



# Land at Shepley Road, Stocksmoor For Newett Homes

Report no: 4594/1A

Date: April 2024



## SHEPLEY ROAD, STOCKSMOOR SUMMARY OF GEOENVIRONMENTAL ISSUES

|                |                          |                          |            |
|----------------|--------------------------|--------------------------|------------|
| <b>Job No.</b> | 4594                     | <b>Site area/ha</b>      | 2.5        |
| <b>Client:</b> | Newett Homes             | <b>NGR:</b>              | SE 184 107 |
| <b>Site:</b>   | Shepley Road, Stocksmoor | <b>Nearest postcode:</b> | HD4 6XW    |

The site is located off Shepley Road, Stocksmoor, approximately 7.2km southeast of Huddersfield, and currently comprises a field used for farming.

Lithos were commissioned by Newett to provide a preliminary geoenvironmental appraisal of the site. It is understood that the site is to be redeveloped with housing; a proposed layout has been prepared.

Lithos' investigation included an inspection of historical and geological maps and information provided by the British Geological Survey, the Landmark Information Group, the Coal Authority, and QGIS. In addition, a site inspection has been carried out.

A summary of salient geoenvironmental issues is provided in the table below.

| Issue                                    | Remarks  |
|--|--|
| Former uses                              | The site has remained undeveloped throughout its history and has been used for farming.  |
| Anticipated ground conditions            | No made ground is expected.<br>No drift soils are recorded but some residual soils are expected.<br>Grenoside Sandstone underlies the site, likely from shallow depth.   |
| Anticipated contamination                | The site is greenfield and no significant contamination is anticipated.  |
| Mining & quarrying                       | Whilst the site lies within a Coal Authority Low Risk area, no significant risks have been identified, and an intrusive mining investigation will not be required.<br>There are two former sandstone quarries within 250m of the site, but none within site boundary.  |
| Hazardous gas                            | The site is located within 250m of former sandstone quarries and a former reservoir, and may be affected by sources of hazardous gas generation.<br>The site is in an area where less than 1% of homes are estimated to be above the radon action level therefore no special precautions against radon are required. |
| Flooding & drainage                      | The site lies in Flood Zone 1 where the risk of flooding from rivers or the sea is classified as low.<br>Soakaways are unlikely to provide a viable solution for the disposal of surface water due to the sloping nature of the site and the potential for springs to occur.   |
| Preparatory works                        | General site clearance of any surface materials and vegetation.<br>Topsoil strip and stockpile.  |
| Anticipated foundation solutions         | At this stage it is envisaged that all plots are likely to be founded on strip footings in the residual soils or on bedrock.   |
| Recommendations for ground investigation | About 12 Trial pits to determine the nature, distribution and thickness of shallow soils and depth to bedrock. About 8 dynamic sample boreholes to assess in-situ density of any granular soils and to install gas monitoring wells.   |

At this stage, anticipated significant abnormalities relating to geoenvironmental issues at the site are:

- Given the existing topography (the slope in the east with gradients of up to 1 in 3), some site regrade may be required, with the need for underbuild and retaining walls.
- Given the likely presence of hard rock from shallow depth, excavation greater than around 2m might prove difficult across the site. It would therefore be prudent to allow for excavation of hard rock in any deep excavations such as those that may be required for drainage etc; a breaker, will be required and possibly even blasting.

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|---------|-----------------------------------|
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| 4594/4  | Preliminary conceptual site model |
| 4594/5  | Proposed site layout              |

### Appendix C - Commission

### Appendix D – Historical OS plans\*

### Appendix E – Search responses\*

| From           | Date       | Content                        |
|----------------|------------|--------------------------------|
| Landmark       | 02/11/2022 | Envirocheck report             |
| Coal Authority | 02/11/2022 | Consultants Coal Mining Report |

\* Some of this data is not included within the paper or PDF copies of this report can be provided on request.

## FOREWORD (GEOENVIRONMENTAL APPRAISAL REPORT)

This report has been prepared for the sole internal use and reliance of the Client named on page 1. This report shall not be relied upon or transferred to any other parties without the express written authorisation of Lithos Consulting Limited (Lithos); such authorisation not to be unreasonably withheld. If any unauthorised third party comes into possession of this report, they rely on it at their peril and the authors owe them no duty of care and skill.

This report has been reviewed by a Competent Person, as defined in the National Planning Policy Framework. We ensure that all projects are managed by individuals with necessary experience, relevant qualifications, and current membership of a relevant professional organisation. Records of engineers, project managers and reviewers involved in this project are maintained by us. Lithos QA/QC procedures for all our work forms an integral part of our ISO9001 accreditation and as such is regularly audited.

The report presents observations and factual data obtained during our site investigation and provides an assessment of geoenvironmental issues with respect to information provided by the Client regarding the proposed development. Further advice should be sought from Lithos prior to significant revision of the development proposals.

The report should be read in its entirety, including all associated drawings and appendices. Lithos cannot be held responsible for any misinterpretations arising from the use of extracts that are taken out of context. However, it should be noted that in order to keep the number of pages to a minimum, some information (e.g. full copy of the Landmark/Groundsure Report) is not included in the PDF; by request it can be provided on a CD.

The findings and opinions conveyed in this report (including review of any third-party reports) are based on information obtained from a variety of sources as detailed within this report, and which Lithos believes are reliable. Reasonable care and skill has been applied in examining the information obtained. Nevertheless, Lithos cannot and does not guarantee the authenticity or reliability of the information it has relied upon.

Where the report refers to the potential presence of invasive weeds such as Japanese Knotweed, or the presence of asbestos containing materials, it should be noted that the observations are for information only and should be verified by a suitably qualified expert.

Lithos cannot be responsible for the consequences of changing practices, revisions to waste management legislation etc that may affect the viability of proposed remediation options.

The report represents the findings and opinions of experienced geoenvironmental consultants. Lithos does not provide legal advice and the advice of lawyers may also be required.

**PRELIMINARY  
GEOENVIRONMENTAL INVESTIGATION  
OF LAND AT  
SHEPLEY ROAD, STOCKSMOOR**

## **1 INTRODUCTION**

### **1.1 The commission and brief**

- 1.1.1 Lithos Consulting were commissioned by Newett Homes to carry out a preliminary geoenvironmental investigation of land at Shepley Road, Stocksmoor.
- 1.1.2 This document is a revision of the Preliminary Geoenvironmental Investigation (Report 4594/1) issued by Lithos in November 2022; Report 4594/1 is now superseded. This document now reference to the proposed site layout provided by Newett Homes, with the only significant revisions to 4594/1 having been made in Sections 1.2 & 4.4. Drawing 4594/5 is now also included in Appendix B.
- 1.1.3 Correspondence regarding Lithos' appointment, including the brief for this investigation, is included in Appendix C. The agreed scope of works included:
- A site walkover and inspection
  - An assessment of land use history
  - Determination of the site's environmental setting
  - A mining risk assessment in accordance with Coal Authority guidance.
  - Assessment of anticipated ground conditions, including potential contaminants
  - Assessment of anticipated foundation and engineering issues associated with redevelopment for a residential end-use
  - Provision of recommendations for an appropriate ground investigation
- 1.1.4 This Preliminary Investigation comprised an inspection of historical and geological maps and information provided by the British Geological Survey, the Landmark Information Group, the Coal Authority, and QGIS<sup>1</sup>. In addition, a site inspection has been carried out by Lithos.
- 1.1.5 Primary aims of this investigation were to identify salient geoenvironmental issues affecting the site to enable design and costing of an appropriate intrusive investigation, and to support the submission of a planning application.

### **1.2 The proposed development**

- 1.2.1 It is understood that consideration is being given to redevelopment of the site with 50No. 2 to 3 storey domestic dwellings, associated gardens, POS and adoptable roads and sewers. A site layout has been provided by Newett Homes (Drawing reference Z159.100 Rev G, dated 22<sup>nd</sup> February 2024) which is reproduced as Drawing No. 4594/5 in Appendix B to this report.

### **1.3 Report format and limitations**

- 1.3.1 Standard definitions, procedures and guidance are contained within Appendix A, which includes background, generic information on assessment of the site's environmental setting.

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<sup>1</sup> An Open Source Geographic Information System used by Lithos to access publicly available Government held digital data.

1.3.2 General notes and limitations relevant to all Lithos preliminary investigations are described in the Foreword and should be read in conjunction with this report. The text of the report draws specific attention to any modification to these procedures and to any other special techniques employed.

## 2 SITE DESCRIPTION

### 2.1 General

2.1.1 The site's location is shown on Drawing 4594/1 presented in Appendix B to this report. Site details are summarised in the table below.

| Detail         | Remarks                                      |
|----------------|--|
| Location       | 7.2 km southeast of Huddersfield city centre |
| NGR            | SE 184 107                                   |
| Area           | 2.5 ha (6.1 acres)                           |
| Known services | Overhead telecom                             |

### 2.2 Site features

2.2.1 Lithos completed a walkover survey of the site on 23<sup>rd</sup> November 2022.

2.2.2 The site comprises a roughly rectangular grassed field of variable topography, with evidence of recent pastoral farming use. In the north, the site gently slopes down to the north from the centre where it is relatively flat-lying. Access is via a locked metal farm gate in the southwest from Shepley Road.

2.2.3 Much of the site is bounded by a barbed wire fence and a dry stone wall with occasional trees (generally 5-10m tall) and shrubs. Trees are more frequent along the site's northern boundary, beyond which is a railway line and Stocks Moor Station. The railway line is within a cutting (about 10m below the site) except in the far east where the railway is above site level because of the site's topography.

