Not Supplied Positional Accuracy: Located by supplier to within 100m	A13NE (E)	209	1	425340 403480
2	Discharge Consents Operator: Hi Tec Integrity Ltd Property Type: Undefined Or Other Location: Foundry Site Green Road, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: Wra7008 Permit Version: 1 Effective Date: 23rd December 1993 Issued Date: 23rd December 1993 Revocation Date: 10th November 2003 Discharge Type: Trade Discharges - Cooling Water Discharge: Freshwater Stream/River Environment: Receiving Water: Cubley Brook Status: Revoked (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 100m	A8NE (S)	472	1	425150 402900
2	Discharge Consents Operator: David Brown Gear Industries Limited Property Type: Undefined Or Other Location: David Brown Gear Industries Limited , Green Road, Penistone, Barnsley, Y Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: C4380 Permit Version: 1 Effective Date: 5th September 1986 Issued Date: 5th September 1986 Revocation Date: Not Supplied Discharge Type: Trade Discharge - Process Water Discharge: Freshwater Stream/River Environment: Receiving Water: Cubley Brook Status: Transferred from COPA 1974 Positional Accuracy: Located by supplier to within 100m	A8NW (S)	474	1	425100 402900

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
3	Discharge Consents Operator: Yorkshire Water Services Ltd Property Type: Sewerage Network - Sewers Location: Spring Vale - Old Sewage Works, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Reference: S/UD/91 Permit Version: Not Supplied Effective Date: Not Supplied Issued Date: 27th May 1963 Revocation Date: Not Supplied Discharge Type: Sewage Effluent Discharge-Storm Effluent Discharge: Unknown Environment: Receiving Water: Not Supplied Status: Not Supplied Positional Accuracy: Located by supplier to within 100m	A14SW (E)	584	1	425720 403250
3	Discharge Consents Operator: Penistone Urban District Council Property Type: Sewerage Network - Sewers - Water Company Location: Springvale Cso Sheffield Road (Off), Springvale, Penistone, Sheffield Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: 2002 Permit Version: 1 Effective Date: 12th November 1965 Issued Date: 12th November 1965 Revocation Date: 30th March 2004 Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: River Don Status: Transferred from Rivers (Prevention of Pollution) Act 1951-1961 Positional Accuracy: Located by supplier to within 10m	A14SW (E)	614	1	425740 403210
3	Discharge Consents Operator: Yorkshire Water Services Ltd Property Type: Sewerage Network - Sewers - Water Company Location: Springvale Cso Sheffield Road (Off), Springvale, Penistone, Sheffield Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: 2002 Permit Version: 2 Effective Date: 31st March 2004 Issued Date: 8th March 2004 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: River Don Status: Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A14SW (E)	621	1	425750 403220
4	Discharge Consents Operator: Yorkshire Water Services Ltd Property Type: Sewerage Network - Sewers - Water Company Location: Green Road Cso Green Road, Penistone, Barnsley, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: Ywucd2/76 Permit Version: 1 Effective Date: 12th November 1997 Issued Date: 12th November 1997 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Cubley Brook Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A8NW (S)	595	1	424985 402799

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
5	Discharge Consents Operator: Yorkshire Water Services Ltd Property Type: Sewerage Network - Sewers - Water Company Location: Wentworth/Bridge End Cso Wentworth Road, Penistone, Sheffield, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: C4960 Permit Version: 2 Effective Date: 4th June 2007 Issued Date: 4th June 2007 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: River Don Status: Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A12NE (W)	676	1	424450 403670
6	Discharge Consents Operator: Yorkshire Water Services Ltd Property Type: Sewerage Network - Sewers - Water Company Location: Wentworth/Bridge End Cso Wentworth Road, Penistone, Sheffield, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: C4960 Permit Version: 1 Effective Date: 27th January 1988 Issued Date: 27th January 1988 Revocation Date: 3rd June 2007 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: River Don Status: Transferred from COPA 1974 Positional Accuracy: Located by supplier to within 100m	A12NW (NW)	704	1	424440 403720
6	Discharge Consents Operator: Yorkshire Water Services Ltd Property Type: Sewage Disposal Works - Water Company Location: Ingbrichworth Stw Huddersfield Road, Penistone, Barnsley, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: Wra7365 Permit Version: 1 Effective Date: 24th October 1997 Issued Date: 24th October 1997 Revocation Date: 8th September 1998 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: River Don Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A17SW (NW)	735	1	424420 403750
7	Discharge Consents Operator: Arthur Stanley Property Type: Undefined Or Other Location: Field Adjacent To Wellhouse Farm Off Halifax Road, Penistone, Barnsley, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: 3753 Permit Version: 1 Effective Date: 5th December 1983 Issued Date: 5th December 1983 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Tributary Of The River Don Status: Transferred from Rivers (Prevention of Pollution) Act 1951-1961 Positional Accuracy: Located by supplier to within 100m	A18NW (N)	791	1	424900 404200

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
8	Discharge Consents Operator: Yorkshire Water Services Ltd Property Type: Sewage Disposal Works - Water Company Location: Ingbirchworth Stw Huddersfield Road, Penistone, Barnsley, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: Wra7365 Permit Version: 2 Effective Date: 9th September 1998 Issued Date: 9th September 1998 Revocation Date: 10th September 2003 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: River Don & Ingbirchworth Dyke Status: Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A17SW (W)	919	1	424220 403750
9	Discharge Consents Operator: Mr Roy Spenceley Property Type: Mixed Farming Location: High Lee Farm, Hoylandswaine, Penistone, SHEFFIELD, South Yorkshire, S30 6JQ Authority: Environment Agency, North East Region Catchment Area: Deame Reference: 3631 Permit Version: Not Supplied Effective Date: Not Supplied Issued Date: Not Supplied Revocation Date: Not Supplied Discharge Type: Sewage Effluent Discharge: Freshwater Stream/River Environment: Receiving Water: Un-Named Tributary Shrogg Wood Dike Status: Not Supplied Positional Accuracy: Located by supplier to within 100m	A19SE (NE)	922	1	425950 403850
10	Enforcement and Prohibition Notices Location: Penistone, BARNSELEY, South Yorkshire, S Permit Reference: Not Given Enforcement Date: 7th March 1996 Details: Press Release HM382, Poor security at the industrial radiography building, under RSA93. Positional Accuracy: Unknown	A8NW (S)	589	1	425001 402801
11	Enforcement and Prohibition Notices Location: Green Road, Penistone, SHEFFIELD, South Yorkshire, S36 6BU Permit Reference: NOT GIVEN Enforcement Date: 26th February 1998 Details: EA News Release 02/03/1998, Not ensuring cleaning equipment was correctly operated in a manner which prevented dust from escaping. Positional Accuracy: Unknown	A8NW (SW)	663	1	424829 402789
12	Integrated Pollution Controls Name: Hitec Integrity Castings Location: P O Box 77, Green Road, Penistone, SHEFFIELD, South Yorkshire, S36 6BU Authority: Environment Agency, North East Region Permit Reference: BA9452 Dated: 13th March 1998 Process Type: IPC minor (non-substantial) variation to previous variation Description: 2.1 A (F) Iron and Steel processes within the Metal Industry Status: Application has met the requirements for authorisation (but not yet authorised) Not Yet Authorised Positional Accuracy: Manually positioned to the address or location	A8NW (S)	507	1	425080 402870
12	Integrated Pollution Controls Name: Hi Tec Integrity Castings Ltd Location: Green Road, SHEFFIELD, South Yorkshire, S36 6BU Authority: Environment Agency, North East Region Permit Reference: BI0122 Dated: 4th April 2000 Process Type: IPC minor (non-substantial) variation to previous variation Description: 2.1 A (F) Iron and Steel processes within the Metal Industry Status: Revoked - Now IPPC Positional Accuracy: Automatically positioned to the address	A8NW (S)	509	1	425075 402868

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
12	Integrated Pollution Controls Name: Hi Tec Integrity Castings Ltd Location: Green Road, Penistone, Sheffield, South Yorkshire, S36 6BU Authority: Environment Agency, North East Region Permit Reference: BD1466 Dated: 24th November 1998 Process Type: IPC minor (non-substantial) variation to previous variation Description: 2.1 A (F) Iron and Steel processes within the Metal Industry Status: Authorisation superseded by a substantial or non substantial variation Superseded Positional Accuracy: Automatically positioned to the address	A8NW (S)	509	1	425075 402868
12	Integrated Pollution Controls Name: Hi Tec Integrity Castings Ltd Location: Green Road, Penistone, Sheffield, South Yorkshire, S36 6BU Authority: Environment Agency, North East Region Permit Reference: AR2619 Dated: 26th January 1996 Process Type: IPC application for process that was regulated by HMIP for air releases under previous legislation Description: 2.1 A (F) Iron and Steel processes within the Metal Industry Status: Authorisation superseded by a substantial or non substantial variation Superseded Positional Accuracy: Automatically positioned to the address	A8NW (S)	509	1	425075 402868
13	Integrated Pollution Prevention And Control Name: Hi Tec Integrity Castings Ltd Location: Foundry, Green Road, Penistone, Sheffield, South Yorkshire, S36 6BU Authority: Environment Agency, North East Region Permit Reference: Bk6700iy Original Permit Ref: Bk6700iy Effective Date: 1st March 2007 Status: Revoked Application Type: Application App. Sub Type: New Positional Accuracy: Automatically positioned to the address Activity Code: 2.1 A(2) (D) Activity Description: Ferrous Metals; Casting Greater Than 20T/Day Primary Activity: N Activity Code: 2.1 A(1) (B) Activity Description: Ferrous Metals; Producing, Melting Or Refining Primary Activity: Y	A8NW (S)	509	1	425075 402868
14	Local Authority Pollution Prevention and Controls Name: Readymix (Huddersfield) Ltd Location: Springvale, Penistone, BARNSELEY, South Yorkshire, S70 Authority: Barnsley Metropolitan Borough Council, Environmental Health and Trading Standards Permit Reference: Ppc/B/15 Dated: 10th February 1993 Process Type: Local Authority Pollution Prevention and Control Description: PG3/1 Blending, packing, loading and use of bulk cement Status: Permitted Positional Accuracy: Manually positioned to the road within the address or location	A13SE (S)	87	2	425162 403287
15	Local Authority Pollution Prevention and Controls Name: Cecil Penney Location: Sheffield Road Garage, Sheffield Road, Penistone, Sheffield, S36 6hf Authority: Barnsley Metropolitan Borough Council, Environmental Health and Trading Standards Permit Reference: Ppc/B/53 Dated: 18th February 1999 Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station Status: Permitted Positional Accuracy: Manually positioned to the road within the address or location	A14SW (SE)	411	2	425495 403157
16	Local Authority Pollution Prevention and Controls Name: Bridge End Garage Location: Barnsley Road, Penistone, SHEFFIELD, South Yorkshire, S36 8AF Authority: Barnsley Metropolitan Borough Council, Environmental Health and Trading Standards Permit Reference: Epa/Petrol33 Dated: 7th January 2002 Process Type: Local Authority Air Pollution Control Description: PG1/14 Petrol filling station Status: Authorised Positional Accuracy: Automatically positioned to the address	A12NW (W)	781	2	424346 403692
	Nearest Surface Water Feature	A13NE (NE)	1	-	425125 403418

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
17	Pollution Incidents to Controlled Waters Property Type: Industrial Premises Location: Darfield/Source Dove(S) Afu Authority: Environment Agency, North East Region Pollutant: Heavy Fuel Oil Note: Not Supplied Incident Date: 12th June 1993 Incident Reference: 145311 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A13SE (SE)	172	1	425300 403300
18	Pollution Incidents to Controlled Waters Property Type: Other General Premises Location: Winterbton Works/Viad B6462 Don 61 Authority: Environment Agency, North East Region Pollutant: Mud/Clay/Soil Note: Not Supplied Incident Date: 13th May 1994 Incident Reference: 151054 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13NW (NW)	326	1	424900 403700
19	Pollution Incidents to Controlled Waters Property Type: Water Company Sewage: Foul Sewer Location: Winterbton Works/Viad B6462 Don 61 Authority: Environment Agency, North East Region Pollutant: Chemicals - Paints / Dyes Note: Not Supplied Incident Date: 9th March 1994 Incident Reference: 150151 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A14SW (E)	359	1	425500 403300
19	Pollution Incidents to Controlled Waters Property Type: Industrial Premises Location: Winterbton Works/Viad B6462 Don 61 Authority: Environment Agency, North East Region Pollutant: Miscellaneous - Fire water / Foam Note: Not Supplied Incident Date: 2nd November 1993 Incident Reference: 148574 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A14SW (E)	360	1	425500 403295
19	Pollution Incidents to Controlled Waters Property Type: Industrial Premises Location: Winterbton Works/Viad B6462 Don 61 Authority: Environment Agency, North East Region Pollutant: Chemicals - Resins Note: Not Supplied Incident Date: 29th September 1992 Incident Reference: 137855 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A14SW (E)	362	1	425505 403305
19	Pollution Incidents to Controlled Waters Property Type: Water Company Sewage: Foul Sewer Location: Winterbton Works/Viad B6462 Don 61 Authority: Environment Agency, North East Region Pollutant: Unknown Sewage Note: Not Supplied Incident Date: 21st March 1994 Incident Reference: 150308 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A14SW (E)	364	1	425505 403300

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
19	Pollution Incidents to Controlled Waters Property Type: Other General Premises Location: Winterbim Works/Viad B6462 Don 61 Authority: Environment Agency, North East Region Pollutant: Miscellaneous - Unknown Note: Not Supplied Incident Date: 22nd January 1994 Incident Reference: 150142 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A14SW (E)	365	1	425505 403295
20	Pollution Incidents to Controlled Waters Property Type: Water Company Sewage: Foul Sewer Location: Winterbim Works/Viad B6462 Don 61 Authority: Environment Agency, North East Region Pollutant: Crude Sewage Note: Not Supplied Incident Date: 24th December 1994 Incident Reference: 153743 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A14SW (SE)	395	1	425500 403200
21	Pollution Incidents to Controlled Waters Property Type: Oil Storage Depot Location: Sheffield Road Authority: Environment Agency, North East Region Pollutant: Oils - Unknown Note: Not Supplied Incident Date: 25th January 1989 Incident Reference: 6735 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8NW (S)	398	1	425001 403001
21	Pollution Incidents to Controlled Waters Property Type: Industrial Premises Location: Winterbim Works/Viad B6462 Don 61 Authority: Environment Agency, North East Region Pollutant: Rubbish Note: Not Supplied Incident Date: 17th May 1991 Incident Reference: 122807 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8NW (S)	403	1	425001 402996
22	Pollution Incidents to Controlled Waters Property Type: Other General Premises Location: Viad B 6462/Inter A628/B6462 Don 62 Authority: Environment Agency, North East Region Pollutant: Not Given Note: Not Supplied Incident Date: 21st June 1991 Incident Reference: 123612 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A12NE (NW)	418	1	424700 403600
23	Pollution Incidents to Controlled Waters Property Type: Industrial Premises Location: Viad B 6462/Inter A628/B6462 Don 62 Authority: Environment Agency, North East Region Pollutant: Rubbish Note: Not Supplied Incident Date: 7th June 1989 Incident Reference: 100305 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A14SW (E)	456	1	425600 403300