2.2.4 In the far east, there is a channel of water flowing from a culvert/outflow from beneath the railway. The channel of water flows down the slope close to the northern boundary towards the woodland beyond the site's eastern boundary.

2.2.5 The east of the site is characterised by a grassed slope (gradient of c.1 in 8) that becomes steeper (gradient of c.1 in 4) and more overgrown with sporadic immature trees (c.5m tall). Overgrown brambles and weeds are present along the southern boundary in the east.

2.2.6 Existing salient features, at the time of the walkover are presented on Drawing 4594/2 in Appendix B to this report, and summarised in the table below.

| Feature              | Remarks  |
|----------------------|--|
| Current access       | Off Shepley Road   |
| Topography           | Slopes down gently to the north and east.<br>Steeper slope present in the far east with gradients up to 1 in 4.                                      |
| Approximate areas    | 18,000m <sup>2</sup> grass<br>6,000m <sup>2</sup> overgrown grass<br>400m <sup>2</sup> brambles & overgrown weeds<br>100m <sup>2</sup> water channel |
| Nature of boundaries | North, west, south & east - dry stone walls & barbed wire fences with sporadic trees and shrubs.   |

|                       |  |
|-----------------------|--|
| Surrounding land uses | North – Stocksmoor railway station and line.<br>East – Woodland and Stone Wood Dike.<br>South – Housing and Shepley Road.<br>West – Housing. |
|-----------------------|--|

2.2.7 A selection of site photographs are included on Drawing 4594/3.

### 3 SITE HISTORY

3.1 In order to investigate the development history and previous land uses at the site and immediate surrounding land, site centred extracts from Ordnance Survey (OS) plans dating back to 1854 have been examined. These plans are presented in Appendix D to this report.

3.2 The table below provides a summary of the salient points relating to the history of the site with respect to the proposed end use. It is not the intention of this report to describe in detail all the changes that have occurred on or adjacent to the site. Significant former uses/operations are highlighted in **bold** text for ease of reference.

| Date | Site   | Surrounding land   |
|------|--|--|
| 1854 | Site is occupied by fields and is undeveloped. | <b>Sun Side Quarry</b> (Sandstone) to the south immediately beyond Sun Side Lane. Several houses shown immediately south of the site off Sun Side Lane.<br><b>Reservoir</b> immediately west.<br>Lower Stone Wood shown immediately east, with Stone Wood Dike flowing north through it.<br>Stocksmoor Station immediately north within a cutting with railway running along northern boundary.<br>Hamlet of Crangle shown 100m west.<br>An <b>Old Quarry</b> (Sandstone) is labelled c.250m west, although exact location is not clear. |
| 1893 | No significant changes.                        | Sun Side Quarry to the south no longer shown.<br>Old Quarry labelled c.350m west.  |
| 1906 |  | Old Quarry no longer labelled.   |
| 1916 |  | Additional housing shown immediately south. Railway to the north labelled as L&YR Huddersfield & Penistone Line.   |
| 1932 |  | Sun Side Lane renamed Shepley Road.  |
| 1948 |  | No significant changes.  |
| 1960 |  | Reservoir no longer labelled to the west, although a depression in the ground remains.   |
| 1976 |  | Housing shown immediately west and southwest along Station Road and Shepley Road   |
| 1989 |  | Further housing shown 100m southwest. Village labelled Stocksmoor.   |
| 2000 |  | Further housing shown 150m west.   |
| 2016 |  | No significant changes.  |
| 2022 |  |  |

## 4 ENVIRONMENTAL SETTING

### 4.1 General

4.1.1 Notes describing how the site's environmental setting has been assessed are included in Appendix A to this report. Reference has been made to publicly available Government held digital data via QGIS (an Open Source Geographic Information System). The response received from the Coal Authority, and extracts from the Landmark Report are presented in Appendix E.

| Issue        | Data reviewed  |   |
|--------------|--|---|
| Geology      | 1:50,000 BGS map (Sheet 86)<br>1:10,000 BGS map (Sheet SE11SE) | Drift soils – None recorded.<br>Solid (bedrock) – Grenoside Sandstone – sandstone and siltstone, medium- and fine-grained, micaceous.<br>Shallowest coal seam – Thin Coal at about 25m depth.<br>Strata Dip - 3° north.<br>Faults – None recorded beneath site or within 100 metres.  |
| Mining       | Coal Authority<br>BGS maps                                     | This site is located within a Coal Mining Development Low Risk Area.<br>Past and present workings – None recorded.<br>Opencast – None recorded within 500m.<br>Mine entries – None recorded within 100m. Further details in Section 4.2 below.  |
| Quarrying    | Historical OS plans  | Sun Side Quarry shown immediately south and an old quarry is labelled 250m west in 1854.  |
| Landfills    | Envirocheck Report   | No known landfills within 250m.   |
| Radon        | Public Health England  | The site lies in an area where less than 1% of homes are estimated to be above the action level. Further details in Section 4.4 below.  |
| Hydrogeology | Environment Agency<br>electronic open data via<br>QGIS         | Source Protection Zone? No.<br>Aquifer: Secondary A (Solid).<br>Groundwater abstractions? Closest is 1,100m southwest for general farming & domestic purposes by K Hall & Sons at Lower Halstead Farm, Thurstonland.<br>Groundwater vulnerability – High Vulnerability (Secondary Bedrock Aquifer).<br>Pollution incidents? None recorded.  |
| Hydrology    | Envirocheck Report   | Nearest watercourse(s) – Stone Wood Dike, 50m southeast, flowing north.<br>Water quality – Moderate (Ecological), Fail (Chemical).<br>Pollution incidents? Category 2 (Significant incident) to stream 400m south in April 1991. Pollutant was yard run off from farm.<br>Abstractions? None related or significant to site. Discharge consents? None related or significant to site.   |
| Flood risk   | Environment Agency<br>electronic open data via<br>QGIS         | The site lies in Flood Zone 1, where the risk of flooding from rivers or the sea is classified as low.<br>In accordance with Chapter 14 of the National Planning Policy Framework, a site-specific flood risk assessment is required for proposals of 1 hectare or greater in Flood Zone 1, or in an area within Flood Zone 1 which has critical drainage problems (as notified to the local planning authority by the Environment Agency). |

## 4.2 Coal & mining

- 4.2.1 In July 2011 the Coal Authority (CA) formalised their requirements in relation to planning applications and introduced some new terminology relating to coal mining development areas. This Section provides the necessary mining risk assessment required by the proposed planning application.
- 4.2.2 Geological maps suggest that only one coal seam underlies the site at shallow depth. This is an Unnamed Thin Coal, a 'thin' seam, at around 25m depth.
- 4.2.3 The site lies within a Low Risk Area - within the defined coalfield, but no known defined risks have been recorded by the CA; there may still be unrecorded issues.
- 4.2.4 A CA mining report states that:
- No past underground mining is recorded.
  - There are no probable unrecorded shallow workings.
  - There are no mine entries within 100 metres.
  - No opencast mines are recorded within 500m.
  - The Coal Authority has not received a damage notice or claim for the property, or any property within 50m, since 31<sup>st</sup> October 1994.
  - No notices have been given, under Section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.
  - The property is not in an area where a notice to withdraw support has been given.
- 4.2.5 The mining reports suggests there are no known shallow workings (i.e. at less than 30m depth). However, it should be noted that it did not become a statutory requirement to maintain and preserve plans of abandoned mines until the Mine (Coal) Regulations Act of 1872 and consequently there may be mineworkings beneath the site for which the Coal Authority have no records.
- 4.2.6 Information from historical plans show that the surrounding area has been quarried in the past for sandstone. On the 1854 plan, there are two sandstone quarries shown within 250m of the site, although they are labelled as 'old' or not shown on the 1893 or subsequent OS plans.

### 4.3 Mineral safeguarded areas

- 4.3.1 The site is underlain by sandstone and might therefore be considered by the Local Authority to lie within a Mineral Safeguarding Area (MSA).
- 4.3.2 MSAs are areas of known mineral resources that are of sufficient economic or conservation value to warrant protection for generations to come. The purpose of MSAs is not to preclude automatically other forms of development, but to make sure that mineral resources are adequately and effectively considered in land-use planning decisions.
- 4.3.3 Specialist guidance on Mineral Safeguarding "A Guide to Mineral Safeguarding in England" has been produced by The Coal Authority and the British Geological Survey.
- 4.3.4 Paragraph 204 of the National Planning Policy Framework (NPPF) requires Local Authorities, when preparing Local Plans to:
- Define Minerals Safeguarding Areas and adopt appropriate policies in order that known locations of specific minerals resources of local and national importance are not needlessly sterilised by non-mineral development, whilst not creating a presumption that resources defined will be worked; and define Minerals Consultation Areas based on these Minerals Safeguarding Areas.
  - Set out policies to encourage the prior extraction of minerals, where practicable and environmentally feasible, if it is necessary for non-mineral development to take place.
- 4.3.5 NPPF Paragraph 204 notes that when determining planning applications, local planning authorities should give weight to the benefits of the mineral extraction.
- 4.3.6 As a consequence of the NPPF, and the presence of sandstone beneath the site, the Local Authority may require Newett to consider the opportunity to recover the sandstone.
- 4.3.7 The Kirklees Local Plan states that sandstone within the district is important for construction projects throughout the UK, with several quarries operating in the area.
- 4.3.8 The Kirklees Local Plan policy of mineral safeguarding states that surface development will only be permitted within a Mineral Safeguarded Area where it has been demonstrated that:
- the mineral concerned is proven to be of no economic value as a result of the undertaking of a Mineral Resource Assessment; or
  - the development will not inhibit mineral extraction if required in the future; or
  - there is an overriding need for the development; or
  - the mineral can be extracted prior to the development taking place.

## 4.4 Hazardous gas

### Methane & carbon dioxide

4.4.1 The site might be affected by sources of hazardous gas generation as it is:

- Located within 250m of former sandstone quarries and a reservoir, for which the nature of backfill is unknown

4.4.2 Consequently, monitoring is recommended in order to determine appropriate gas protection measures for the proposed dwellings.

### Radon

4.4.3 Requirements with respect to radon measures are set out in Building Regulations Approved Document C. Probability bandings (based on the proportion of properties in a given area that exceed the Action Level; currently 200 Bq.m<sup>-3</sup>) are used to determine whether a property requires no, basic or full measures.

4.4.4 At present Approved Document C advocates basic measures for the probability banding 3% to 10% (full measures if >10%). However, the UK Health Security Agency (HSA) would like to see all new build include basic measures.

4.4.5 In December 2022, the British Geological Survey (BGS), deployed a revised dataset which increased accuracy and also the number of properties falling within radon affected areas. This revised dataset is now referenced by maps on the HSA website.

4.4.6 Information from the HSA website indicates that the site lies in an area where **less than 1%** of homes are estimated to be above the action level.

4.4.7 As such, **no** special precautions against radon are required on this site.

## 4.5 Agriculture

4.5.1 Historical plans show that the site has been occupied by arable farmland. Generally farming is not considered likely to have caused significant ground contamination. However, activities such as slurry spreading, the discharge of chemicals to ground, and unregulated burial are known to have occurred on farmland. Potential contaminants associated with farming activity could include any of the following.

| Agricultural activity                                    | Potential contaminant                       |
|--|---|
| Sewage farming, slurry spreading                         | Methane, metals, nitrates, oxygen depletion |
| Tracks (if built up with crushed demolition rubble etc)  | Metals, asbestos, hydrocarbons              |
| Plant & animal protection                                | Pesticides & herbicides                     |
| Soil conditioners  | Metals, sulphates, PAH                      |
| Field sports   | Lead shot                                   |
| Equipment maintenance                                    | Hydrocarbons, metals                        |
| Waste burial, land levelling, backfilling ponds/quarries | Methane, metals, PAH etc                    |
| Naturally occurring contaminants                         | Arsenic, metals                             |

## 5 PRELIMINARY CONCEPTUAL SITE MODEL

### 5.1 Potential contaminants

- 5.1.1 A preliminary conceptual site model, presented as Drawing 4594/4 in Appendix B, has been prepared after consideration of all the data presented in Sections 2 to 4.
- 5.1.2 Clearly, the conceptual model will be subject to modification in light of data arising from the proposed intrusive ground investigation.
- 5.1.3 Potential contaminant linkages are shown on the preliminary conceptual site model. The most significant of these is the migration of hazardous gas from nearby former quarries or dermal contact and ingestion/inhalation of any contaminants within the topsoil to the end users (residents).

### 5.2 Anticipated ground conditions & potential issues

- 5.2.1 Based on the data reviewed in Section 4 (Environmental Setting), anticipated ground conditions are expected to comprise:

| Anticipated condition | Remarks  |
|-----------------------|--|
| Made ground           | No made ground is expected.  |
| Natural soils         | No drift soils are recorded at the site however Residual Soils (completely weathered sandstone) are likely to be present.                              |
| Bedrock               | Grenoside Sandstone expected at shallow depths.  |
| Mineworkings          | No recorded mineworkings beneath the site and Coal Authority suggests no probable unrecorded mineworkings. No shallow workable seams beneath the site. |
| Groundwater           | Groundwater likely within bedrock.   |

- 5.2.2 Based on the data above and that in Sections 2 (Site Description) and 3 (History), potential ground-related issues associated with this site are likely to include:

| Type of issue                            | Specific issue   | Remarks   |
|--|--|---|
| Potential on-site contamination sources  | 1. Reworked topsoil (inorganics, organics, pesticides)                         | 1. Associated with farming  |
| Potential off-site contamination sources | 1. Former quarries and reservoir   | 1. Possible sources of hazardous gas  |
| Potential geotechnical hazards           | -  | -   |
| Other potential constraints              | 1. Underground and/or overhead utilities<br>2. Cutting along northern boundary | 1. Underground utilities unknown, overhead telecom in the south<br>2. Railway within cutting – early consultation with Network Rail recommended |

- 5.2.3 Given the likely presence of **hard rock** from shallow depth, excavation greater than around 2m might prove difficult across the site. It would therefore be prudent to allow for excavation of hard rock in any deep excavations such as those that may be required for drainage etc; a breaker, will be required and possibly even blasting.
- 5.2.4 In essence, the need for blasting will be predominantly dictated by two factors: the depth of cut required, and the nature of the bedrock encountered in that cut. Rotary cored boreholes to provide information on unconfined compressive strength and fracture spacing would be prudent if/where cut in excess of 3m is required.

## 6 LAND CONTAMINATION - PART IIA & PLANNING

- 6.1 Local Authorities have responsibilities with respect to land contamination in the context both of Part IIA of the Environmental Protection Act 1990, and Planning.
- 6.2 The contaminated land regime in Part IIA was introduced specifically to address the historical legacy of land contamination. It applies where there is unacceptable risk, assessed on the basis of the **current** use and the relevant circumstances of the land. It is not directed to assessing risks in relation to a future use of the land that would require a specific grant of planning permission. This is primarily a task for the planning system, which aims to control development and land use in the **future**.

### Planning

- 6.3 As of March 2012, Planning Policy Statement (PPS23) was replaced by the National Planning Policy Framework (NPPF), supported by web-based planning practice guidance. The NPPF (updated in July 2021) includes the following with respect to contamination and site investigation:
- 6.4 'Where a site is affected by contamination or land stability issues, responsibility for securing safe development rests with the developer and/or landowner'.
- 6.5 Planning policies and decisions should ensure that:
- The site is suitable for its new use taking account of ground conditions and land instability, including from natural hazards or former activities such as mining, pollution arising from previous uses, and any proposals for mitigation including land remediation or impacts on the natural environment arising from that remediation;
  - After remediation, as a minimum, land should not be capable of being determined as contaminated land under Part IIA of the environmental protection act 1990; and
  - Adequate site investigation information, prepared by a competent person, is presented'.
- 6.6 Annex 2 of the NPPF states that 'all investigations of land potentially affected by contamination should be carried out in accordance with established procedures (such as BS10175<sup>2</sup>)'.

### This site

- 6.7 The underlying Grenoside Sandstone is classified as a Secondary A aquifer. The nearest surface watercourse is the Stone Wood Dike, which flows in a northerly direction, approximately 50m beyond the site's eastern boundary. Therefore, the site's environmental setting is considered to be of moderate sensitivity.
- 6.8 With respect to human health, the proposed end use (residential) is also sensitive.
- 6.9 Current use of the site is considered unlikely to have given rise to any significant ground and groundwater contamination.
- 6.10 It is considered that the site should be suitable for the proposed use subject to implementation of appropriate preparatory works.

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<sup>2</sup> BS10175 (2011) - Code of practice for the investigation of potentially contaminated sites

## 7 GROUND INVESTIGATION DESIGN

### 7.1 Ground investigation design & strategy

7.1.1 The preliminary conceptual site model has been used as a basis for design of an appropriate ground investigation, the scope of which is summarised below.

| Exploratory holes                             | Purpose  |
|---|--|
| 12 Trial Pits                                 | To determine the nature, distribution and thickness of shallow natural soils, including suitability of the ground for founding structures and highways.  |
| Dynamic sampling (mini boreholes)<br>c. 8 no. | To confirm the strength (density) of natural in-situ granular soils via SPTs<br>To install monitoring wells across the site in order to: <ul style="list-style-type: none"> <li>• Monitor for hazardous gas</li> <li>• Determine groundwater levels and assess flow direction</li> </ul> |

7.1.2 Proposed exploratory hole locations should be selected to provide a representative view of the strata beneath the site. A nominal 40m grid spacing should be appropriate, with additional exploratory locations scheduled as necessary in light of the ground conditions actually encountered.

7.1.3 Parts of the site were noted to be wet and soft during the site walkover. If ground investigation is not undertaken during drier summer months, it may be necessary to use a tracked excavator.

7.1.4 Representative soil samples of natural and any man-made ground should be taken during the works. The number of soil samples taken should be reflective of the geological complexity actually encountered, but in general about 3 samples should be taken from most exploratory holes.

7.1.5 The investigation should be undertaken in general accordance with:

- BS5930:2015 "Code of practice for site investigation"
- BS10175:2017 "Code of practice for the investigation of potentially contaminated sites"
- "Technical Aspects of Site Investigation" – EA R&D Technical Report P5-065/TR (2000)
- "Development of appropriate soil sampling strategies for land contamination" – EA R&D Technical Report P5-066/TR (2001)

7.1.6 **Trial pitting** will enable determination of:

- Nature, distribution and thickness of shallow soils
- Suitability of the ground for founding structures and highways

7.1.7 The in-situ shear strengths of any cohesive soils encountered should be determined by use of a hand-held shear vane.

7.1.8 Given the sloping nature of site and the presence of a railway cutting to the north, it is considered possible that springs may occur if soakaways were to be utilised on the site. Therefore soakaway testing is not considered necessary.

7.1.9 **Mini-boreholes** will:

- Allow the installation of gas monitoring wells.
- Enable assessment of the density of granular soils either via discrete SPTs or dynamic probing

7.1.10 If bedrock is found to be shallow (say within 1.5m of ground level), rotary probeholes may be required to install gas monitoring wells. This should be reviewed on completion of trial pitting.