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
24	Pollution Incidents to Controlled Waters Property Type: Highway/Car Park Location: Viad B 6462/Inter A628/B6462 Don 62 Authority: Environment Agency, North East Region Pollutant: Oils - Diesel (Including Agricultural) Note: Not Supplied Incident Date: 6th May 1993 Incident Reference: 144353 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A12NE (NW)	465	1	424700 403695
24	Pollution Incidents to Controlled Waters Property Type: Domestic/Residential Location: Viad B 6462/Inter A628/B6462 Don 62 Authority: Environment Agency, North East Region Pollutant: Mud/Clay/Soil Note: Not Supplied Incident Date: 27th April 1994 Incident Reference: 150829 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A12NE (NW)	468	1	424700 403700
25	Pollution Incidents to Controlled Waters Property Type: Industrial Premises Location: Winterbm Works/Viad B6462 Don 61 Authority: Environment Agency, North East Region Pollutant: Oils - Unknown Note: Not Supplied Incident Date: 21st March 1994 Incident Reference: 150310 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A14SW (E)	555	1	425700 403300
26	Pollution Incidents to Controlled Waters Property Type: Water Company Sewage: Foul Sewer Location: Sheffield Road Authority: Environment Agency, North East Region Pollutant: Unknown Sewage Note: Not Supplied Incident Date: 23rd January 1989 Incident Reference: 6728 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A14SW (E)	579	1	425700 403200
27	Pollution Incidents to Controlled Waters Property Type: Water Company Sewage: Foul Sewer Location: Off Sheffield Road, Spring Vale, PENISTONE Authority: Environment Agency, North East Region Pollutant: Other Sewage Note: Fish Killed: No Information Incident Date: 24th April 1997 Incident Reference: SH970132 Catchment Area: Don Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A14SW (E)	613	1	425750 403250
28	Pollution Incidents to Controlled Waters Property Type: Water Company Sewage: Foul Sewer Location: Winterbm Works/Viad B6462 Don 61 Authority: Environment Agency, North East Region Pollutant: Unknown Sewage Note: Not Supplied Incident Date: 8th May 1992 Incident Reference: 133067 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A14SE (E)	874	1	425800 403200



Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
29	Pollution Incidents to Controlled Waters Property Type: Industrial Premises Location: Winterbton Works/Viad B6462 Don 61 Authority: Environment Agency, North East Region Pollutant: Oils - Unknown Note: Not Supplied Incident Date: 2nd April 1990 Incident Reference: 109135 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A9NW (SE)	729	1	425700 402900
30	Pollution Incidents to Controlled Waters Property Type: Other General Premises Location: Don At, THURLSTONE Authority: Environment Agency, North East Region Pollutant: Unknown Note: No Fish Killed Incident Date: 3rd February 1995 Incident Reference: SH950083 Catchment Area: Don Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A17SW (NW)	776	1	424400 403800
31	Pollution Incidents to Controlled Waters Property Type: Domestic/Residential Location: Winterbton Works/Viad B6462 Don 61 Authority: Environment Agency, North East Region Pollutant: Sewage Debris/Litter Note: Not Supplied Incident Date: 19th September 1993 Incident Reference: 147838 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A7NE (SW)	776	1	424600 402800
32	Pollution Incidents to Controlled Waters Property Type: Water Company Sewage: Foul Sewer Location: Winterbton Works/Viad B6462 Don 61 Authority: Environment Agency, North East Region Pollutant: Crude Sewage Note: Not Supplied Incident Date: 4th March 1994 Incident Reference: 150311 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A7SE (SW)	801	1	424700 402700
33	Pollution Incidents to Controlled Waters Property Type: Fire Water Location: River Don, PENISTONE Authority: Environment Agency, North East Region Pollutant: Oils - Unknown Note: No Fish Killed Incident Date: 22nd May 1997 Incident Reference: SH970222 Catchment Area: Don Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A12NW (W)	827	1	424300 403700
33	Pollution Incidents to Controlled Waters Property Type: Water Company Sewage: Sewage Treatment Works Location: Penistone, Millhouse Green, BARNESLEY Authority: Environment Agency, North East Region Pollutant: Sewage - Treated Effluent Note: River Don; Fish Killed: No Information Incident Date: 4th May 1998 Incident Reference: SH980196 Catchment Area: Don Tributaries Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A17SW (NW)	845	1	424300 403750

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
34	Pollution Incidents to Controlled Waters Property Type: Cattle (Dairy) Farming: Other Location: Castle Farm, Green Road, PENISTONE Authority: Environment Agency, North East Region Pollutant: Miscellaneous - Fire water / Foam Note: No Fish Killed Incident Date: 24th April 1997 Incident Reference: SH970131 Catchment Area: Don Tributaries Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A9SW (SE)	850	1	425500 402600
35	Pollution Incidents to Controlled Waters Property Type: Water Company Sewage: Sewage Treatment Works Location: Ingbirchworth Sewage Treatment Works, INGBIRCHWORTH Authority: Environment Agency, North East Region Pollutant: Sewage - Treated Effluent Note: River Don; No Fish Killed Incident Date: 30th April 1998 Incident Reference: SH980163 Catchment Area: Don Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A17SW (W)	917	1	424225 403755
36	Pollution Incidents to Controlled Waters Property Type: Landfill/Waste Disposal Site Location: Winterbm Works/Viad B6462 Don 61 Authority: Environment Agency, North East Region Pollutant: Unknown Sewage Note: Not Supplied Incident Date: 4th August 1990 Incident Reference: 113435 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A7SE (SW)	917	1	424500 402700
37	Pollution Incidents to Controlled Waters Property Type: Government Establishment Location: Bridge Oxspring/Winterbm Works Don 60 Authority: Environment Agency, North East Region Pollutant: Miscellaneous - Urban Runoff Note: Not Supplied Incident Date: 16th August 1991 Incident Reference: 125374 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7SE (SW)	995	1	424500 402600
37	Pollution Incidents to Controlled Waters Property Type: Domestic/Residential Location: Viad B 6462/Inter A628/B6462 Don 62 Authority: Environment Agency, North East Region Pollutant: Chemicals - Detergents/Surfactant Note: Not Supplied Incident Date: 13th July 1989 Incident Reference: 101365 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7SE (SW)	999	1	424500 402595
	River Quality Name: River_Don GQA Grade: River Quality C Reach: Scout_Dyke_Cubley_Broo Estimated Distance (km): 1.3 Flow Rate: Flow less than 0.62 cumecs Flow Type: River Year: 2000	A13SE (S)	1	1	425118 403371

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	River Quality Name: River_Don GQA Grade: River Quality B Reach: Cubley_Brook_Cheesebottom_St Estimated Distance (km): 3.7 Flow Rate: Flow less than 0.62 cumecs Flow Type: River Year: 2000	A13SE (SE)	255	1	425378 403269
	River Quality Name: Cubley_Brook GQA Grade: River Quality E Reach: The_Green_River_Do Estimated Distance (km): 1.3 Flow Rate: Flow less than 0.31 cumecs Flow Type: River Year: 2000	A13SE (SE)	279	1	425378 403219
	River Quality Name: River_Don GQA Grade: River Quality B Reach: Split_Scout_Dyk Estimated Distance (km): 4 Flow Rate: Flow less than 0.31 cumecs Flow Type: River Year: 2000	A17SE (NW)	520	1	424736 403818
	River Quality Name: Scout_Dyke GQA Grade: River Quality B Reach: Fox_Hill_River_Do Estimated Distance (km): 2.3 Flow Rate: Flow less than 0.31 cumecs Flow Type: River Year: 2000	A17SE (NW)	520	1	424736 403818
38	River Quality Biology Sampling Points Name: Don Reach: Cubley Brook To Cheesebottom Stw Estimated Distance: 3.70 Positional Accuracy: Located by supplier to within 10m Year: 1990 GQA Grade: Not Supplied Year: 1995 GQA Grade: River Quality Biology GQA Grade D - Fair Year: 2000 GQA Grade: River Quality Biology GQA Grade C - Fairly Good Year: 2002 GQA Grade: River Quality Biology GQA Grade C - Fairly Good Year: 2003 GQA Grade: River Quality Biology GQA Grade C - Fairly Good Year: 2004 GQA Grade: River Quality Biology GQA Grade C - Fairly Good Year: 2005 GQA Grade: River Quality Biology GQA Grade C - Fairly Good	A14SW (E)	388	1	425537 403338
39	River Quality Biology Sampling Points Name: Don Reach: Scout Dyke To Cubley Brook Estimated Distance: 1.30 Positional Accuracy: Located by supplier to within 10m Year: 1990 GQA Grade: River Quality Biology GQA Grade D - Fair Year: 1995 GQA Grade: River Quality Biology GQA Grade C - Fairly Good Year: 2000 GQA Grade: River Quality Biology GQA Grade C - Fairly Good Year: 2002 GQA Grade: River Quality Biology GQA Grade C - Fairly Good Year: 2003 GQA Grade: River Quality Biology GQA Grade C - Fairly Good Year: 2004 GQA Grade: River Quality Biology GQA Grade D - Fair Year: 2005 GQA Grade: River Quality Biology GQA Grade D - Fair	A17SE (NW)	557	1	424692 403828

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
40	River Quality Chemistry Sampling Points Name: Cubley Brook Reach: The Green To River Don Estimated Distance: 1.30 Objective: River Ecosystem Class 3: Fairly Good Quality Positional Accuracy: Located by supplier to within 100m Year: 1990 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Not Supplied Year: 1993 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Compliant Year: 1994 GQA Grade: River Quality Chemistry GQA Grade E - Poor Compliance: Marginal Year: 1995 GQA Grade: River Quality Chemistry GQA Grade E - Poor Compliance: Significant Failure Year: 1996 GQA Grade: River Quality Chemistry GQA Grade E - Poor Compliance: Significant Failure Year: 1997 GQA Grade: River Quality Chemistry GQA Grade D - Fair Compliance: Significant Failure Year: 1998 GQA Grade: River Quality Chemistry GQA Grade D - Fair Compliance: Significant Failure Year: 1999 GQA Grade: River Quality Chemistry GQA Grade E - Poor Compliance: Significant Failure Year: 2000 GQA Grade: River Quality Chemistry GQA Grade E - Poor Compliance: Significant Failure Year: 2001 GQA Grade: River Quality Chemistry GQA Grade E - Poor Compliance: Marginal Year: 2002 GQA Grade: River Quality Chemistry GQA Grade D - Fair Compliance: Marginal Year: 2003 GQA Grade: River Quality Chemistry GQA Grade D - Fair Compliance: Marginal Year: 2004 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Compliant Year: 2005 GQA Grade: River Quality Chemistry GQA Grade D - Fair Compliance: Marginal	A13SW (SW)	136	1	425000 403300

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
A1	River Quality Chemistry Sampling Points Name: River Don Reach: Scout Dyke To Cubley Brook Estimated Distance: 1.30 Objective: River Ecosystem Class 2: Good Quality Positional Accuracy: Located by supplier to within 100m Year: 1990 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Not Supplied Year: 1993 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Compliant Year: 1994 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Compliant Year: 1995 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Compliant Year: 1996 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Compliant Year: 1997 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Compliant Year: 1998 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Compliant Year: 1999 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Compliant Year: 2000 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Marginal Year: 2001 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Marginal Year: 2002 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Marginal Year: 2003 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Compliant Year: 2004 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Compliant Year: 2005 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Compliant	A12NE (NW)	468	1	424700 403700



Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
42	River Quality Chemistry Sampling Points Name: Scout Dyke Reach: Fox Hill To Ingbirchworth Sewage Treatment Works Estimated Distance: 2.30 Objective: River Ecosystem Class 2: Good Quality Positional Accuracy: Located by supplier to within 100m Year: 1990 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Not Supplied Year: 1993 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Compliant Year: 1994 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Compliant Year: 1995 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Compliant Year: 1996 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Compliant Year: 1997 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Compliant Year: 1998 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Compliant Year: 1999 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Compliant Year: 2000 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Compliant Year: 2001 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Compliant Year: 2002 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Compliant Year: 2003 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Significant Failure Year: 2004 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Marginal Year: 2005 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Marginal	A17SE (NW)	673	1	424600 403900
43	Substantiated Pollution Incident Register Authority: Environment Agency - North East Region, Ridings Area Incident Date: 4th November 2002 Incident Reference: 118645 Water Impact: Category 4 - No Impact Air Impact: Category 4 - No Impact Land Impact: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m Pollutant: Specific Waste Materials: Containers	A13SE (SE)	91	1	425200 403300
44	Substantiated Pollution Incident Register Authority: Environment Agency - North East Region, Ridings Area Incident Date: 10th July 2001 Incident Reference: 15273 Water Impact: Category 2 - Significant Incident Air Impact: Category 4 - No Impact Land Impact: Category 4 - No Impact Positional Accuracy: Located by supplier to within 10m Pollutant: Storm Sewage	A7NE (SW)	775	1	424690 402736