- 7.1.11 Monitoring wells should be installed in about 8 boreholes. The generation potential of potential **gas** sources (former quarries) is considered likely to be Very Low. Therefore, in accordance with CIRIA Report C665<sup>3</sup>, it would be prudent to initially allow for 6 visits over a 3 month period. A hazardous gas risk assessment should be issued on completion of monitoring.
- 7.1.12 Routine **geotechnical soils analysis** (moisture content, Atterberg limits, pH, water soluble sulphate) should be scheduled on about 12 samples.
- 7.1.13 The site has not been the subject of a past potentially contaminative industrial land use. However, historical mapping suggests arable farming has been carried out on the site. Sampling of the topsoil should be undertaken to confirm its suitability for re-use. At least 10 samples should be taken with analysis to include pH, metals, TOC, speciated PAH and asbestos ID.
- 7.1.14 Further sampling should be undertaken if made ground is encountered in the exploratory holes.
- 7.1.15 Whilst it is highly unlikely that PAAH pesticides will be detected by soil sampling, it would be prudent to confirm this via analysis of 3 topsoil samples.
- 7.1.16 It would also be prudent to analyse about 4 topsoil samples to check compliance with BS3882<sup>4</sup> requirements, via testing for visible contaminants, sharps and clay/sand/silt content.
- 7.1.17 On completion of the fieldwork and laboratory testing a comprehensive bound, factual and interpretative report should be issued. This should contain detailed engineering records, laboratory test results, copies of all relevant correspondence and drawings of the site. The report should also include qualitative risk assessment with respect to both controlled waters and human health.

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<sup>3</sup> CIRIA C665: Assessing risks posed by hazardous ground gases to buildings (2007).

<sup>4</sup> BS3882:2015. Specification for topsoil. Published by BSI Standards Limited.

## 8 CONCLUSIONS & RECOMMENDATIONS

### 8.1 General

- 8.1.1 The site comprises c. 2.5 hectares of land located in Stocksmoor about 7.2km southeast of Huddersfield city centre. The site has been occupied by fields and used as farmland throughout its history.
- 8.1.2 It is understood that Newett are considering acquisition of the site with a view to redevelopment with housing.
- 8.1.3 The main issues considered in this report, and in particular in Sections 3 & 4 are based on a review of historical maps and available geological/environmental data. This report provides an assessment of geoenvironmental issues and implications associated with the proposed residential redevelopment of the site.

### 8.2 Mining and quarrying

- 8.2.1 This site is underlain at depth by Grenoside Sandstone bedrock, and the shallowest coal seam (a 'thin' unworkable seam) lies at 25m below the surface. Whilst the site lies within a Coal Authority Low Risk area, no significant risks have been identified, and an intrusive mining investigation will not be required.
- 8.2.2 Historical OS maps have recorded two former sandstone quarries within 250m of the site, including Sun Side Quarry which was shown immediately south of the site in 1854.

### 8.3 Hazardous gas

- 8.3.1 The site is in an area where less than 1% of homes are estimated to be above the radon action level. As such, no special precautions against radon are required on this site.
- 8.3.2 The site is located within 250m of former sandstone quarries and a former reservoir, and may be affected by sources of hazardous gas generation.
- 8.3.3 As such, wells should be installed in boreholes to allow subsequent monitoring for hazardous gas in order to determine appropriate gas protection measures for the proposed dwellings.

### 8.4 Foundations

- 8.4.1 At present, no geotechnical ground investigation data is available and consequently it is only possible to estimate the ground conditions. Before firm foundation recommendations can be given, it will be necessary to undertake an appropriate ground investigation. However, tentative recommendations are provided below.
- 8.4.2 The published geological data suggests that the site is underlain by Grenoside Sandstone with no drift soils recorded, although residual soils are expected.
- 8.4.3 Weathered Grenoside Sandstone should provide sufficient bearing capacity to enable the adoption of strip footings for two storey housing. Reinforcement, as a precaution against differential settlement, is recommended only where foundation excavations encounter significant lateral and vertical variations in strata.
- 8.4.4 If rock is encountered at shallow depth, foundations should be placed entirely on rock and not partially on rock and partially on residual soil. This may, depending on surface gradient, necessitate significant over deepening of foundations.

## 8.5 Highways and external works

- 8.5.1 There may be a requirement for retaining walls, underbuild and/or tanking in the east where steep slopes are present.
- 8.5.2 Weathered Grenoside Sandstone (sands) should yield a CBR of at least 20%. This value should be verified prior to or during construction.

## 8.6 Soakaways & drainage

- 8.6.1 Given the sloping nature of site and the presence of a railway cutting to the north, it is considered possible that springs may occur if soakaways were to be utilised on the site therefore soakaways are considered unlikely to provide a viable solution for the disposal of surface water.
- 8.6.2 Alternative SUDS options (see CIRIA C753<sup>5</sup> for further details) include:
- Swales – linear grassed features in which surface water can be stored or conveyed. Where suitable, swales can be designed to allow infiltration.
  - Basins - a ground depression designed to store surface water that is normally dry, except during and immediately following a rainfall event. There are two types:
    - Infiltration – basin designed to store runoff and infiltrate it gradually into the ground.
    - Detention – an outlet restricts flows, so that the basin fills and provides attenuation.
  - Ponds – designed to have permanent pool of water, but with capacity to provide temporary storage-controlled discharge.
- 8.6.3 Yorkshire Water have published a guide<sup>6</sup> for developers and designers outlining their design requirements for surface water attenuation assets.
- 8.6.4 With respect to detention basins, which should normally be dry, water table levels should be taken from borehole monitoring wells over 4 consecutive seasons, for at least 3 points in the basin area. The detention basin should be designed to ensure that there is a minimum of 1m of unsaturated soil between the maximum groundwater level and the lowest part of the structure.

## 8.7 Contamination

- 8.7.1 The site's environmental setting is considered to be of moderate sensitivity. With respect to human health, the proposed end use (residential) is also sensitive.
- 8.7.2 No potentially contaminative industrial land uses were identified as having been present on the site. However, arable farming has historically been carried out. The farming activities may have given rise to some limited contamination.
- 8.7.3 Consequently, a ground investigation is required in order to assess the suitability of topsoil for re-use.

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<sup>5</sup> CIRIA C753 (2015) – The SuDS Manual.

<sup>6</sup> Design Requirements for Surface Water Attenuation Assets, February 2017.

## 8.8 Potential development constraints

- 8.8.1 Given the likely presence of **hard rock** from shallow depth, excavation greater than around 2m might prove difficult across the site. It would therefore be prudent to allow for excavation of hard rock in any deep excavations such as those that may be required for drainage etc; a breaker, will be required and possibly even blasting.
- 8.8.2 Stocksmoor Railway Station and railway line are within a cutting immediately north of the site. Early communication with **Network Rail** is recommended.
- 8.8.3 The **overhead telecom** utility presents a potential development constraint unless they can be relocated. Additional enquiries are required to ascertain the feasibility of such diversionary works and the particular easement required by each service undertaker if they remain in-situ.

## 8.9 Further investigation

- 8.9.1 Whilst the site is considered suitable for its current and proposed use, the proposed change in use will require intrusive investigation.
- 8.9.2 This would include:
- Machine-excavated trial pits to determine near surface ground conditions including depth to bedrock, groundwater and stability
  - Geotechnical soils analysis to enable foundation recommendations
  - Chemical testing on topsoil samples to assess its suitability for re-use.
  - Window sample boreholes to assess in-situ density of any granular soils and allow installation of gas monitoring wells. Rotary probeholes may be required if bedrock is found to be very shallow (within 1.5m of ground level).
  - Gas monitoring and risk assessment
- 8.9.3 An appropriate ground investigation strategy is presented in Section 7.

Appendix A  
General Notes

## General

Third party information obtained from the British Geological Survey (BGS), the Coal Authority, the Local Authority etc is presented in the "Search Responses" Appendix of this Geoenvironmental Report.

## Geology, mining & quarrying

In order to establish the geological setting of a site, Lithos refer to BGS maps for the area, and the relevant geological memoir. Further information is sourced by reference to current and historical OS plans.

In July 2011, the Coal Authority (CA) formalised their requirements in relation to planning applications and introduced some new terminology. The CA, using its extensive records has prepared plans for all coalfield Local Planning Authorities, which effectively refines the defined coalfield areas into High Risk and Low Risk areas. **High Risk** areas are likely to be affected by a range of legacy issues that pose a risk to surface stability, including: mine entries; shallow coal workings; workable coal seam outcrops; mines gas; and previous surface mining sites. **Low Risk** areas comprise the remainder of the defined coalfield, and are areas where no known defined risks have been recorded; although there may still be unrecorded issues. Where a site lies within either a High or Low Risk area, a mining report is obtained from the CA.

## Landfills

Reference is made to publicly available Government held digital data via **QGIS** (an Open Source Geographic Information System), data from Landmark or Groundsure, and sometimes the Environment Agency and the Local Authority with respect to known areas of landfilling within 250m of the proposed development site.

Historical OS plans are also inspected for evidence of backfilled quarries, railway cuttings, colliery spoil tips etc.

## Radon

Radon is a colourless, odourless gas, which is radioactive. It is formed in strata that contain uranium and radium (most notably granite), and can move through fissures eventually discharging to atmosphere, or the spaces under and within buildings. Where radon occurs in high concentrations, it can pose a risk to health.

In order to assess potential risks associated with radon gas, Lithos refer to BRE Report BR211<sup>1</sup>, and the Public Health England website. Advice on the limitation of exposure of the population to radon in buildings was originally published in 1990 by the National Radiological Protection Board (NRPB), which joined the Health Protection Agency (HPA) in 2005; the HPA updated NRPB advice in July 2010<sup>2</sup>. The HPA became part of Public Health England in 2013.

The HPA recommended that the NRPB radon Action Level for homes be retained, and a new Target Level for radon in homes be introduced. The values of the Action Level and Target Level, expressed as the annual average radon concentration in the home, are 200 Bq<sup>m</sup>-<sup>3</sup> and 100 Bq<sup>m</sup>-<sup>3</sup> respectively. The Target Level was to provide an objective for remedial action in existing homes and preventive action in new homes.

The term 'radon Affected Area' is defined as those parts of the country with >1% of homes estimated to be above the Action Levels. The NRPB first indicated which parts of the country should be regarded as radon Affected Areas in 1990. A more detailed mapping method was developed by the HPA in conjunction with the British Geological Survey in 2007<sup>3</sup>. The level of protection needed is site-specific and can be determined by reference to this mapping on the Public Health England website, which indicates the highest radon potential within each 1km grid square. Each 1km grid square is classified on the basis of the percentage of existing homes within that grid square estimated to have radon concentrations above the Action Level. There are 6 'bands': <1%; 1 to 3%; 3 to 5%; 5 to 10%; 10 to 30%; and >30%.

The NRPB advised that action should be taken to reduce radon concentrations in existing homes if the radon concentration exceeded the Action Level of 200 Bq<sup>m</sup>-<sup>3</sup> in room air averaged over a year; ten times the average UK domestic radon concentration. NRPB advice informed changes in the requirements for radon protection in new buildings.

- **Basic** preventive measures are required in new buildings, extensions, conversions and refurbishments if the probability of exceeding the Action Level is **>3%** in England and Wales, and >1% in Scotland and Northern Ireland.
- Provision for further preventive (**Full**) measures is required in new buildings if the probability of exceeding the Action Level is **>10%**.

At present Building Regulations Approved Document C advocates basic measures for the probability banding 3% to 10%, and full measures if >10%. However, Public Health England would like to see all new build include basic measures.

Action & Target Levels should also be applied to non-domestic buildings with public occupancy exceeding 2,000 hrs/yr and to all schools.

## Hydrogeology

Reference is made to publicly available Government held digital data via QGIS, and Landmark or Groundsure with respect to:

- Groundwater quality
- Recorded pollution incidents
- Licensed groundwater abstractions

From April 2010 the EA's Groundwater Protection Policy uses aquifer designations that are consistent with the Water Framework Directive. These designations reflect the importance of aquifers in terms of groundwater as a resource (drinking water supply), but also their role in supporting surface water flows and wetland ecosystems. The aquifer designation data is based on geological mapping provided by the British Geological Survey. The maps are split into two different types of aquifer designation:

- Superficial (Drift) - permeable unconsolidated (loose) deposits. For example, sands and gravels
- Bedrock - solid permeable formations e.g. sandstone, chalk and limestone

The maps display the following aquifer designations:

**Principal aquifers:** These are layers of rock or superficial deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale. In most cases, principal aquifers are aquifers previously designated as major aquifer.

**Secondary aquifers:** These include a wide range of rock layers or superficial deposits with an equally wide range of water permeability and storage. Secondary aquifers are subdivided into three types:

- **Secondary A** - permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
- **Secondary B** - predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers
- Secondary undifferentiated - In most cases, this is because the rock type in question has previously been designated as both a minor and non-aquifer in different locations due to the variable characteristics.

<sup>1</sup> BRE Report BR211, 2015: "Radon: guidance on protective measures for new buildings.

<sup>2</sup> Limitation of Human Exposure to Radon, Documents of the Health Protection Agency - Radiation, Chemical and Environmental Hazards, RCE-15. July 2010.

<sup>3</sup> Miles JCH, Appleton JD, Rees DM, Green BMR, Adlam KAM and Myers AH (2007). Indicative Atlas of Radon in England and Wales. Chilton, HPA-RPD-033.

**Unproductive strata:** These are rock layers or superficial deposits with low permeability that have negligible significance for water supply or river base flow.

The EA maps only display the principal and secondary aquifers as coloured areas. All uncoloured areas on the map will be unproductive strata. However, for uncoloured areas on the superficial (drift) designation map it is not possible to distinguish between areas of unproductive strata and areas where no superficial deposits are present; to do this, it is necessary to consult the published geological survey maps.

For the purposes of the EA's Groundwater Protection Policy the following default position applies, unless there is site specific information to the contrary:

- If no superficial (drift) aquifers are shown, the bedrock designation is adopted
- In areas where the bedrock designation shows unproductive strata (the uncoloured areas) the superficial designation is adopted
- In all other areas, the more sensitive of the two designations is used (e.g. If secondary superficial overlies principal bedrock, an overall designation of principal is assumed)

The EA have also designated groundwater Source Protection Zones, which are based on proximity to a groundwater source (springs, wells and abstraction boreholes). The size of a Source Protection Zone is a function of the aquifer, volume of groundwater abstracted and the effective rainfall, and may vary from tens to several thousand hectares.

### Hydrology

Reference is made to publicly available Government held digital data via QGIS, and Landmark or Groundsure with respect to:

- Surface water quality
- Recorded pollution incidents
- Licensed abstractions (groundwater & surface waters)
- Licensed discharge consents
- Site susceptibility to flooding

The EA have set **water quality** targets for all rivers. These targets are known as River Quality Objectives (RQOs). The water quality classification scheme used to set RQO planning targets is known as the River Ecosystem scheme. The scheme comprises five classes (RE1 to RE5) which reflect the chemical quality requirements of communities of plants and animals occurring in our rivers.

General Quality Assessment (GQA) grades reflect actual water quality. They are based on the most recent analytical testing undertaken by the EA. There are 6 GQA grades (denoted A to F) defined by the concentrations of biochemical oxygen demand, total ammonia and dissolved oxygen.

The susceptibility of a site to **flooding** is assessed by reference to a Flood Map on the Environment Agency's website. These maps show natural floodplains - areas potentially at risk of flooding if a river rises above its banks, or high tides and stormy seas cause flooding in coastal areas. There are two different kinds of area shown on the Flood Map:

1. Dark blue areas (Flood Zone 3) could be flooded by the sea by a flood that has a 0.5% (1 in 200) or greater chance of happening each year, or by a river by a flood that has a 1% (1 in 100) or greater chance of happening each year
2. Light blue areas (Flood Zone 2) show the additional extent of an extreme flood from rivers or the sea. These outlying areas are likely to be affected by a major flood, with up to a 0.1% (1 in 1000) chance of occurring each year

These two colours show the extent of the natural floodplain if there were no flood defences or certain other manmade structures and channel improvements. Where there is no blue shading (Flood Zone 1), there is less than a 0.1% (1 in 1000) chance of flooding occurring each year.

The maps also show all flood defences built in the last five years to protect against river floods with a 1% (1 in 100) chance of happening each year, or floods from the sea with a 0.5% (1 in 200) chance of happening each year, together with some, but not all, older defences and defences which protect against smaller floods.

The Agency's assessment of the likelihood of flooding from rivers and the sea at any location is based on the presence and effect of all flood defences, predicted flood levels, and ground levels.

It should also be noted that as the floodplain shown is the 1 in 100 year, areas outside this may be flooded by more extreme floods (e.g. the 1 in 1000 year flood). Also, parts of the areas shown at risk of flooding will be flooded by lesser floods (e.g. the 1 in 5 year flood). In some places due to the shape of the river valley, the smaller floods will flood a very similar extent to larger floods but to a lesser depth.

If a site falls within a floodplain, it is recommended that a flood survey be undertaken by a specialist who can advise on appropriate mitigating measures; i.e. raising slab levels, provision of storage etc. In accordance with Chapter 10 of the National Planning Policy Framework, a site-specific flood risk assessment is required for: proposals of 1 hectare or greater in Flood Zone 1, or in an area within Flood Zone 1 which has critical drainage problems (as notified to the local planning authority by the Environment Agency); and any new development in Flood Zones 2 and 3.

### COMAH & explosive sites

Lithos obtain information from Landmark or Groundsure with respect to Control of Major Accident Hazards (COMAH) or explosive sites within 1km of the proposed development site. Lithos' report refers to any that are present, and recommends that the Client seeks further advice from the HSE.

Areas around COMAH sites (chemical plants etc) are zoned with respect to the implementation of emergency plans. The HSE are a statutory consultee to the local planning authority for all COMAH sites. The COMAH site may have to revise its emergency action plan if development occurs. This might be quite straightforward or could entail significant expenditure. Consequently, the COMAH site may object to a proposed development (although it is the Local Authority who have final say, and they are likely to place more weight on advice from the HSE).

### Preliminary conceptual site model

The site's environmental setting (and proposed end use) is used by Lithos to assess the significance of any contamination encountered during the subsequent ground investigation.

Assessment of contaminated land is based on an evaluation of pollutant linkages (source-pathway-receptor). Contaminants within the near surface strata represent a potential source of pollution. The environment (most notably groundwater), site workers and end users are potential receptors.

Potential pollutant linkages are shown on a preliminary conceptual site model (pCSM). A CSM is essentially a cross-section through a site that reflects both the surface topography and underlying geology, and shows surface features of interest. The most significant sources of contamination are then superimposed onto this cross-section together with potential receptors (human health & controlled waters), and plausible pathways between the two. In addition to environmental issues, the CSM should also highlight geotechnical issues.

A pCSM is prepared after consideration of all available "desk study" data, and before design of the ground investigation. Data reviewed should include historical plans (with superimposition on a current-day plan), previous SI reports, geological maps etc. The pCSM, in conjunction with knowledge of site constraints (buildings, services, slopes etc) is used to design the ground investigation.

The revised CSM takes account of data obtained during the ground investigation, including the distribution of made ground, the nature and distribution of contamination etc.