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
45	Water Abstractions Operator: William Cook Hi-Tec Integrity Ltd Licence Number: 2/27/05/010 Permit Version: 100 Location: Borehole X2 - Coal Measures - Penistone Authority: Environment Agency, North East Region Abstraction: Mineral Products: General Use (Medium Loss) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): 136 Yearly Rate (m3): 45460 Details: Foundry, Green Road, Penistone. Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 31st May 1996 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A8NW (S)	494	1	425000 402900
46	Water Abstractions Operator: Yorkshire Water Plc Licence Number: 2/27/05/016 Permit Version: Not Supplied Location: Location Description Not Available Authority: Environment Agency, North East Region Abstraction: Water Undertaking Abstraction Type: Not Supplied Source: Groundwater Daily Rate (m3): 6319 Yearly Rate (m3): 1782032 Details: Coal Measures Licence Revoked Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A9SW (SE)	951	1	425700 402600
	Water Abstractions Operator: Winterbottom (Wiredrawers) Ltd Licence Number: 2/27/05/104 Permit Version: 100 Location: River Don Authority: Environment Agency, North East Region Abstraction: Textiles And Leather: General Use (Medium Loss) Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): 36 Yearly Rate (m3): 8728 Details: Oxspring Wire Mills, Nr. Sheffield Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 17th March 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A10SW (SE)	1337	1	426300 402700
	Water Abstractions Operator: N & P Linley Licence Number: 2/27/08/084 Permit Version: 100 Location: Spring Fed Trough Authority: Environment Agency, North East Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): 2 Yearly Rate (m3): 664 Details: Cat Hill Farm, Hoyland Swaine, Penistone Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 7th January 1970 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(N)	1885	1	424840 405300



Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Mr & Mrs P & G Whittlestone Licence Number: 2/27/08/077 Permit Version: 100 Location: Spring 2 - Cherry Tree Farm Penistone Authority: Environment Agency, North East Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Cherry Tree Farm, Penistone, Sheffield Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 30th June 1976 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(N)	1909	1	424700 405300
	Groundwater Vulnerability Geological Classification: Minor Aquifer (Variably permeable) - These can be fractured or potentially fractured rocks, which do not have a high primary permeability, or other formations of variable permeability including unconsolidated deposits. Although not producing large quantities of water for abstraction, they are important for local supplies and in supplying base flow to rivers Soil Classification: Soils of Low Leaching Potential - Soils in which pollutants are unlikely to penetrate the soil layer because water movement is largely horizontal or they have large ability to attenuate diffuse pollutants. Lateral flow from these soils contribute to groundwater recharge elsewhere in the catchment Map Sheet: Sheet 11 South Pennines Scale: 1:100,000	A18SW (N)	0	1	425117 403753
	Drift Deposits None				
	Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Boundary Accuracy: As Supplied	A13NE (N)	0	1	425125 403425
	Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Boundary Accuracy: As Supplied	A13NW (N)	3	1	425117 403430
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				
	Flood Defences None				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
47	BGS Recorded Landfill Sites Site Name: Stottercliffe Road Location: PENISTONE, South Yorkshire Authority: British Geological Survey, National Geoscience Information Service Ground Water: Threat to ground water Surface Water: Threat to surface water Geology: N/A Positional Accuracy: Positioned by the supplier Boundary Accuracy: Moderate	A12SW (W)	778	3	424305 403384
48	Historical Landfill Sites Licence Holder: David Brown Gear Industries Location: Churchfield Road, Penistone Name: Penistone Church Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHL04382 First Input Date: Not Supplied Last Input Date: Not Supplied Specified Waste: Deposited Waste included Industrial Waste Type: EA Waste Ref: Not Supplied Regis Ref: Not Supplied WRC Ref: 4400/0506 BGS Ref: Not Supplied Other Ref: WD20 B546, 4400/B546, 20B546(104)	A13SE (S)	185	1	425134 403188
49	Historical Landfill Sites Licence Holder: Barnsley MBC Amenities and Recreation Dept. Location: Penistone, South Yorkshire Name: Stottercliffe Rd Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHL04305 First Input Date: Not Supplied Last Input Date: Not Supplied Specified Waste: Deposited Waste included Inert and Industrial Waste Type: EA Waste Ref: Not Supplied Regis Ref: Not Supplied WRC Ref: 4400/0413 BGS Ref: 714 Other Ref: 20B60(10), 4400/B60, WD20 B60	A12SW (W)	699	1	424384 403391
50	Historical Landfill Sites Licence Holder: G Lonigden Location: Cubley Name: Mortimer Road Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHL04383 First Input Date: Not Supplied Last Input Date: Not Supplied Specified Waste: Not Supplied Type: EA Waste Ref: Not Supplied Regis Ref: Not Supplied WRC Ref: 4400/0437 BGS Ref: Not Supplied Other Ref: 4400/(34)	A7SE (SW)	974	1	424702 402504
51	Licensed Waste Management Facilities (Locations) Licence Number: 60607 Location: Sheffield Road, Springvale, Penistone, Barnsley, South Yorkshire, S36 6HJ Operator Name: Regional Waste Recycling Plc Operator Location: 2 Cecil Court, 49-55 London Road, Enfield, Middlesex, EN2 6DE Authority: Environment Agency - North East Region, Ridings Area Site Category: Household, Commercial And Industrial Transfer Stations Licence Status: Transferred Issued: 14th June 1993 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A14SW (E)	533	1	425670 403260

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
52	Licensed Waste Management Facilities (Locations) Licence Number: 85253 Location: 33 Barnsley Road, Penistone, Barnsley, South Yorks, S36 8AE Operator Name: Wood Kathrine Operator Location: 33 Barnsley Road, Penistone, Barnsley, South Yorks, S36 8AE Authority: Environment Agency - North East Region, Ridings Area Site Category: Clinical Waste Transfer Stations Licence Status: Issued Issued: 30th January 2003 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A17SE (NW)	673	1	424772 404027
53	Licensed Waste Management Facilities (Locations) Licence Number: 65406 Location: Unit 5 Laurence Works, Sheffield Road, Penistone, Sheffield, South Yorkshire, S36 6HF Operator Name: Penistone Waste Management Ltd Operator Location: Unit Laurence Works, Sheffield Road, Penistone, Sheffield, South Yorkshire, S36 6HF Authority: Environment Agency - North East Region, Ridings Area Site Category: Household, Commercial And Industrial Transfer Stations Licence Status: Issued Issued: 4th May 2005 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A9NW (SE)	770	1	425670 402810
	Local Authority Landfill Coverage Name: Barnsley Metropolitan Borough Council - Has supplied landfill data		0	2	425780 399688
54	Local Authority Recorded Landfill Sites Location: Not Supplied Reference: 104 Authority: Barnsley Metropolitan Borough Council, Environmental Health and Trading Standards Last Reported Status: Unknown Types of Waste: Not Supplied Date of Closure: Not Supplied Positional Accuracy: Positioned by the supplier Boundary Quality: Moderate	A13SE (S)	182	2	425143 403190
55	Local Authority Recorded Landfill Sites Location: Not Supplied Reference: 10 Authority: Barnsley Metropolitan Borough Council, Environmental Health and Trading Standards Last Reported Status: Unknown Types of Waste: Not Supplied Date of Closure: Not Supplied Positional Accuracy: Positioned by the supplier Boundary Quality: Moderate	A12SW (W)	718	2	424368 403354
56	Local Authority Recorded Landfill Sites Location: Not Supplied Reference: 34 Authority: Barnsley Metropolitan Borough Council, Environmental Health and Trading Standards Last Reported Status: Unknown Types of Waste: Not Supplied Date of Closure: Not Supplied Positional Accuracy: Positioned by the supplier Boundary Quality: Moderate	A7SE (SW)	975	2	424698 402505

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
57	Registered Landfill Sites Licence Holder: Hi-Tec Integrity Castings Ltd Licence Reference: WD20 B 546 MOD 1 Site Location: Churchfield Road, Penistone, Sheffield, South Yorkshire Licence Easting: 425100 Licence Northing: 403150 Operator Location: As Site Address Authority: Environment Agency - North East Region, Ridings Area Site Category: Landfill Max Input Rate: Medium (Equal to or greater than 25,000 and less than 75,000 tonnes per year) Waste Source: Waste produced/controlled by licence holder Restrictions: Status: Licence lapsed/cancelled/defunct/not applicable/surrendered Cancelled Dated: 1st February 1987 Preceded By: Not Given Licence: Superseded By: Not Given Licence: Positional Accuracy: Manually positioned to the address or location Boundary Accuracy: Not Applicable Authorised Waste: Chelmsford 50 Sand/7.5% Cement Mix Furane Sand Environment Agency must give specific authorisation for this waste to be accepted Waste requires prior approval Other Foundry Sands	A13SW (S)	227	1	425100 403150
58	Registered Landfill Sites Licence Holder: Bamsley M.B.C. Licence Reference: WD20 B 60 Site Location: Stottercliffe Road, Penistone, Sheffield, South Yorkshire Licence Easting: 424200 Licence Northing: 403350 Operator Location: Amenities/Recreation, 50 Huddersfield Road, Bamsley, South Yorkshire Authority: Environment Agency - North East Region, Ridings Area Site Category: Landfill Max Input Rate: Large (Equal to or greater than 75,000 and less than 250,000 tonnes per year) Waste Source: No known restriction on source of waste Restrictions: Status: Licence lapsed/cancelled/defunct/not applicable/surrendered Cancelled Dated: 1st April 1978 Preceded By: Not Given Licence: Superseded By: Not Given Licence: Positional Accuracy: Manually positioned to the address or location Boundary Accuracy: Not Applicable Authorised Waste: Construction And Demolition Wastes Foundry Sand Prohibited Waste: Liquids In Containers Over 4l Cap. Slurry In Containers Over 4l Cap.	A12SW (W)	886	1	424200 403350
59	Registered Waste Transfer Sites Licence Holder: The Tank Exchange Licence Reference: WD20 B 914 Site Location: Sheffield Road, Spring Vale, Penistone, SHEFFIELD, South Yorkshire, S30 6UG Operator Location: Lowden House, Bamsley Road, BARNLEY, South Yorkshire, S75 3JU Authority: Environment Agency - North East Region, Ridings Area Site Category: Transfer Max Input Rate: Undefined Waste Source: No known restriction on source of waste Restrictions: Licence Status: Site exempt from licence Exempt Dated: 1st June 1994 Preceded By: Not Given Licence: Superseded By: Not Given Licence: Positional Accuracy: Manually positioned to the road within the address or location Boundary Quality: Not Supplied Authorised Waste: Licenced Wastes Not To Hand	A13SW (W)	153	1	424950 403350

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
60	Registered Waste Transfer Sites Licence Holder: B.D.R. Waste Disposal Ltd Licence Reference: WD20 B 973 MOD 3 Site Location: Springvale, Penistone, Sheffield, South Yorkshire Operator Location: Thorncliffe Hall, Thorncliffe Park Estate, Chapeltown, SHEFFIELD, South Yorkshire, S35 2PQ Authority: Environment Agency - North East Region, Ridings Area Site Category: Civic Amenity Max Input Rate: Small (Equal to or greater than 10,000 and less than 25,000 tonnes per year) Waste Source: No known restriction on source of waste Restrictions: Licence Status: Operational as far as is known Operational Dated: 1st June 1993 Preceded By: WD 5 B 3 Licence: Superseded By: Not Given Licence: Positional Accuracy: Located by supplier to within 100m Boundary Quality: Not Supplied Authorised Waste: Domestic/Commercial Waste Ferrous/Non-Ferrous Scrap Metal Glass Max.Waste Permitted By Licence Mineral Oils Motor Vehicle Batteries Paper/Cardboard Waste Textiles Prohibited Waste: Asbestos - All Types	A14SW (E)	533	1	425670 403260
60	Registered Waste Transfer Sites Licence Holder: Bamsley M.B.C. Licence Reference: WD 5 B 3 Site Location: Sheffield Road, Spring Vale, Penistone, Sheffield, South Yorkshire Operator Location: Cleansing Div. Smithies La.Depot, Bamsley, South Yorkshire Authority: Environment Agency - North East Region, Ridings Area Site Category: Civic Amenity Max Input Rate: Undefined Waste Source: No known restriction on source of waste Restrictions: Licence Status: Record superseded Superseded Dated: 1st November 1978 Preceded By: Not Given Licence: Superseded By: WD20 B 973 MOD 3 Licence: Positional Accuracy: Manually positioned to the address or location Boundary Quality: Not Supplied Authorised Waste: Civic Amenity/Refuse Amenity Waste	A14SW (E)	533	1	425670 403260

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: Lower Westphalian (mainly Productive Coal Measures)	(S)	0	3	423769 399512
	Coal Mining Affected Areas Description: In an area which may be affected by coal mining activity. It is recommended that a coal mining report is obtained from the Coal Authority. Contact details are included in the Useful Contacts section of this report.	(SW)	0	4	421000 400000
	Mining Instability Mining Evidence: Inconclusive Coal Mining Source: Ove Arup & Partners Boundary Quality: As Supplied	(NW)	0	-	423500 406500
	Potential for Collapsible Ground Stability Hazards No Hazard				
	Potential for Compressible Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	0	3	425117 403425
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	0	3	425117 403425
	Potential for Ground Dissolution Stability Hazards No Hazard				
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	0	3	425117 403425
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	0	3	425117 403425
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	21	3	425075 403450
	Potential for Landslide Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13NE (E)	26	3	425175 403403
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (W)	82	3	425000 403403
	Potential for Landslide Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	93	3	425000 403475
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	108	3	425000 403500
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NE (E)	160	3	425300 403450
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NE (E)	173	3	425325 403403
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SE (E)	198	3	425350 403400
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NE (E)	226	3	425375 403425
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	247	3	425050 403675
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NE (E)	248	3	425400 403403
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	0	3	425117 403425

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	0	3	425117 403425
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	0	3	425117 403425
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	0	3	425117 403425
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	227	3	425225 403625
	Radon Affected Areas Description: Less than 1% of homes are above the Action Level Source: Health Protection Agency	A13NW (W)	0	5	425000 403403
	Radon Affected Areas Description: Between 1% and 3% of homes are above the Action Level Source: Health Protection Agency	A13NW (W)	82	5	425000 403403
	Radon Protection Measures Type: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	(S)	0	3	425697 400483
	Shallow Mining Hazards Risk: Low-Moderate Source: British Geological Survey, National Geoscience Information Service	A13NW (W)	0	3	425115 403403
	Shallow Mining Hazards Risk: Low Source: British Geological Survey, National Geoscience Information Service	A13NW (W)	0	3	425115 403403