Appendix B  
Drawings



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www.lithos.co.uk  
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CLIENT

NEWETT HOMES

JOB TITLE

SHEPLEY ROAD,  
STOCKSMOOR

DRAWING TITLE

SITE LOCATION  
PLAN

DRAWN

CR

DATE

17/11/22

CHECKED

REG

DATE

22/11/22

STATUS

FOR COMMENT

DRAFT

FOR APPROVAL

FINAL

SCALE

1:25,000

SHEET

A4

DRAWING NO.

4594/1

REVISION



- NOTES
- GRASS
  - OVERGROWN GRASS
  - BRAMBLES & OVERGROWN WEEDS
  - STREAM/DRAINAGE CHANNEL
  - STREAM CULVERT/DRAINAGE OUTFLOW
  - SLOPE
  - APPROXIMATE SITE BOUNDARY

| REV. | DESCRIPTION | DATE |
|------|-------------|------|
|      |             |      |



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CLIENT  
**NEWETT HOMES**

JOB TITLE  
**SHEPLEY ROAD, STOCKSMOOR**

DRAWING TITLE  
**SITE FEATURES**

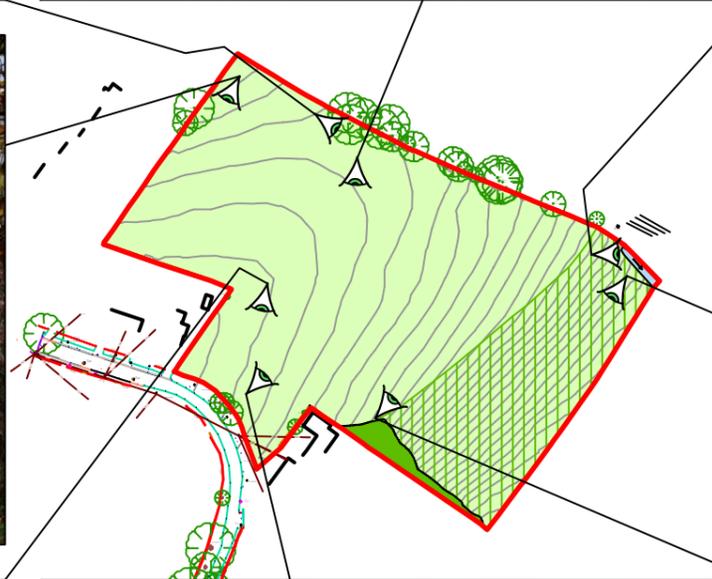
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|------------------------|--------------------|------------------------------|----------|



- NOTES
- GRASS
  - OVERGROWN GRASS
  - BRAMBLES & OVERGROWN WEEDS
  - STREAM/DRAINAGE CHANNEL
  - STREAM CULVERT/DRAINAGE OUTFLOW
  - APPROXIMATE SITE BOUNDARY
  - LOCATION & ORIENTATION OF PHOTOGRAPH

| REV. | DESCRIPTION | DATE |
|------|-------------|------|
|      |             |      |



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CLIENT

NEWETT HOMES

JOB TITLE

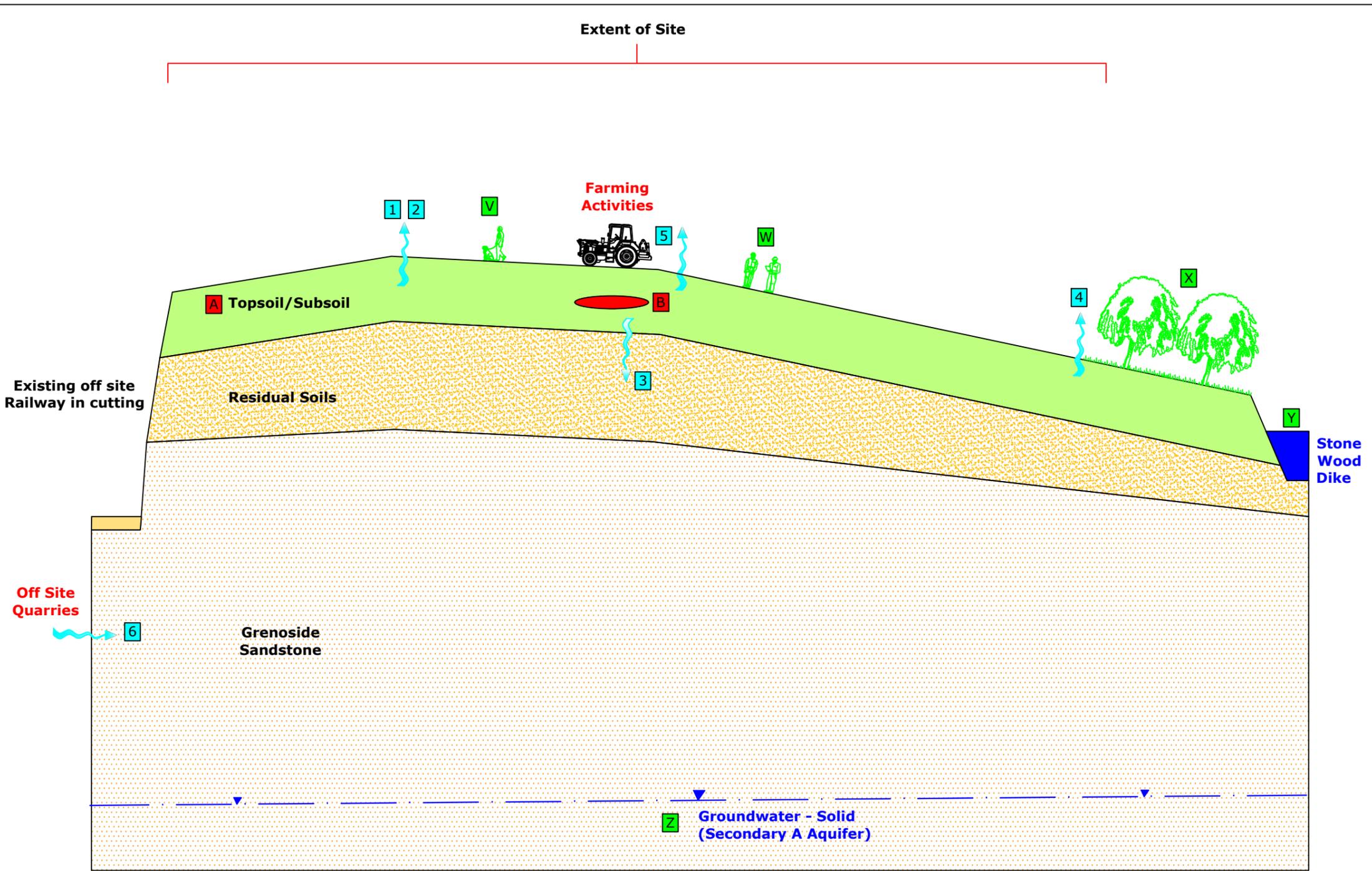
SHEPLEY ROAD,  
STOCKSMOOR

DRAWING TITLE

SITE PHOTOGRAPHS

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| CHECKED | REG | DATE | 23/11/22 | FOR COMMENT  | <input type="checkbox"/>            |
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|         |     |      |          | DRAFT        | <input type="checkbox"/>            |
|         |     |      |          | FINAL        | <input checked="" type="checkbox"/> |

|              |       |             |          |
|--------------|-------|-------------|----------|
| SCALE        | SHEET | DRAWING NO. | REVISION |
| NOT TO SCALE | A3    | 4594/3      |          |



| SOURCES  |                    |
|----------|--------------------|
| <b>A</b> | TOPSOIL/SUBSOIL    |
| <b>B</b> | FARMING ACTIVITIES |

| PATHWAYS |                          |
|----------|--------------------------|
| <b>1</b> | DERMAL CONTACT           |
| <b>2</b> | INGESTION/INHALATION     |
| <b>3</b> | LEACHING OF CONTAMINANTS |
| <b>4</b> | UPTAKE BY PLANTS         |
| <b>5</b> | VOLATILISATION           |
| <b>6</b> | MIGRATION OF GAS         |

| RECEPTORS |                       |
|-----------|-----------------------|
| <b>V</b>  | END USERS (RESIDENTS) |
| <b>W</b>  | SITE WORKERS          |
| <b>X</b>  | VEGETATION            |
| <b>Y</b>  | SURFACE WATERS        |
| <b>Z</b>  | GROUNDWATER           |

NOTES

| REV. | DESCRIPTION | DATE |
|------|-------------|------|
|      |             |      |



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CLIENT  
**NEWETT HOMES**

JOB TITLE  
**SHEPLEY ROAD, STOCKSMOOR**

DRAWING TITLE  
**PRELIMINARY CONCEPTUAL SITE MODEL**

|                |                  |  |
|----------------|------------------|--|
| DRAWN<br>CR    | DATE<br>22/11/22 | STATUS<br>FOR COMMENT <input type="checkbox"/><br>FOR APPROVAL <input type="checkbox"/><br>DRAFT <input type="checkbox"/><br>FINAL <input checked="" type="checkbox"/> |
| CHECKED<br>REG | DATE<br>23/11/22 |  |

|                       |             |                       |          |
|-----------------------|-------------|-----------------------|----------|
| SCALE<br>Not to scale | SHEET<br>A3 | DRAWING NO.<br>4594/4 | REVISION |
|-----------------------|-------------|-----------------------|----------|



NOTES

— APPROXIMATE SITE BOUNDARY

REPRODUCED FROM NEWETT HOMES  
DRAWING REFERENCE Z159.100 (REV G),  
DATED 22<sup>nd</sup> FEBRUARY 2024

| REV. | DESCRIPTION | DATE |
|------|-------------|------|
|      |             |      |



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CLIENT

NEWETT HOMES

JOB TITLE

SHEPLEY ROAD,  
STOCKSMOOR

DRAWING TITLE

PROPOSED SITE LAYOUT

|         |        |       |          |              |                                      |
|---------|--------|-------|----------|--------------|--------------------------------------|
| DRAWN   | CR     | DATE  | 23/04/24 | STATUS       | FOR COMMENT <input type="checkbox"/> |
| CHECKED | REG    | DATE  | 23/04/24 | FOR APPROVAL | <input type="checkbox"/>             |
|         |        |       |          | DRAFT        | <input checked="" type="checkbox"/>  |
|         |        |       |          | FINAL        | <input type="checkbox"/>             |
| SCALE   | 1:1000 | SHEET | A3       | DRAWING NO.  | 4594/5                               |
|         |        |       |          | REVISION     |                                      |

Appendix C  
Commission

002/4594/REG

28<sup>th</sup> October 2022



Registered in England 07068066

Ms K Mistry  
Newett Homes  
Thorp Arch Grange  
Walton Road  
Thorp Arch  
Wetherby  
West Yorkshire  
LS23 7BA

Parkhill  
Wetherby  
West Yorkshire  
LS22 5DZ

T 01937 545 330  
[www.lithos.co.uk](http://www.lithos.co.uk)

Dear Krishna

### Shepley Road, Stockmoor

Further to your recent invitation, please find below our proposal for preparing a geotechnical and environmental desk study appraisal for the above land. It is understood that the site consists of a single parcel of land of approximately 2.5 hectares and is currently rough grassland.

Brief examination of the relevant geological map suggests the site is directly underlain by sandstone bedrock, likely weathered near surface to a sandy gravel.

This site is located within a Coal Mining Development Low Risk Area (within the defined coalfield, but no known defined risks have been recorded by the Coal Authority; there may still be unrecorded issues), and therefore a Consultant's mining report will be obtained. Our report will include a mining risk assessment (desk-based) that should satisfy the Coal Authority.

Environmental search data and historical maps, obtained from Landmark or Groundsure, will be reviewed in order to determine whether any past land uses have had any effect on the proposed development. In addition, we will visit site to undertake a walkover survey.

The report will include preliminary recommendations with respect to mining, foundations, contamination and hazardous gas. Our report will be in a format familiar to Kirklees CC, and therefore suitable for submission in support of an outline planning application. The report will also include recommendations for an appropriate, intrusive ground investigation, together with a costed proposal.

It is anticipated that a final bound report will be available within 3 weeks of receiving your written instruction to proceed. Our lump sum fee for provision of this report is £\*\*\* plus VAT.

We will need a Promap or topo survey in CAD format, to provide a base plan for technical drawings etc. If do not have one, we could obtain at cost plus £\*\*\*.

Newett and Lithos have an agreed Appointment document, and this work will be undertaken in accordance with that. However, if the Appointment term expires or remains unsigned, works will be undertaken in accordance with our Standard Terms and Conditions, a copy of which are enclosed.

It is hoped the above is sufficient for your present needs. However, should you require any further information, please contact the undersigned.

Yours sincerely

Redacted

Mark Perrin  
Director  
for and on behalf of  
LITHOS CONSULTING LIMITED



**1 DEFINITIONS AND INTERPRETATION**

1.1 In this Agreement, unless the context otherwise requires, the following words and expressions have the following meanings:

"Agreement" means these Terms (entitled "Terms and Conditions for the Appointment of Lithos Consulting"), the Proposal, any document recording your unequivocal acceptance of the Proposal and any other documents or parts of other documents expressly referred to in any of the foregoing;

"Documents" means all documents of any kind and includes plans, drawings, reports, programmes, specifications, Bills of Quantities, calculations, letters, e-mails, faxes, memoranda, films and photographs (including negatives), or any other form of record prepared or provided or received by, or on behalf of us, and whether in paper form or stored electronically or on disk, or otherwise;

"Intellectual Property" includes all rights to, and any interests in, any patents, designs, trade marks, copyright, know-how, trade secrets and any other proprietary rights or forms of intellectual property (protectable by registration or not) in respect of any technology, concept, idea, data, programme or other software (including source and object codes), specification, plan, drawing, schedule, minutes, correspondence, scheme, programme, design, system, process logo, mark, style, or other matter or thing, existing or conceived, used, developed or produced by any person;

"Project" means the project described in the Proposal and any enquiry from you on which we have based our Proposal;

"Proposal" means the offer document prepared by us in response to an enquiry or otherwise, in connection with the proposed provision of the Services;

"Services" means the work and services relating to the Project to be provided by us pursuant to the Agreement and as set out in the Proposal and includes any additions or amendments thereto made in accordance with these Terms;

"Terms" means these Terms entitled "Lithos Consulting Terms of Appointment" as amended from time to time.

- 1.2 Words importing the singular only shall also include the plural and vice versa, where the context requires.
- 1.3 Words importing persons or parties shall include firms, corporations and any organisation having legal capacity and vice versa, where the context requires: and words importing a particular gender include all genders.
- 1.4 The sub-headings to the clauses of these Terms are for convenience only and shall not affect the construction of the Agreement.
- 1.5 A reference to legislation includes that legislation as from time to time amended, re-enacted or substituted and any Orders in Council, orders, rules, regulations, schemes, warrants, by-laws, directives or codes of practice issued under any such legislation.
- 1.6 In the event of conflict between the documents forming part of the Agreement, the Proposal shall prevail, followed by the Terms.

**2 APPOINTMENT**

2.1 You agree to engage us and we agree to provide the Services in accordance with the provisions of this Agreement.

**3 OUR OBLIGATIONS**

3.1 We shall perform the Services using the reasonable standard of skill and care normally exercised by qualified members of our profession, performing similar services under similar conditions.

3.2 We shall use all reasonable endeavours to perform the Services in accordance with relevant environmental and safety legislation.

**4 YOUR OBLIGATIONS**

- 4.1 Throughout the period of this Agreement you shall afford to us, or procure for our benefit, access to any site where access is required for the performance of the Services.
- 4.2 You accept responsibility for ensuring that we are notified in writing of all special site and/or plant conditions, including without prejudice to the generality of the foregoing, the existence and precise location of all underground services, cables, pipes, drains or underground buildings, constructions or any hazards, which you shall clearly mark on the ground or identify on accurate location plans supplied to us prior to the commencement of the Services. You shall also inform us in writing of any relevant operating procedures including any site safe operating procedures and any other regulations relevant to the carrying out of the Services. You shall indemnify us against all costs, losses, claims, demands and expenses arising as a result of any non-disclosure in this respect, including but not limited to indemnification against any action brought by the owner of the land or otherwise.
- 4.3 If you discover any conflict, defect or other fault in the information or designs provided by us pursuant to the Agreement, you will advise us in writing of such defect, conflict or other fault and we shall have the right to rectify the same or where necessary, to design the solution for rectification of any works carried out by others pursuant to the conflicting, defective or in any other way faulty information or designs.

**5 COPYRIGHT**

- 5.1 The copyright in all Intellectual Property prepared by or on behalf of us in connection with the Project for delivery to you shall remain vested in us.
- 5.2 You shall have a non-exclusive licence to copy and use such Intellectual Property for purposes directly related to the Project. Such licence shall enable you to copy and use the Intellectual Property but solely for your own purposes in connection with the Project and such use shall not include any licence to reproduce any conceptual designs or professional opinions contained therein nor shall it include any licence to amend any drawing, design or other Intellectual Property produced by us.
- 5.3 Should you wish to use such Intellectual Property in connection with any other works or for any other purpose not directly related to the Project or wish to pass any Intellectual Property to any third party, you must obtain our prior written consent. The giving of such consent shall be at our absolute discretion and shall be upon such terms as we may require. We shall not be liable to you for the use by any person of such Intellectual Property for any purpose other than that for which the same were prepared by or on our behalf.
- 5.4 Ownership of any proposals submitted to you that are not subsequently confirmed as part of the Services to be provided for you remain with us and such proposals must not be used as the basis for any future work undertaken by you or a third party and no liability can be accepted howsoever arising from such proposals.
- 5.5 In the event of you being in default of payment of any fees or other amounts due, we may suspend further use of the licence on giving no less than 2 calendar days' notice of the intention to do so. Use of the licence may be resumed on receipt of the outstanding amounts.

**6 CONFIDENTIALITY**

- 6.1 Neither you nor we shall at any time disclose to any person any confidential information concerning the business, affairs, customers, clients or suppliers of the other party or of any member of the group of companies to which the other party belongs, except as permitted by clauses 6.2 and 6.4.
- 6.2 Each party may disclose the other party's confidential information:
- (a) to its employees, officers, representatives, contractors, sub-contractors or advisers who need to know such information for the purposes of exercising the party's rights or carrying out its obligations under or in connection with this Agreement. Each party shall ensure that its employees, officers, representatives, contractors, sub-contractors or advisers to whom it discloses the other party's confidential information comply with this paragraph 6; and
- (b) as may be required by law, to a court of competent jurisdiction or any governmental or regulatory authority.
- 6.3 Neither you nor we shall use any other party's confidential information for any purpose other than to exercise our rights or perform our respective obligations under or in connection with this Agreement.
- 6.4 Subject to the above and our privacy policy which can be found on [www.lithos.co.uk](http://www.lithos.co.uk), we shall be permitted to use information related to the Services we provide in connection with the Project for the purposes of marketing its services and in proposals for work of a similar type.
- 7 ASSIGNMENT**
- 7.1 You may assign the benefit of this Agreement on two occasions with our prior written consent (not to be unreasonably withheld) and any additional assignments shall be with our prior consent.
- 7.2 We may at any time assign, mortgage, charge, subcontract, delegate, declare a trust over or deal in any other manner with any or all of our rights and obligations under this Agreement.