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
61	Contemporary Trade Directory Entries Name: D R Balingwire Ltd Location: Sheffield Road, Penistone, Sheffield, S36 6HG Classification: Wire Products - Manufacturers Status: Inactive Positional Accuracy: Automatically positioned to the address	A13SW (W)	156	-	424936 403376
61	Contemporary Trade Directory Entries Name: The Paint Spot Location: Sheffield Road, Penistone, Sheffield, S36 6HG Classification: Car Body Repairs Status: Active Positional Accuracy: Automatically positioned to the address	A13SW (W)	156	-	424936 403376
62	Contemporary Trade Directory Entries Name: Green Kleens Location: Shrewsbury Road, Penistone, Sheffield, S36 6DY Classification: Gas Suppliers Status: Active Positional Accuracy: Automatically positioned to the address	A13SW (SW)	234	-	424883 403300
63	Contemporary Trade Directory Entries Name: D C Patterns Location: 11, Church Street, Penistone, Sheffield, South Yorkshire, S36 6AR Classification: Pattern Makers - Industrial Status: Inactive Positional Accuracy: Automatically positioned to the address	A12SE (W)	348	-	424742 403356
64	Contemporary Trade Directory Entries Name: Mediasse Services Ltd Location: 26, Sheffield Road, Penistone, Sheffield, S36 6HE Classification: Medical Equipment Maintenance & Repairs Status: Inactive Positional Accuracy: Automatically positioned to the address	A13SE (SE)	353	-	425446 403190
65	Contemporary Trade Directory Entries Name: A & D Mackrill Location: Don Press, Church St, Penistone, Sheffield, South Yorkshire, S36 6AR Classification: Stationery Manufacturers Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location	A12SE (W)	367	-	424726 403341
65	Contemporary Trade Directory Entries Name: Electech Technical Services Location: A, 53, Shrewsbury Road, Penistone, Sheffield, S36 6DZ Classification: Electrical Engineers Status: Inactive Positional Accuracy: Automatically positioned in the proximity of the address	A12SE (W)	384	-	424719 403307
66	Contemporary Trade Directory Entries Name: James H Wood Printers Ltd Location: 9, Church Street, Penistone, Sheffield, S36 6AR Classification: Printers Status: Active Positional Accuracy: Automatically positioned to the address	A12SE (W)	430	-	424658 403358
67	Contemporary Trade Directory Entries Name: William Cook Hi-Tec Integrity Ltd Location: Green Road, Penistone, Sheffield, S36 6BU Classification: Radiographic Services Status: Inactive Positional Accuracy: Automatically positioned to the address	A8NW (S)	509	-	425075 402868
68	Contemporary Trade Directory Entries Name: Barnsley Value Clean Location: 75, Ward Street, Penistone, Sheffield, S36 6LR Classification: Carpet, Curtain & Upholstery Cleaners Status: Active Positional Accuracy: Automatically positioned to the address	A8NW (SW)	545	-	424894 402888
69	Contemporary Trade Directory Entries Name: Northern Preservation Location: 18, Market Street, Penistone, Sheffield, S36 6BZ Classification: Damp & Dry Rot Control Status: Active Positional Accuracy: Automatically positioned to the address	A12SE (W)	555	-	424550 403270
70	Contemporary Trade Directory Entries Name: David Brown Pumps Ltd Location: Green Road, Penistone, Sheffield, S36 6BJ Classification: Pumps - Sales, Servicing & Repairs Status: Active Positional Accuracy: Automatically positioned to the address	A8NW (S)	560	-	425073 402817

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
71	Contemporary Trade Directory Entries Name: S P Cleaning Services Location: 3, Bridge Street, Penistone, Sheffield, S36 6AJ Classification: Commercial Cleaning Services Status: Active Positional Accuracy: Automatically positioned to the address	A12NE (W)	606	-	424480 403498
72	Contemporary Trade Directory Entries Name: Ready Mixed Concrete (Huddersfield) Ltd Location: Sheffield Road, Penistone, Sheffield, S36 6HJ Classification: Concrete & Mortar Ready Mixed Status: Active Positional Accuracy: Automatically positioned to the address	A14SW (SE)	608	-	425691 403106
73	Contemporary Trade Directory Entries Name: Whitby & Chandler Ltd Location: Witchan Works, Green Road, Penistone, Sheffield, S36 6PH Classification: Rubber & Plastic Products - Manufacturers Status: Active Positional Accuracy: Automatically positioned to the address	A9NW (SE)	609	-	425565 402932
74	Contemporary Trade Directory Entries Name: Cecil Penney Ltd Location: Sheffield Road, Penistone, Sheffield, South Yorkshire, S36 6HF Classification: Car Dealers Status: Active Positional Accuracy: Automatically positioned to the address	A9NW (SE)	637	-	425639 402971
75	Contemporary Trade Directory Entries Name: C D Autos Location: St. Marys Street, Penistone, Sheffield, S36 6DT Classification: Garage Services Status: Active Positional Accuracy: Automatically positioned to the address	A12SW (W)	642	-	424441 403396
75	Contemporary Trade Directory Entries Name: Stottercliffe Garage Location: Stottercliffe Road, Penistone, Sheffield, S36 6EB Classification: Car Body Repairs Status: Active Positional Accuracy: Automatically positioned to the address	A12SW (W)	645	-	424440 403373
76	Contemporary Trade Directory Entries Name: Worsley Wholesale Butchers Ltd Location: Barnsley Rd, Oxspring, Sheffield, South Yorkshire, S36 8YB Classification: Meat - Wholesale Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location	A18SW (NW)	648	-	424794 404010
76	Contemporary Trade Directory Entries Name: White Rose Location: 33, Barnsley Road, Penistone, Sheffield, S36 8AE Classification: Hygiene & Cleansing Services Status: Active Positional Accuracy: Automatically positioned to the address	A17SE (NW)	672	-	424772 404027
76	Contemporary Trade Directory Entries Name: S R A Services Location: 33, Barnsley Road, Penistone, Sheffield, S36 8AE Classification: Motor Cycle & Component Manufacturers Status: Inactive Positional Accuracy: Automatically positioned to the address	A17SE (NW)	672	-	424772 404027
77	Contemporary Trade Directory Entries Name: David Brown Radicon Ltd Location: Green Rd, Penistone, Sheffield, South Yorkshire, S36 6SZ Classification: Engineers - General Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location	A8NW (SW)	681	-	424790 402788
78	Contemporary Trade Directory Entries Name: Springvale Cars Location: Sheffield Road, Penistone, Sheffield, South Yorkshire, S36 6HH Classification: Car Dealers - Used Status: Inactive Positional Accuracy: Automatically positioned to the address	A9NW (SE)	702	-	425683 402921
79	Contemporary Trade Directory Entries Name: G Vines Location: Don Villa, Barnsley Road, Penistone, Sheffield, S36 8AD Classification: Road Haulage Services Status: Active Positional Accuracy: Automatically positioned to the address	A12NW (NW)	720	-	424416 403702

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
80	Contemporary Trade Directory Entries Name: Tony Hendley Location: 17, Don Street, Penistone, Sheffield, South Yorkshire, S36 6HA Classification: Boxes & Cartons Status: Inactive Positional Accuracy: Automatically positioned to the address	A9NW (SE)	761	-	425778 402951
81	Contemporary Trade Directory Entries Name: Penistone Motor Co Location: Bamsley Road, Penistone, Sheffield, S36 8AF Classification: Car Dealers - Used Status: Inactive Positional Accuracy: Automatically positioned to the address	A12NW (W)	781	-	424346 403692
81	Contemporary Trade Directory Entries Name: Penistone Trade Centre Location: Bamsley Road, Penistone, Sheffield, S36 8AF Classification: Car Dealers - Used Status: Inactive Positional Accuracy: Automatically positioned to the address	A12NW (W)	781	-	424346 403692
81	Contemporary Trade Directory Entries Name: Bridge End Garage Location: Bamsley Road, Penistone, Sheffield, South Yorkshire, S36 8AF Classification: Petrol Filling Stations Status: Active Positional Accuracy: Automatically positioned to the address	A12NW (W)	783	-	424346 403696
81	Contemporary Trade Directory Entries Name: M J French Location: Bridge End, Penistone, Sheffield, South Yorkshire, S36 7AH Classification: Car Body Repairs Status: Inactive Positional Accuracy: Automatically positioned to the address	A12NW (W)	783	-	424346 403696
82	Contemporary Trade Directory Entries Name: V M L Location: Unit 5C, Sheffield Rd, Penistone, Sheffield, South Yorkshire, S36 6HF Classification: Engineers - General Status: Active Positional Accuracy: Manually positioned to the road within the address or location	A9NW (SE)	789	-	425754 402872
82	Contemporary Trade Directory Entries Name: Erodato's Ltd Location: Unit 4, Laurence Works, 224, Sheffield Road, Penistone, Sheffield, South Yorkshire, S36 6HF Classification: Precision Engineers Status: Active Positional Accuracy: Automatically positioned to the address	A9NW (SE)	801	-	425736 402832
82	Contemporary Trade Directory Entries Name: J B Auto Centre Location: Unit 5, Laurence Works, 224, Sheffield Road, Penistone, Sheffield, South Yorkshire, S36 6HF Classification: Garage Services Status: Active Positional Accuracy: Automatically positioned to the address	A9NW (SE)	801	-	425736 402832
83	Contemporary Trade Directory Entries Name: J Hawley & Sons Ltd Location: The Green, Penistone, Sheffield, S36 6BL Classification: Pallets, Crates & Packing Cases Status: Inactive Positional Accuracy: Automatically positioned to the address	A7NE (SW)	805	-	424557 402799
84	Contemporary Trade Directory Entries Name: Springvale Vehicle Services Location: Don Street, Penistone, Sheffield, S36 6HA Classification: Mot Testing Centres Status: Inactive Positional Accuracy: Automatically positioned to the address	A9NE (SE)	830	-	425857 402946
85	Contemporary Trade Directory Entries Name: J B Hydraulics Location: Kingsbrook, The Green, Penistone, Sheffield, S36 6BL Classification: Hydraulic Equipment & Accessories - Sales & Service Status: Inactive Positional Accuracy: Automatically positioned to the address	A7NE (SW)	849	-	424495 402798

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
86	Contemporary Trade Directory Entries Name: Penistone Reinforcements Ltd Location: Stanley Mills, Talbot Road, Penistone, Sheffield, S36 9ED Classification: Wire Products - Manufacturers Status: Active Positional Accuracy: Automatically positioned to the address	A12NW (W)	876	-	424218 403576
87	Contemporary Trade Directory Entries Name: A Bedford Location: Box Mill, Sheffield Rd, Penistone, Sheffield, South Yorkshire, S36 6HQ Classification: Sheet Metal Work Status: Active Positional Accuracy: Manually positioned to the road within the address or location	A9NE (SE)	940	-	425864 402768
88	Contemporary Trade Directory Entries Name: Argo Feeds Ltd Location: Kirkwood Mill, Sheffield Road, Penistone, Sheffield, S36 6HQ Classification: Pet Foods & Animal Feeds Status: Active Positional Accuracy: Automatically positioned to the address	A9NE (SE)	952	-	425972 402903
88	Contemporary Trade Directory Entries Name: Horseshoe Distribution Location: Kirkwood Mill, Sheffield Road, Penistone, Sheffield, S36 6HQ Classification: Distribution Services Status: Inactive Positional Accuracy: Automatically positioned to the address	A9NE (SE)	952	-	425972 402903
89	Fuel Station Entries Name: Cecil Penny Ltd Location: Sheffield Road, Penistone, SHEFFIELD, South Yorkshire, S36 6HF Brand: UNBRANDED Premises Type: Petrol Station Status: Open Positional Accuracy: Automatically positioned to the address	A9NW (SE)	637	-	425638 402970
90	Fuel Station Entries Name: Bridge End Service Station Location: Barnsley Road, Huddersfield Road, Penistone,, SHEFFIELD, South Yorkshire, S36 8AF Brand: Jet Premises Type: Petrol Station Status: Open Positional Accuracy: Automatically positioned to the address	A12NW (W)	780	-	424346 403687

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
91	Areas of Adopted Green Belt Authority: Bamsley Metropolitan Borough Council, Planning Department Plan Name: Bamsley Unitary Development Plan Status: Adopted Plan Date: 31st December 2000	A13NE (NE)	0	6	425123 403420
92	Nitrate Vulnerable Zones Name: Not Supplied Description: Surface Water Source: Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	A13NW (W)	0	7	425000 403403
93	Nitrate Vulnerable Zones Name: Not Supplied Description: Surface Water Source: Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	A13NW (W)	82	7	425000 403403

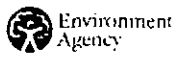
Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices Kirklees Metropolitan Borough Council - Planning Services Barnsley Metropolitan Borough Council - Environmental Health and Trading Standards Sheffield City Council - Environmental Protection Service	June 2007 May 2007 May 2007	Annual Rolling Update Annual Rolling Update Annual Rolling Update
Discharge Consents Environment Agency - North East Region	July 2007	Quarterly
Enforcement and Prohibition Notices Environment Agency - North East Region	August 2007	As notified
Integrated Pollution Controls Environment Agency - North East Region	July 2007	Quarterly
Integrated Pollution Prevention And Control Environment Agency - North East Region	July 2007	Quarterly
Local Authority Integrated Pollution Prevention And Control Sheffield City Council - Environmental Protection Service Kirklees Metropolitan Borough Council - Environmental Health Department Barnsley Metropolitan Borough Council - Environmental Health and Trading Standards	January 2007 November 2006 October 2006	Annual Rolling Update Annual Rolling Update Annual Rolling Update
Local Authority Pollution Prevention and Controls Sheffield City Council - Environmental Protection Service Kirklees Metropolitan Borough Council - Environmental Health Department Barnsley Metropolitan Borough Council - Environmental Health and Trading Standards	January 2007 November 2006 October 2006	Annual Rolling Update Annual Rolling Update Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements Sheffield City Council - Environmental Protection Service Kirklees Metropolitan Borough Council - Environmental Health Department Barnsley Metropolitan Borough Council - Environmental Health and Trading Standards	January 2007 November 2006 October 2006	Annual Rolling Update Annual Rolling Update Annual Rolling Update
Nearest Surface Water Feature Ordnance Survey	May 2007	Quarterly
Pollution Incidents to Controlled Waters Environment Agency - North East Region	December 1998	Not Applicable
Prosecutions Relating to Authorised Processes Environment Agency - North East Region	August 2007	As notified
Prosecutions Relating to Controlled Waters Environment Agency - North East Region	September 2007	As notified
Registered Radioactive Substances Environment Agency - North East Region	July 2007	Quarterly
River Quality Environment Agency - Head Office	November 2001	Not Applicable
River Quality Biology Sampling Points Environment Agency - Head Office	October 2006	Annually
River Quality Chemistry Sampling Points Environment Agency - Head Office	October 2006	Annually
Substantiated Pollution Incident Register Environment Agency - North East Region - Ridings Area	July 2007	Quarterly
Water Abstractions Environment Agency - North East Region	July 2007	Quarterly
Water Industry Act Referrals Environment Agency - North East Region	July 2007	Quarterly
Groundwater Vulnerability Environment Agency - Head Office	January 1999	Not Applicable
Drift Deposits Environment Agency - Head Office	January 1999	Not Applicable
Source Protection Zones Environment Agency - Head Office	April 2005	Variable

Agency & Hydrological	Version	Update Cycle
Extreme Flooding from Rivers or Sea without Defences Environment Agency - Head Office	April 2007	Quarterly
Flooding from Rivers or Sea without Defences Environment Agency - Head Office	April 2007	Quarterly
Areas Benefiting from Flood Defences Environment Agency - Head Office	April 2007	Quarterly
Flood Water Storage Areas Environment Agency - Head Office	April 2007	Quarterly
Flood Defences Environment Agency - Head Office	April 2007	Quarterly
Waste	Version	Update Cycle
BGS Recorded Landfill Sites British Geological Survey - National Geoscience Information Service	June 1996	Not Applicable
Integrated Pollution Control Registered Waste Sites Environment Agency - North East Region	July 2007	Quarterly
Licensed Waste Management Facilities (Landfill Boundaries) Environment Agency - North East Region - Ridings Area	August 2007	Quarterly
Licensed Waste Management Facilities (Locations) Environment Agency - North East Region - Ridings Area	August 2007	Quarterly
Local Authority Landfill Coverage Barnsley Metropolitan Borough Council - Environmental Health and Trading Standards Kirklees Metropolitan Borough Council - Planning Services Sheffield City Council - Environmental Protection Service	May 2000 May 2000 May 2000	Not Applicable Not Applicable Not Applicable
Local Authority Recorded Landfill Sites Barnsley Metropolitan Borough Council - Environmental Health and Trading Standards Kirklees Metropolitan Borough Council - Planning Services Sheffield City Council - Environmental Protection Service	May 2000 May 2000 May 2000	Not Applicable Not Applicable Not Applicable
Registered Landfill Sites Environment Agency - North East Region - Ridings Area	March 2003	Not Applicable
Registered Waste Transfer Sites Environment Agency - North East Region - Ridings Area	March 2003	Not Applicable
Registered Waste Treatment or Disposal Sites Environment Agency - North East Region - Ridings Area	March 2003	Not Applicable
Hazardous Substances	Version	Update Cycle
Control of Major Accident Hazards Sites (COMAH) Health and Safety Executive	April 2007	Bi-Annually
Explosive Sites Health and Safety Executive	August 2007	Bi-Annually
Notification of Installations Handling Hazardous Substances (NIHHS) Health and Safety Executive	November 2000	Not Applicable
Planning Hazardous Substance Enforcements Barnsley Metropolitan Borough Council - Planning Department Sheffield City Council Peak District National Park - Development Control Kirklees Metropolitan Borough Council - Planning Services	December 2005 January 2007 July 2007 May 2007	Annual Rolling Update Annual Rolling Update Annual Rolling Update Annual Rolling Update
Planning Hazardous Substance Consents Sheffield City Council Peak District National Park - Development Control Barnsley Metropolitan Borough Council - Planning Department Kirklees Metropolitan Borough Council - Planning Services	January 2007 July 2007 June 2007 May 2007	Annual Rolling Update Annual Rolling Update Annual Rolling Update Annual Rolling Update

Geological	Version	Update Cycle
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	April 2007	Bi-Annually
BGS 1:625,000 Solid Geology British Geological Survey - National Geoscience Information Service	August 1996	Not Applicable
Brine Compensation Areas Cheshire Brine Subsidence Compensation Board	November 2002	As notified
Coal Mining Affected Areas The Coal Authority - Mining Report Service	January 2006	As notified
Mining Instability Ove Arup & Partners	October 2000	Not Applicable
Natural and Mining Cavities Peter Brett Associates	December 2005	Variable
Potential for Collapsible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	November 2006	Annually
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	November 2006	Annually
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	November 2006	Annually
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	April 2007	Annually
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	November 2006	Annually
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	November 2006	Annually
Radon Affected Areas Health Protection Agency	January 2003	Not Applicable
Radon Protection Measures British Geological Survey - National Geoscience Information Service	August 2002	Variable
Shallow Mining Hazards British Geological Survey - National Geoscience Information Service	August 2002	Not Applicable
Industrial Land Use	Version	Update Cycle
Contemporary Trade Directory Entries Thomson Directories	May 2007	Quarterly
Fuel Station Entries Catalist Ltd - (Fuel Station Data)	June 2007	Quarterly

Sensitive Land Use	Version	Update Cycle
Areas of Adopted Green Belt Barnsley Metropolitan Borough Council - Planning Department Sheffield City Council Kirklees Metropolitan Borough Council	December 2000 March 1998 March 1999	As notified As notified As notified
Areas of Unadopted Green Belt Barnsley Metropolitan Borough Council - Planning Department Sheffield City Council Kirklees Metropolitan Borough Council	December 2000 March 1998 March 1999	As notified As notified As notified
Areas of Outstanding Natural Beauty Natural England (formerly The Countryside Agency)	November 2006	Annually
Environmentally Sensitive Areas Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	June 2006	Annually
Forest Parks Forestry Commission	April 1997	Not Applicable
Local Nature Reserves Barnsley Metropolitan Borough Council - Planning Department Kirklees Metropolitan Borough Council	September 1999 September 1999	Variable Variable
Marine Nature Reserves Natural England	May 2007	Bi-Annually
National Nature Reserves Natural England	May 2007	Bi-Annually
National Parks Natural England (formerly The Countryside Agency)	October 2006	Annually
Nitrate Sensitive Areas Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	December 2003	Not Applicable
Nitrate Vulnerable Zones Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	May 2007	Annually
Ramsar Sites Natural England	May 2007	Bi-Annually
Sites of Special Scientific Interest Natural England	May 2007	Bi-Annually
Special Areas of Conservation Natural England	May 2007	Bi-Annually
Special Protection Areas Natural England	May 2007	Bi-Annually

A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	
Environment Agency	
Scottish Environment Protection Agency	
The Coal Authority	
British Geological Survey	
Centre for Ecology and Hydrology	
Countryside Council for Wales	
Scottish Natural Heritage	
Natural England	
Health Protection Agency	
Ove Arup	
Peter Brett Associates	

Contact	Name and Address	Contact Details
1	Environment Agency - National Customer Contact Centre (NCCC) PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 08708 506 506 Email: enquiries@environment-agency.gov.uk
2	Barnsley Metropolitan Borough Council - Environmental Health and Trading Standards Central Offices, Kendray Street, Barnsley, South Yorkshire, S70 2TN	Telephone: 01226 770770 Fax: 01226 772599 Website: www.barnsley.gov.uk
3	British Geological Survey - Enquiry Service British Geological Survey, Kingsley Dunham Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
4	The Coal Authority - Mining Report Service 200 Lichfield Lane, Mansfield, Nottinghamshire, NG18 4RG	Telephone: 0845 7626848 Email: thecoalauthority@coal.gov.uk
5	Health Protection Agency Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 831600 Fax: 01235 833891
6	Barnsley Metropolitan Borough Council - Planning Department Central Offices, Kendray Street, Barnsley, South Yorkshire, S70 2TN	Telephone: 01226 770770 Fax: 01226 772599 Website: www.barnsley.gov.uk
7	Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA) Government Buildings, Otley Road, Lawnswood, Leeds, West Yorkshire, LS16 5QT	Telephone: 0113 2613333 Fax: 0113 230 0879
-	Landmark Information Group Limited The Smith Centre, Henley On Thames, Oxfordshire, RG9 6AB	Telephone: 0870 850 6670 Fax: 0870 850 6671 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

Please note that the Environment Agency / SEPA have a charging policy in place for enquiries.

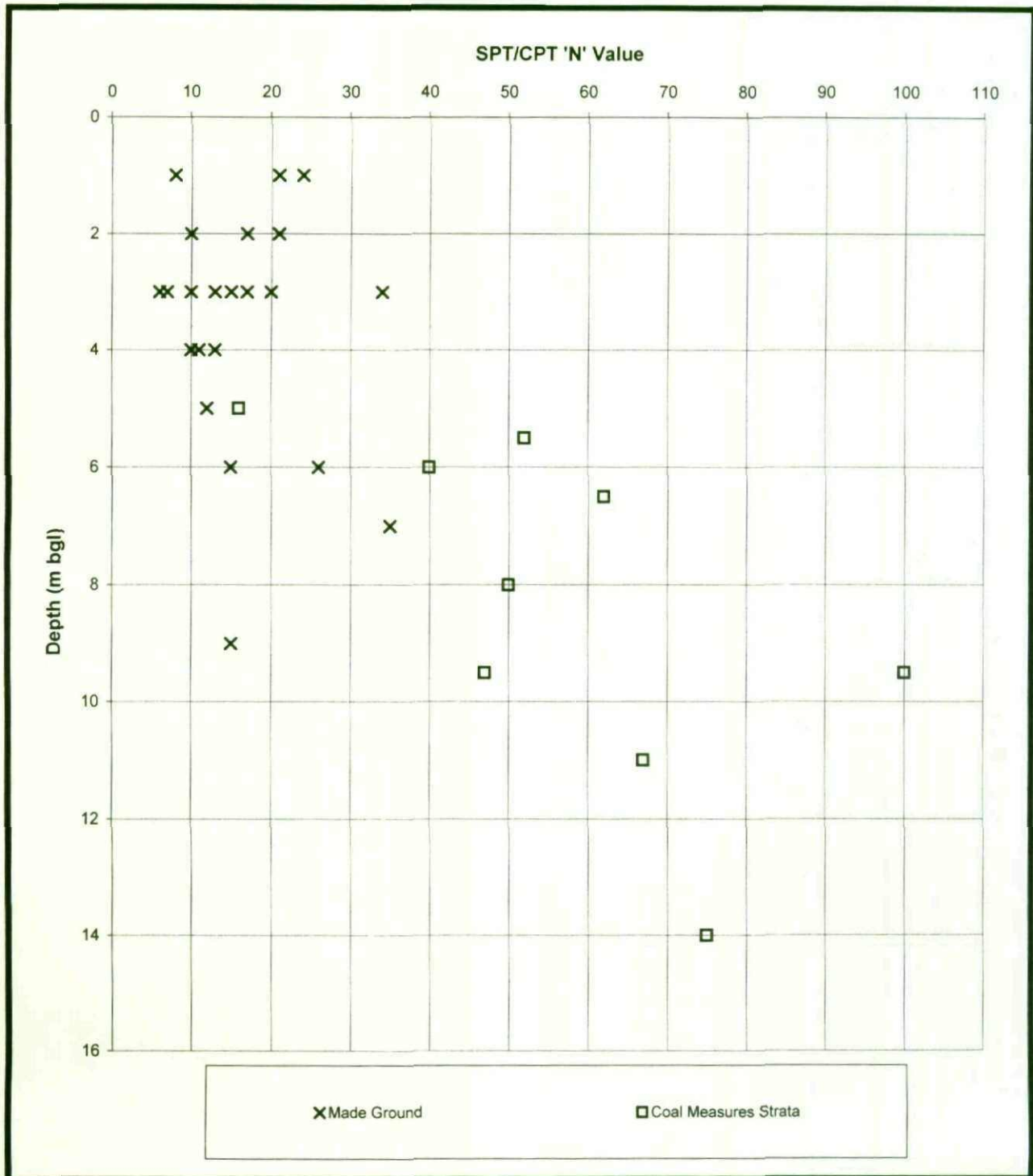
APPENDIX F

Project: Sheffield Road,
Penistone



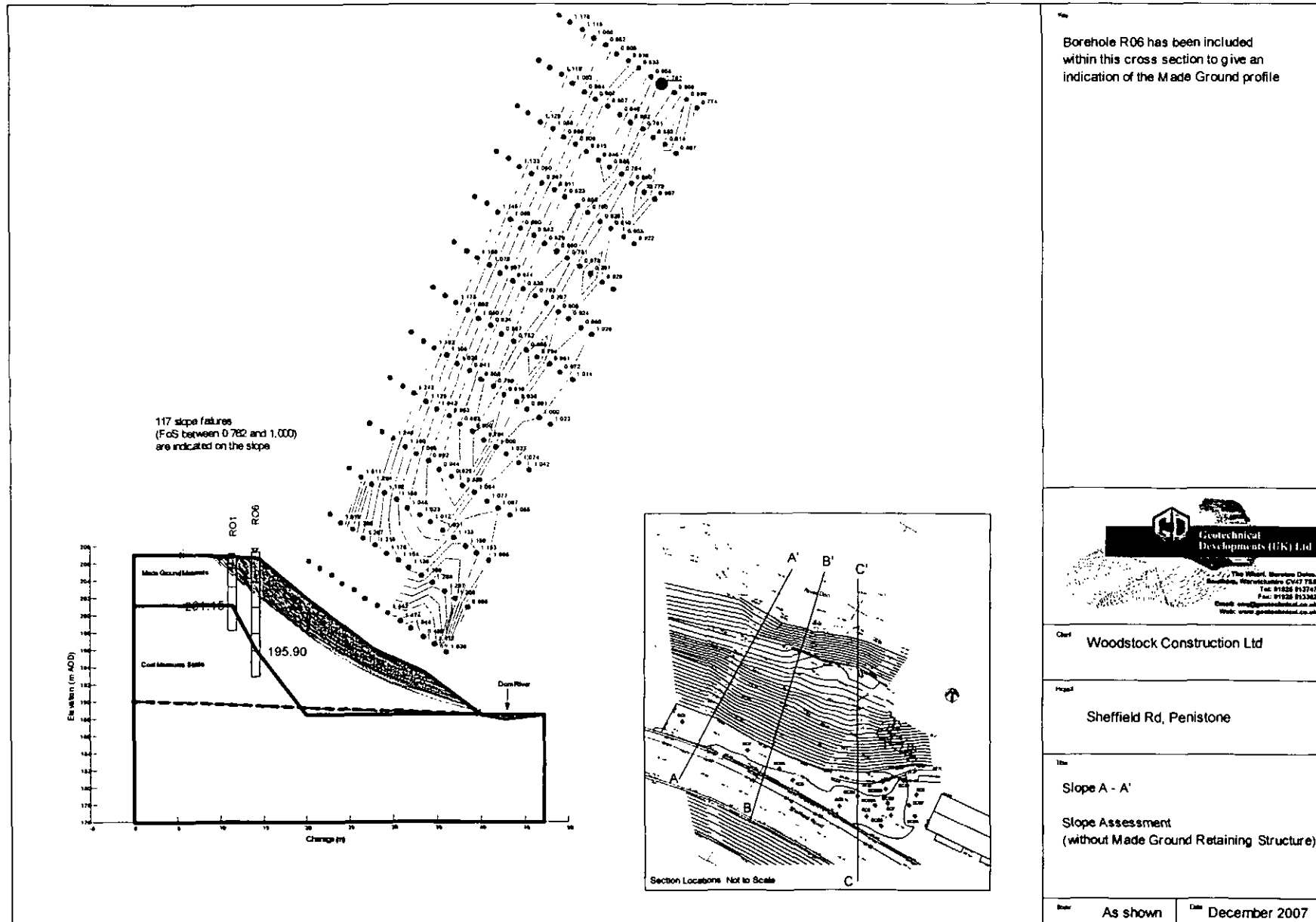
Report No: P4682NW

Plot 1 - SPT 'N' Value vs Depth Profile

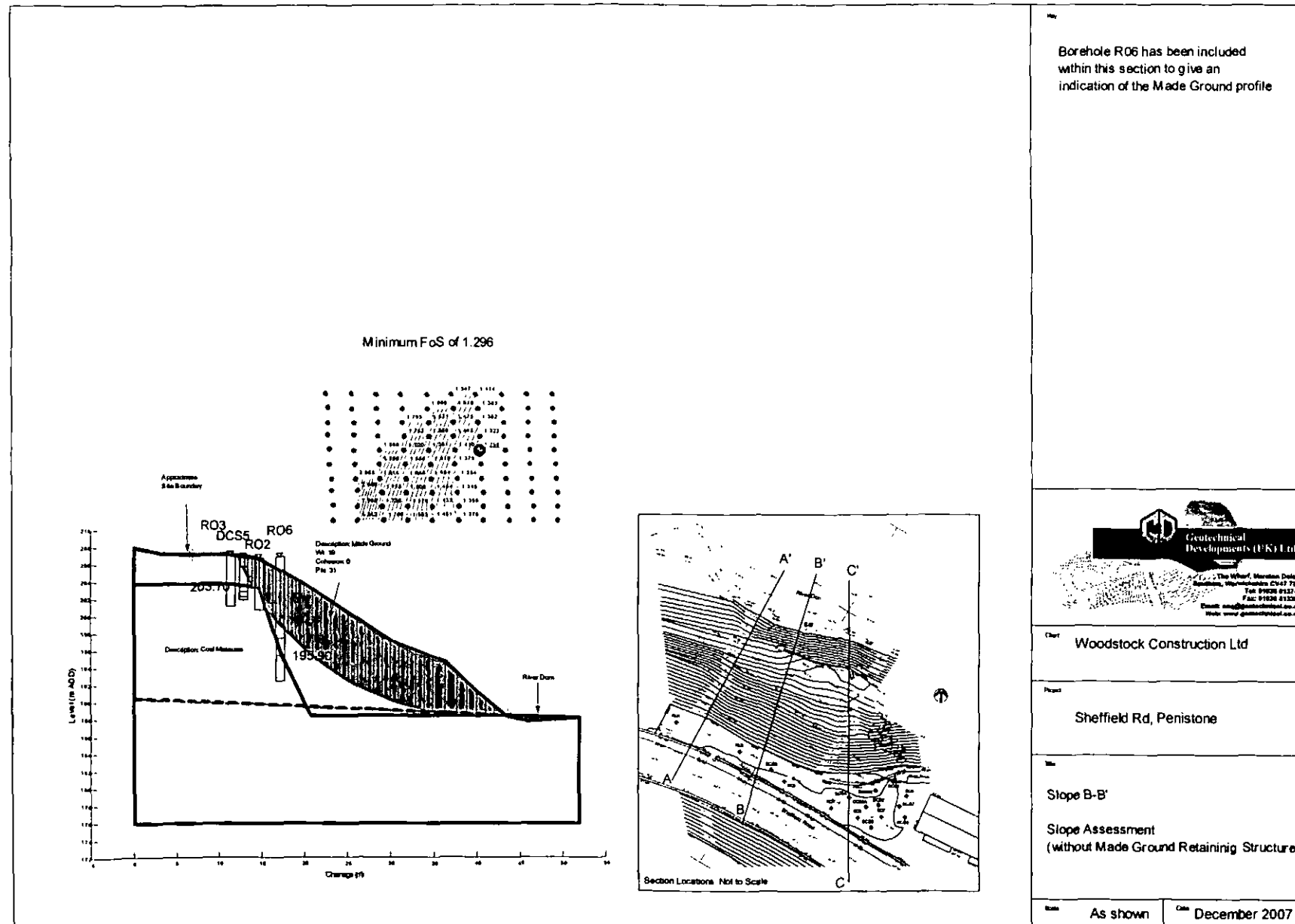


APPENDIX G

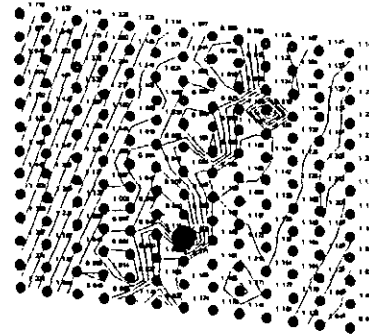
SLOPE/W Data Extracts



SLOPE/W Data Extracts

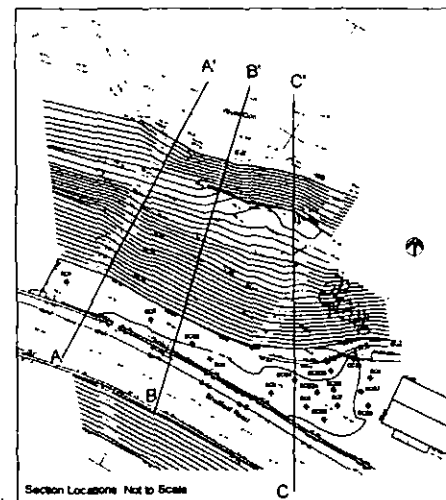
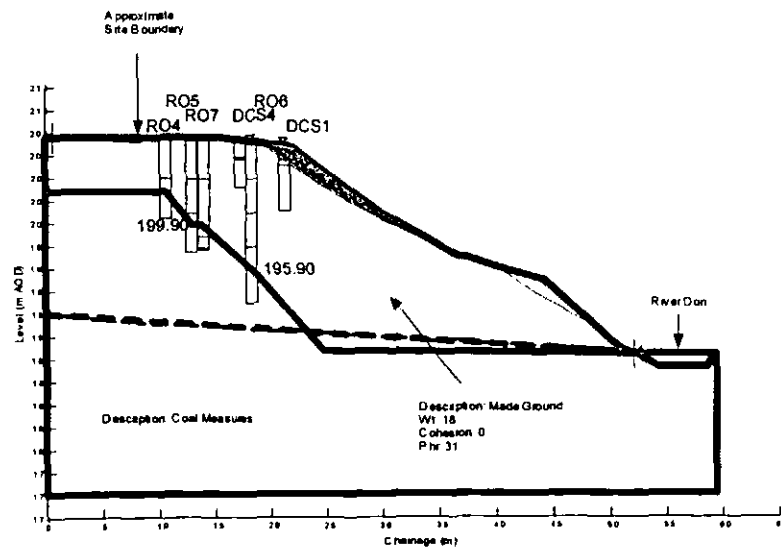


SLOPE/W Data Extracts



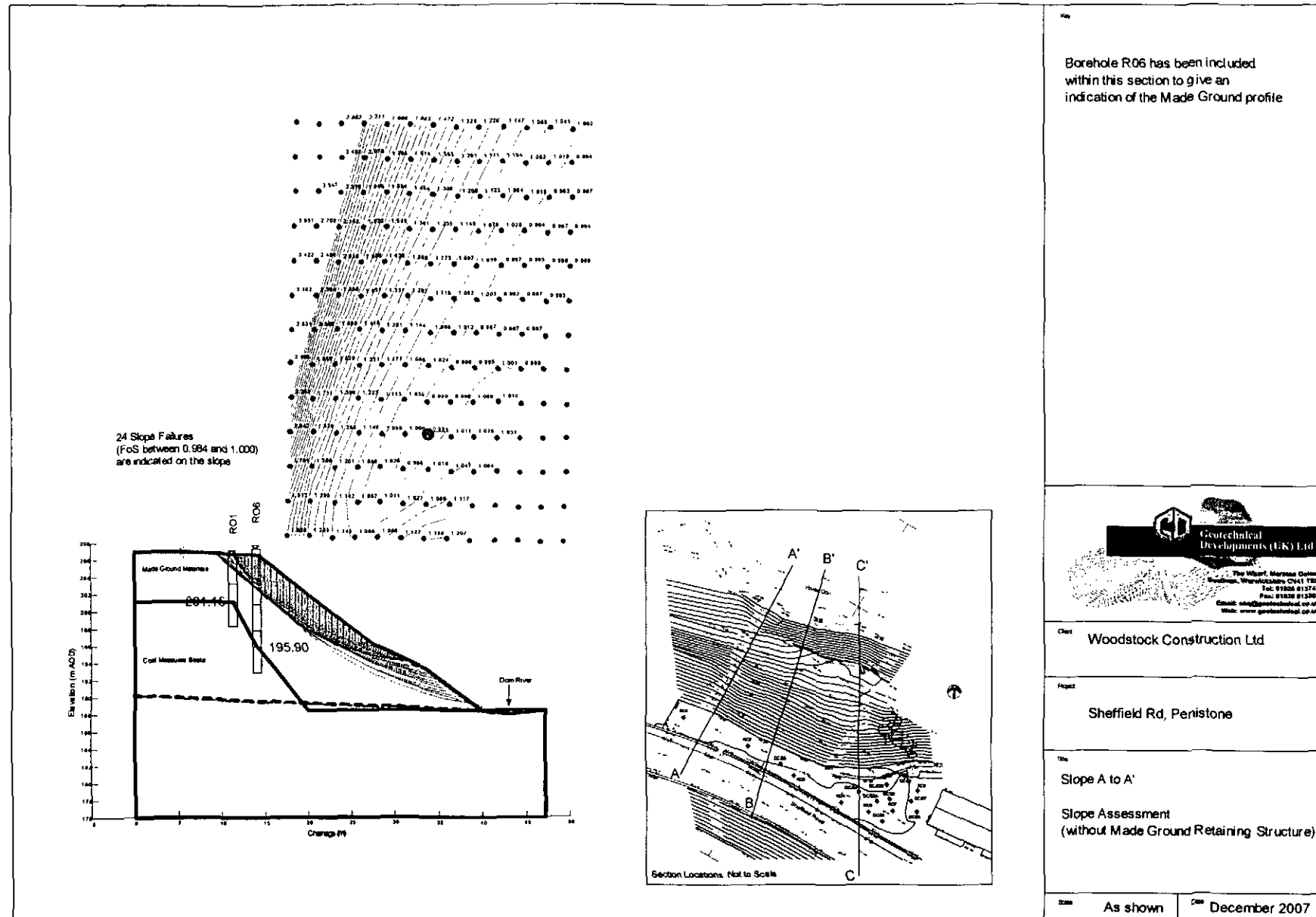
The lowest 31 slope failures are highlighted on the slope profile.

FoSo between 0.808 and 1.002

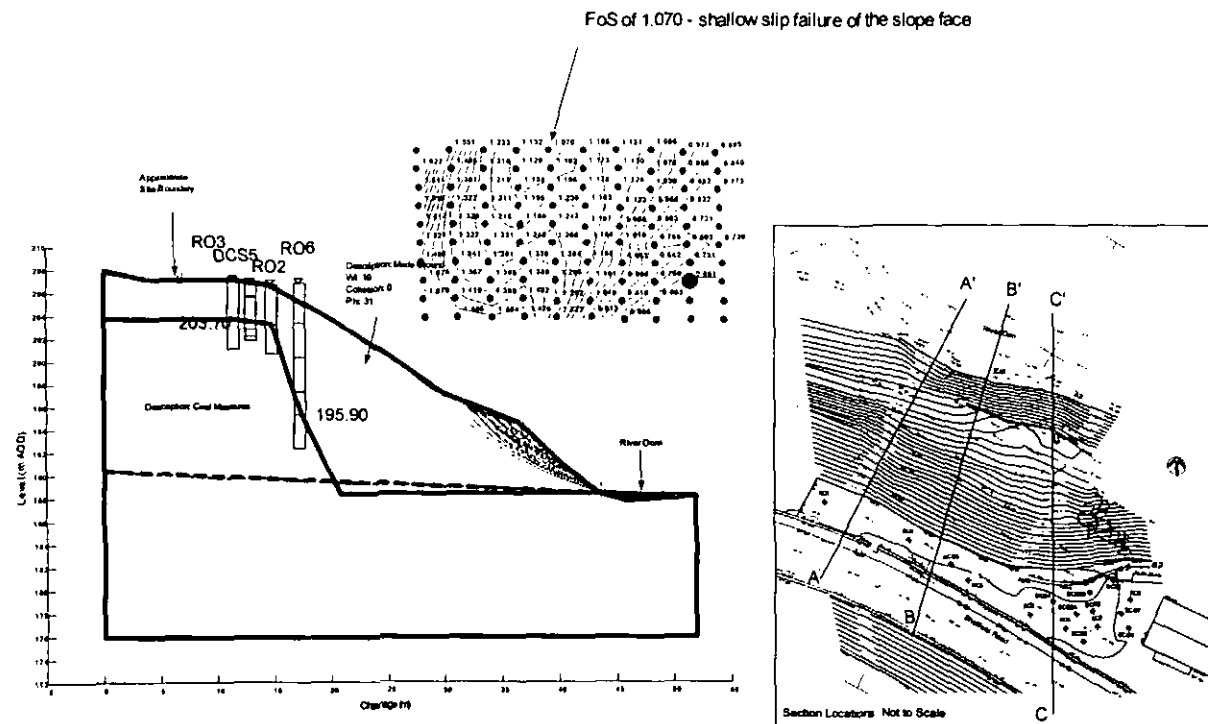


Client	Woodstock Construction Ltd	
Project	Sheffield Rd, Penistone	
Site	Slope C - C'	
	Slope Assessment (without Made Ground Retaining Structure)	
Drawn	As shown	Issued December 2007

SLOPE/W Data Extracts



SLOPE/W Data Extracts



Borehole R06 has been included within this section to give an indication of the Made Ground profile



Woodstock Construction Ltd

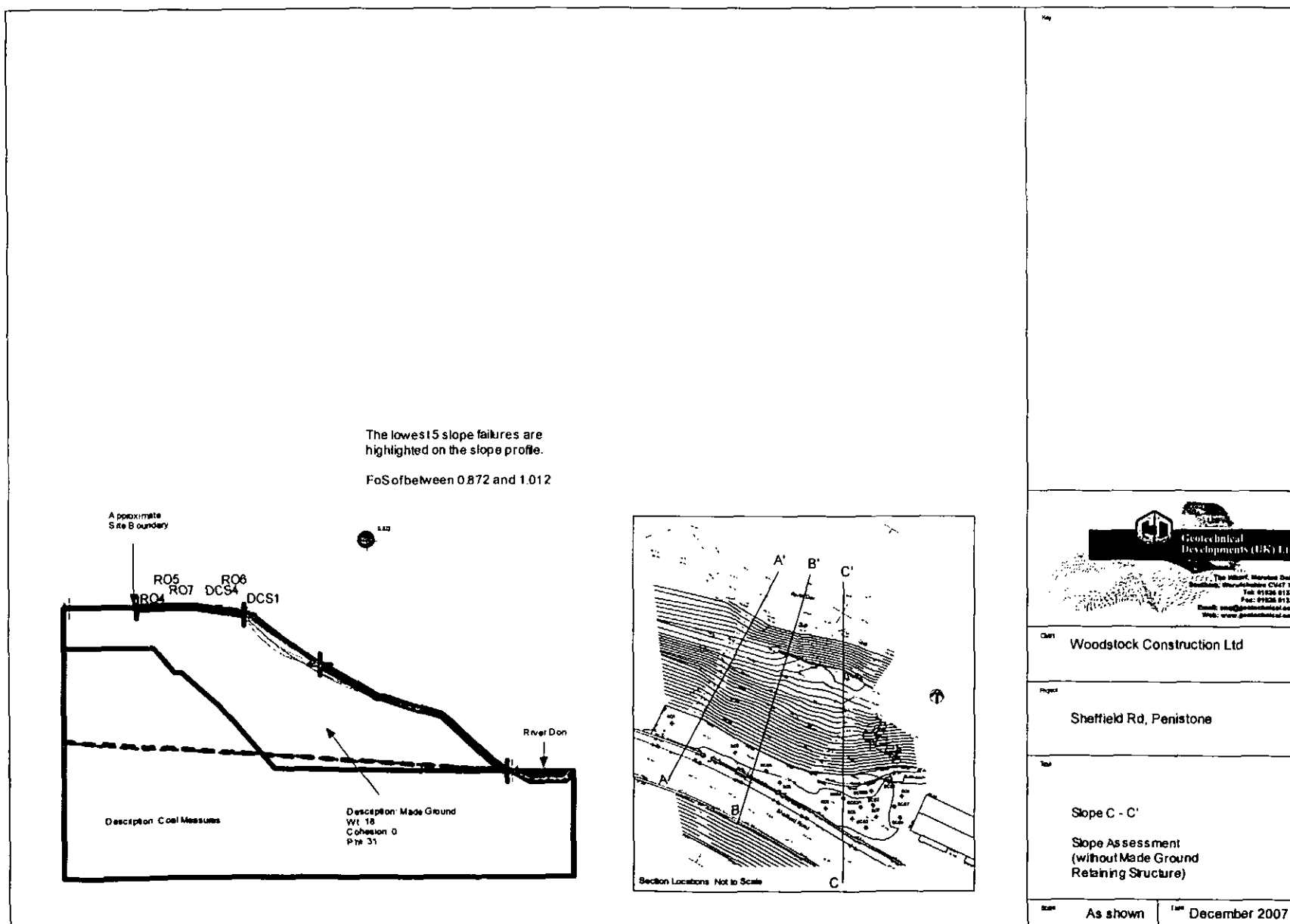
Project
Sheffield Rd, Penistone

Slope B to B'

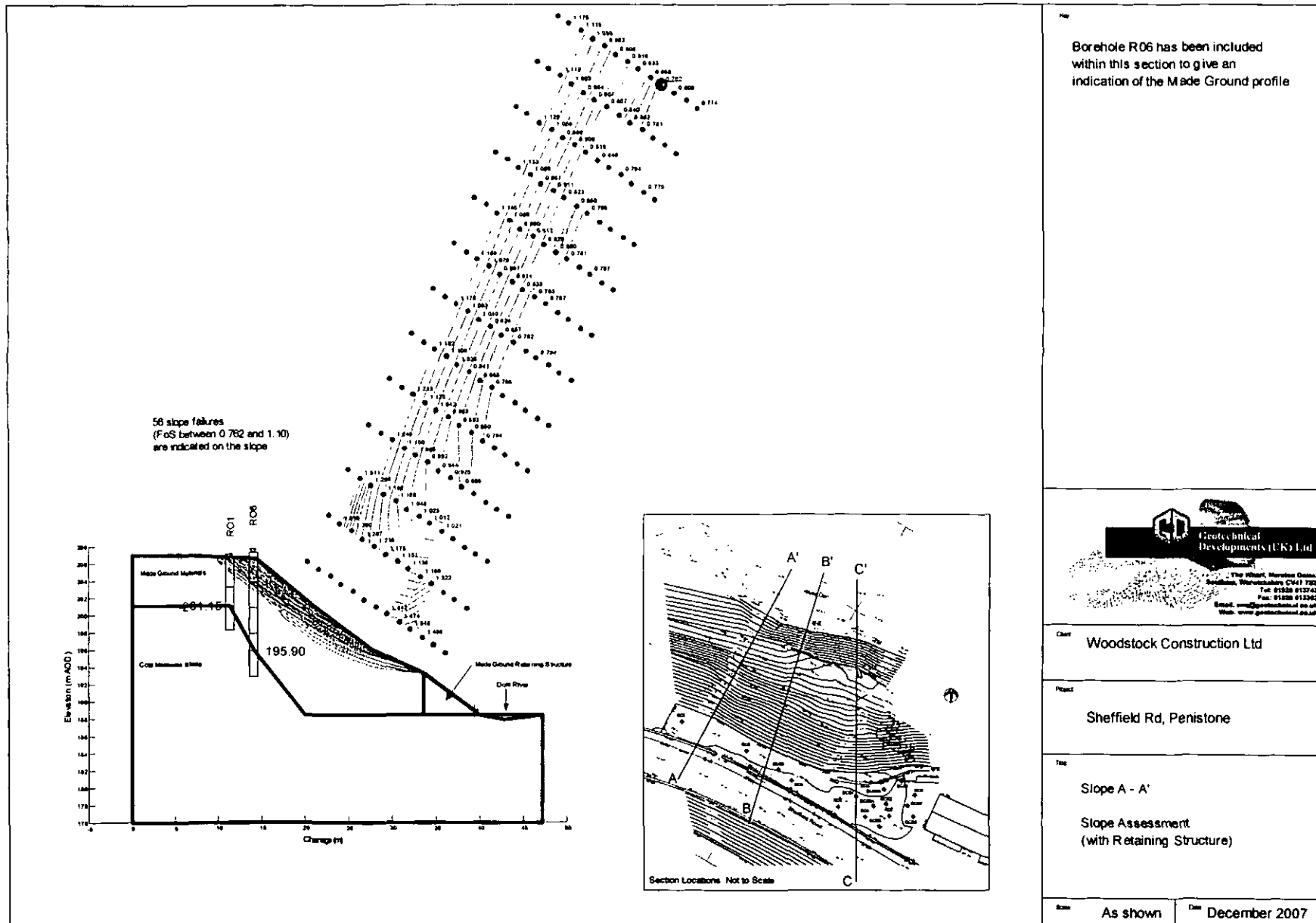
Existing Slope Assessment
(without Made Ground Retaining
Structure)

Model	As shown	Date	December 2007
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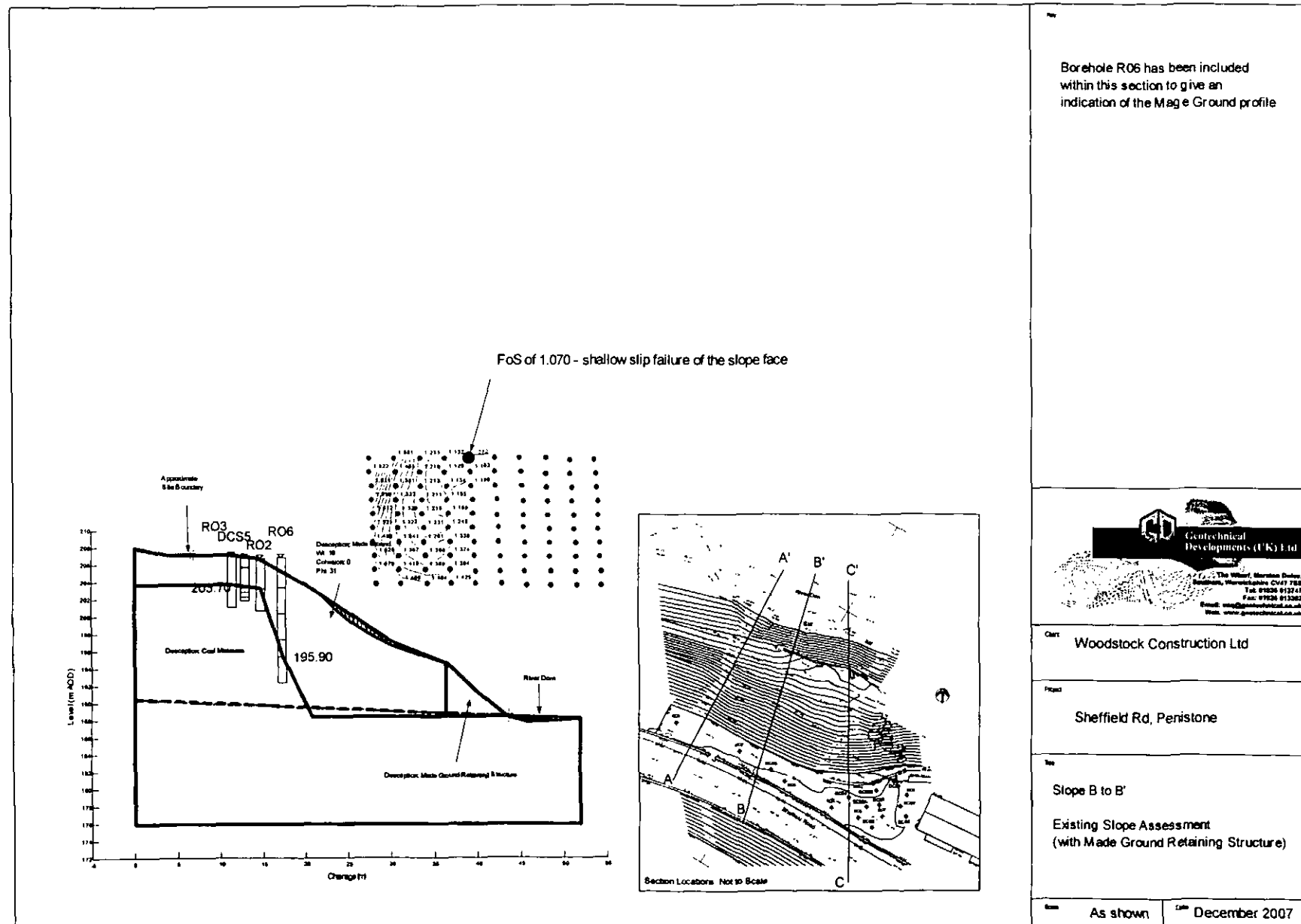
SLOPE/W Data Extracts



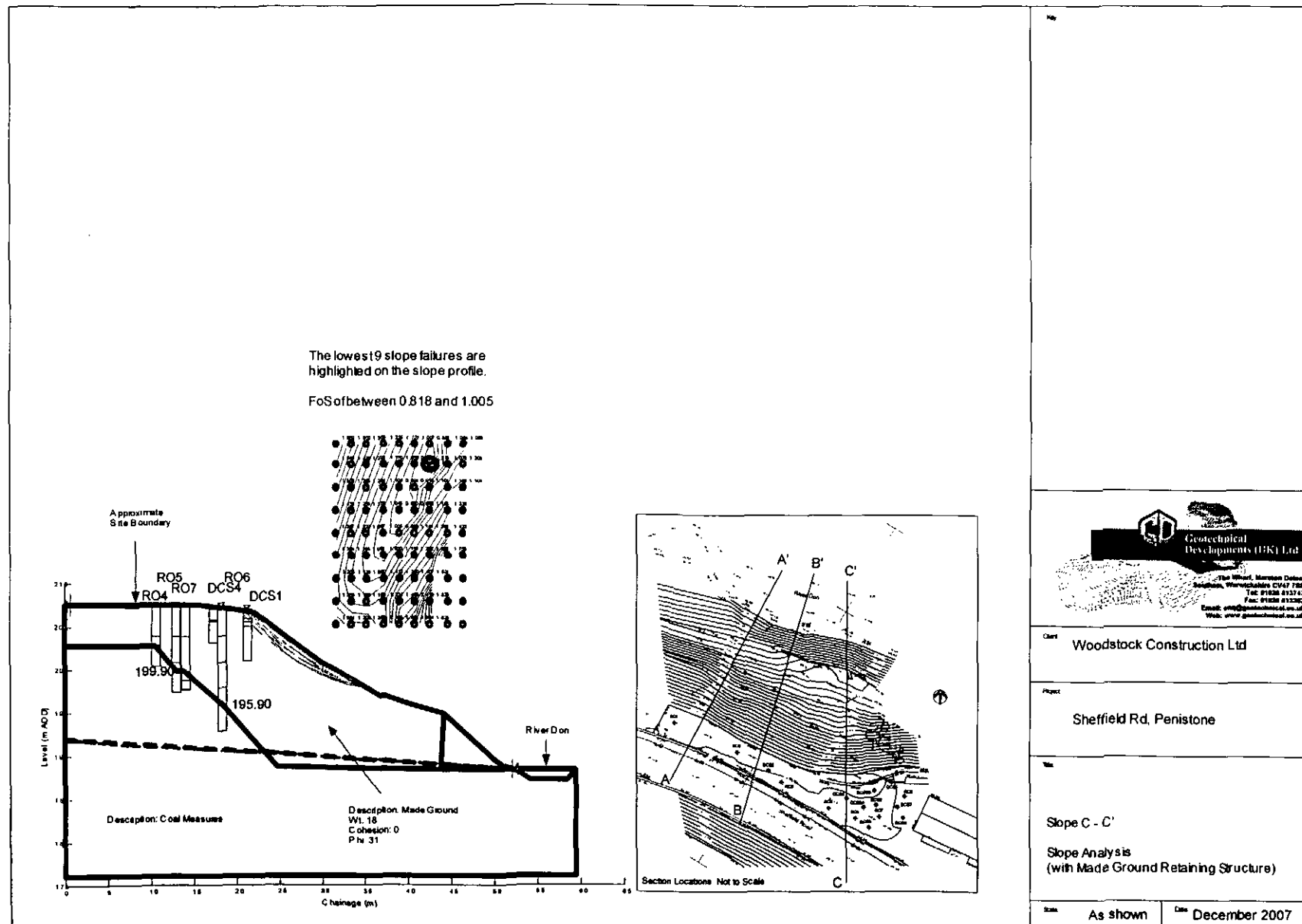
SLOPE/W Data Extracts



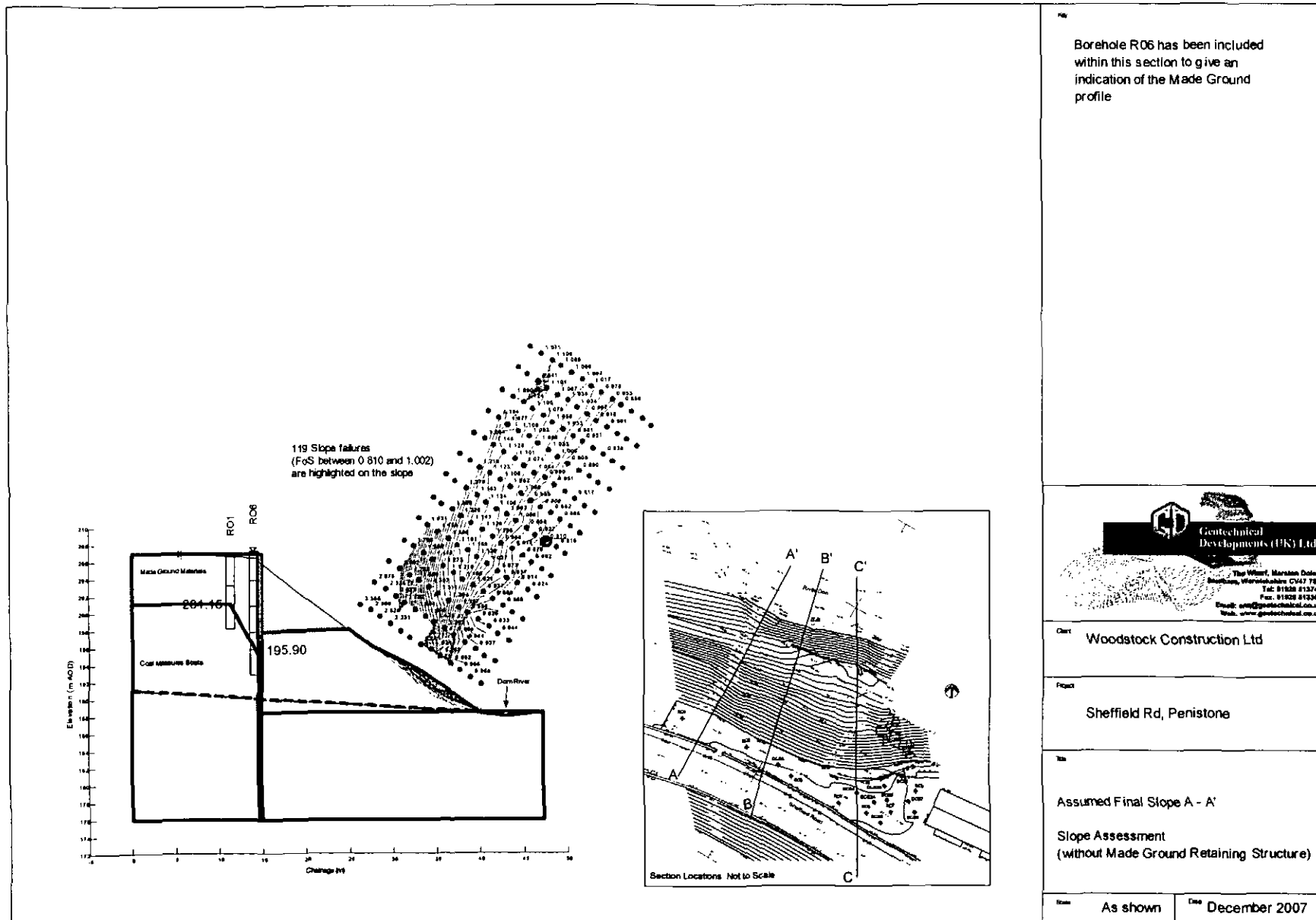
SLOPE/W Data Extracts



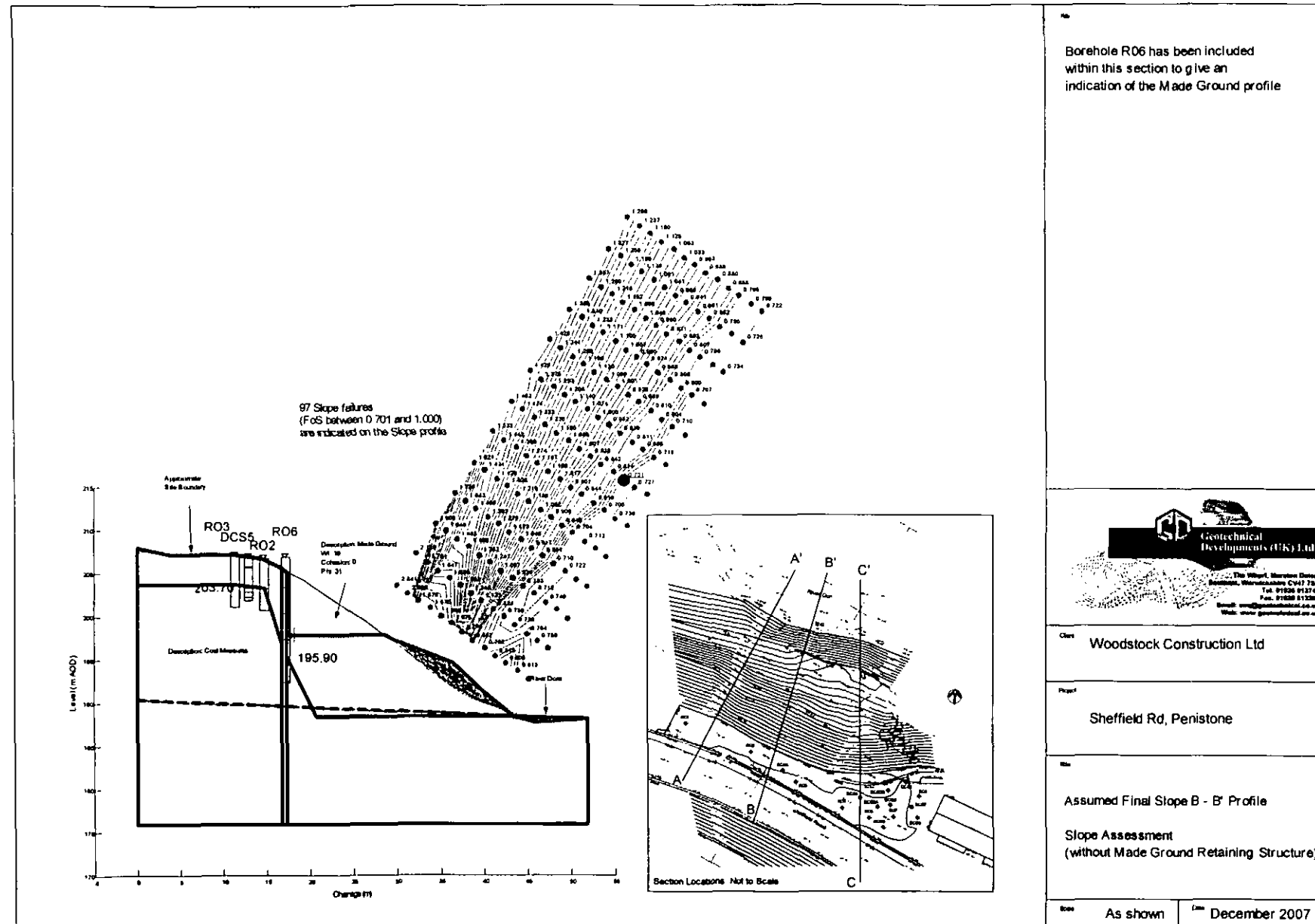
SLOPE/W Data Extracts



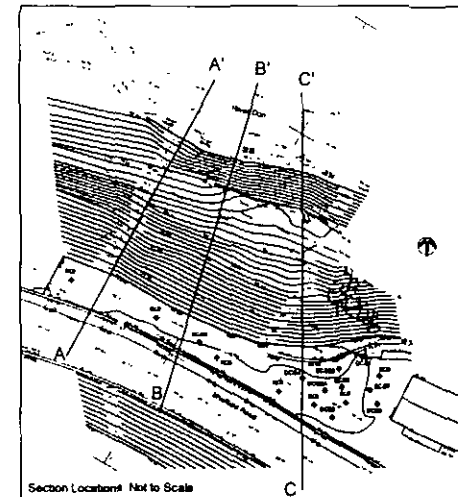
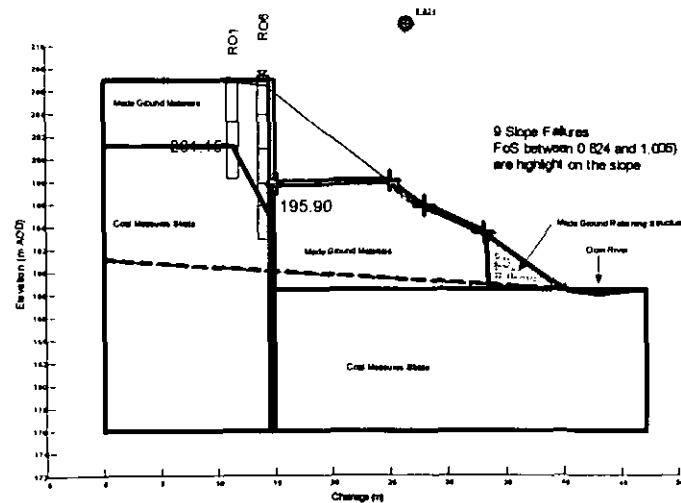
SLOPE/W Data Extracts



SLOPE/W Data Extracts



SLOPE/W Data Extracts



Borehole R06 has been included within this section to give an indication of the Made Ground profile



Client **Woodstock Construction Ltd**

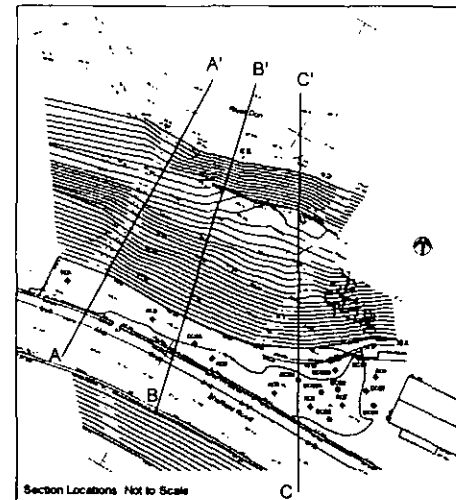
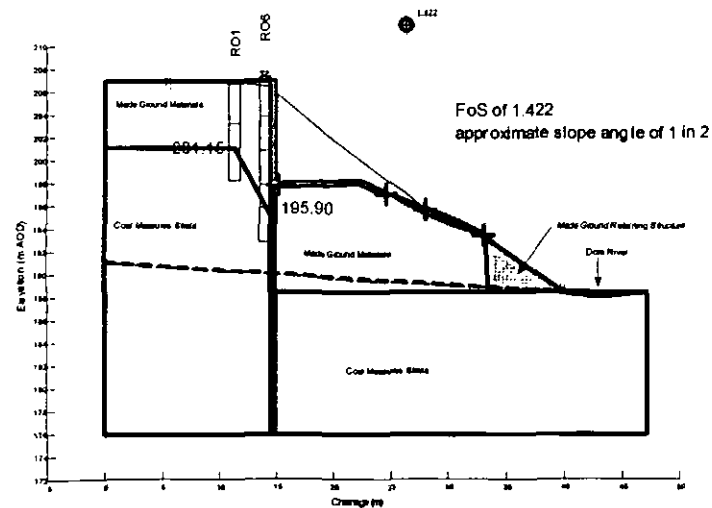
Sheffield Rd, Penistone

Assumed Final Slope A-A' Profile

Slope Assessment
(with Made Ground Retaining Structure)

Scale	As shown	Date	December 2007
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SLOPE/W Data Extracts



Key

Borehole RO6 has been included within this section to give an indication of the Made Ground profile

Increased FoS due to further reprofiling of the lower section of the slope



Client Woodstock Construction Ltd

Project Sheffield Rd, Penistone

Site Amended Final Slope A-A' Profile

Slope Assessment
(with Made Ground Retaining Structure)

Scale As shown

Date December 2007

The Wharf, Marston Doles, Warwickshire. CV47 7SS

Tel: 01926 813747 Fax: 01926 813302 Web Site: www.geotechnical.co.uk E-mail: enq@geotechnical.co.uk

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Director: P J Wilton BEng, MSc, C.Geol, MIMMM, FGS, ACSM **Company Secretary:** C A Bowman
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