**8 INSURANCE**

8.1 We shall maintain a professional indemnity insurance policy covering our liabilities for negligence under this Agreement, with a limit of indemnity of £5,000,000 (FIVE MILLION POUNDS) any one claim, save for pollution and contamination claims and asbestos claims both of which carry £2,000,000 (TWO MILLION POUNDS) in the aggregate cover. This policy is annually renewable and whilst renewal is not automatic, We shall maintain such insurance at all times until six years from the date of the completion (or termination) of the Services under this Agreement, provided such insurance is available at commercially reasonable rates and terms.

8.2 If for any period such insurance is not available at commercially reasonable rates and terms, we shall inform you and shall obtain in respect of such period such reduced level of professional indemnity insurance as is available and as would be fair and reasonable in the circumstances for us to obtain.

**9 PAYMENT**

- 9.1 Invoices for services rendered will be submitted for payment in accordance with the Proposal.
- 9.2 You shall pay you any VAT properly chargeable on the Services and any amount expressed as payable to us under this Agreement is exclusive of VAT unless stated otherwise.
- 9.3 The due date for payment is the date of the invoice and the final date for payment is 28 days from the date of the invoice.
- 9.4 If you dispute the amount included for payment in an invoice then you must serve a written notice on us no later than 14 calendar days before the final date for payment. If no notice is given within the required timeframe the amount due shall be the amount stated in the invoice.
- 9.5 If you fail to pay any monies in accordance with the foregoing payment provisions, we shall be entitled to charge interest on any monies owed to us, such interest to be at a rate of 4% above the base rate of a clearing bank from time to time calculated from the final date for payment to the date of actual payment on a compound basis. The parties acknowledge that our liability under this clause 10.5 is a substantial remedy for the purposes of section 9(1) of the Late Payment of Commercial Debts (Interest) Act 1998.

**10 LIMITATIONS ON LIABILITY**

- 10.1 Unless otherwise agreed in writing, our total liability under or in connection with this Agreement whether in contract, tort, negligence, breach of statutory duty or otherwise (other than in respect of personal injury or death) shall be limited to and shall not exceed the lesser of either the level of insurance cover referred to within clause 8.1 above, or 20 times the total value of invoices issued to you for the Services.
- 10.2 No action or proceedings under or in respect of the Agreement whether in contract, tort, negligence, under statute or otherwise shall be commenced against us after the expiry of a period of six years from the date of the completion (or termination) of the Services under this Agreement.
- 10.3 Whilst we usually scan for potential exploratory locations with a Cable Avoidance Tool, we shall not be liable for any damage to underground services, cables, pipes, drains or underground buildings, constructions and the like which were either not marked on site or for which accurate plans were not provided.
- 10.4 We shall not be liable for the cost of rectifying any defect, conflict or other fault in the information or designs provided by us or for the cost of designing a solution for and rectifying any subsequent works carried out by others pursuant to the conflicting, defective or in any other way faulty information or designs, unless we have been advised in writing of the same by you and have been given the opportunity to rectify the same or where necessary, to design the solution for rectification of any subsequent works carried out by others pursuant to the same.

**11 DELAY**

We shall comply with any timescale agreed for completion of the Services unless delayed or prevented by circumstances beyond our reasonable control and in the event of any such circumstances arising we undertake to complete the Services within a reasonable period, but will not be liable to you for any delay as a result.

**12 TERMINATION**

- 12.1 The Agreement may be terminated by either of us in the event of the other making a composition or arrangement with its creditors, becoming bankrupt, or being a company, making a proposal for a voluntary arrangement for a composition of debts, or has a provisional liquidator appointed, or has a winding-up order made, or passes a resolution for voluntary winding-up (except for the purposes of a bona fide scheme of amalgamation or reconstruction), or has an administrator or an administrative receiver appointed to the whole or any part of its assets. Notice of termination must be given to the party which is insolvent by the other party.
- 12.2 If for any reason our Services are suspended for a period in excess of three calendar months then we shall be entitled to terminate our appointment under this Agreement in respect of the Services by no less than seven days written notice to you.
- 12.3 If you fail to pay in full any sum due under the terms of this Agreement by the final date for payment for that sum and no effective pay less notice is issued, we may serve written notice to you demanding payment within 14 days of such notice. If you fail to comply with such notice, we shall be entitled to terminate our employment under this Agreement forthwith.
- 12.4 Any termination of our appointment howsoever caused shall be without prejudice to our rights to require payment for all Services performed up to the date of such termination including but not limited to payment of a fair and reasonable proportion of any figure identified in the Proposal or otherwise for fees in respect of a particular service which Lithos has started, but not completed.

**13 THIRD PARTY RIGHTS**

The Agreement shall not confer and shall not purport to confer on any third party any benefit or any right to enforce any term of this Agreement for the purposes of the Contracts (Rights of Third Parties) Act 1999 or otherwise.

**14 COLLATERAL WARRANTIES & LETTERS OF RELIANCE**

We shall consider and may consent to a request from you for us to enter into a collateral warranty or letter of reliance with a third party with regard to the Services provided under this Agreement. The giving of such consent shall be at our absolute discretion and providing we agree to our standard form of collateral warranty or letter of reliance (subject to any reasonable changes to be approved by us at our absolute discretion) and in return for payment of a fee (to be notified at the time of the request).

**15 NOTICES**

- 15.1 Any notice provided for in the Agreement shall be in writing and shall be deemed to be properly given if delivered by hand or sent by pre-paid first class post to the address of the relevant party as may have been notified by each party to the other or, in the absence of notification, to our respective registered office addresses.
- 15.2 Such notice shall be deemed to have been received on the day of delivery if delivered by hand or on the second working day after the day of posting if sent by pre-paid first class post.

**16 ENTIRE AGREEMENT**

- 16.1 The Agreement constitutes the complete and entire agreement between us with respect to the Services and supersedes any prior oral and/or written warranties, terms, conditions, communications and representations, whether express or implied and any claim against us in respect of the Services can only be made in contract under the provisions of this Agreement and not otherwise under the law or tort or otherwise.
- 16.2 No amendments, modifications or variation of this Agreement shall be valid unless made in writing and agreed to by us; such agreement must be recorded in writing by at least one of us.
- 16.3 We shall not be bound by any standard or printed terms or conditions furnished by you in any of your documents unless we specifically state in writing separately from such documents that we intend such terms and conditions to apply.

**17 DISPUTES, JURISDICTION AND GOVERNING LAW**

- 17.1 This Agreement shall be governed by and construed in accordance with English law and we irrevocably and unconditionally submit to the jurisdiction of the English Courts.
- 17.2 Where the Housing Grants, Construction and Regeneration Act 1996 applies, any dispute between us may be referred to adjudication in accordance with the Scheme for Construction Contracts Regulations 1998 or any amendment or modification thereof being in force at the time of the dispute, as applicable to England, Wales, Scotland and Northern Ireland.

## Chris Ryan

---

**Subject:** FW: 4594, Shepley Road, Stocksmoor

---

**From:** Krishna Mistry **Redacted**  
**Sent:** 01 November 2022 14:47  
**To:** Reg **Redacted**  
**Cc:** Kevin Atkinson <**Redacted**> ; Charlotte Hassman <**Redacted**>  
**Subject:** RE: Shepley Road, Stocksmoor

Thanks Reg – as discussed, please proceed on the basis of your updated fee proposal, 28 October 2022 to undertake:

A Geotechnical and environmental desk study appraisal - £\*\*\* + VAT

Details for invoicing:

Krishna Mistry  
Newett Homes  
Thorp Arch Grange, Walton Road  
Thorp Arch, Wetherby  
LS23 7BA

Invoices should be emailed to: **Redacted** quoting project ref: Z159 - Shepley Road, Stocksmoor

Charlotte please could we arrange a PO number for this instruction and forward to Reg by return.

*Regards*  
Krishna

**Krishna Mistry MRTPI**  
Head of Planning  
**Newett Homes**

**Tel:** **Redacted** 1  
**Mobile:** **Redacted**

**Web:** [www.newetthomes.co.uk](http://www.newetthomes.co.uk)

---

**From:** Reg **Redacted**  
**Sent:** 01 November 2022 14:34  
**To:** Krishna Mistry **Redacted** >  
**Subject:** Shepley Road, Stocksmoor

Hi Krishna

Desk Study (Phase 1) quote (£\*\*\*) attached. As always, this allows for a well-considered, bespoke Report providing robust & pragmatic site-specific advice. Our Report should be issued c. 3 weeks from instruction.

Any queries, please call.

Regards

**Appendix D**  
**Historical OS Plans**



Yorkshire

Published 1893

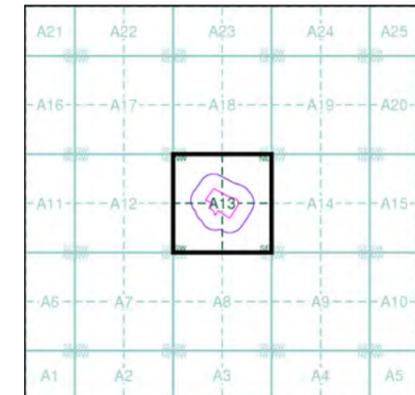
Source map scale - 1:2,500

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)

|        |      |         |
|--------|------|---------|
| 261_09 | 1893 | 1:2,500 |
| 261_13 | 1893 | 1:2,500 |

Historical Map - Segment A13



Order Details

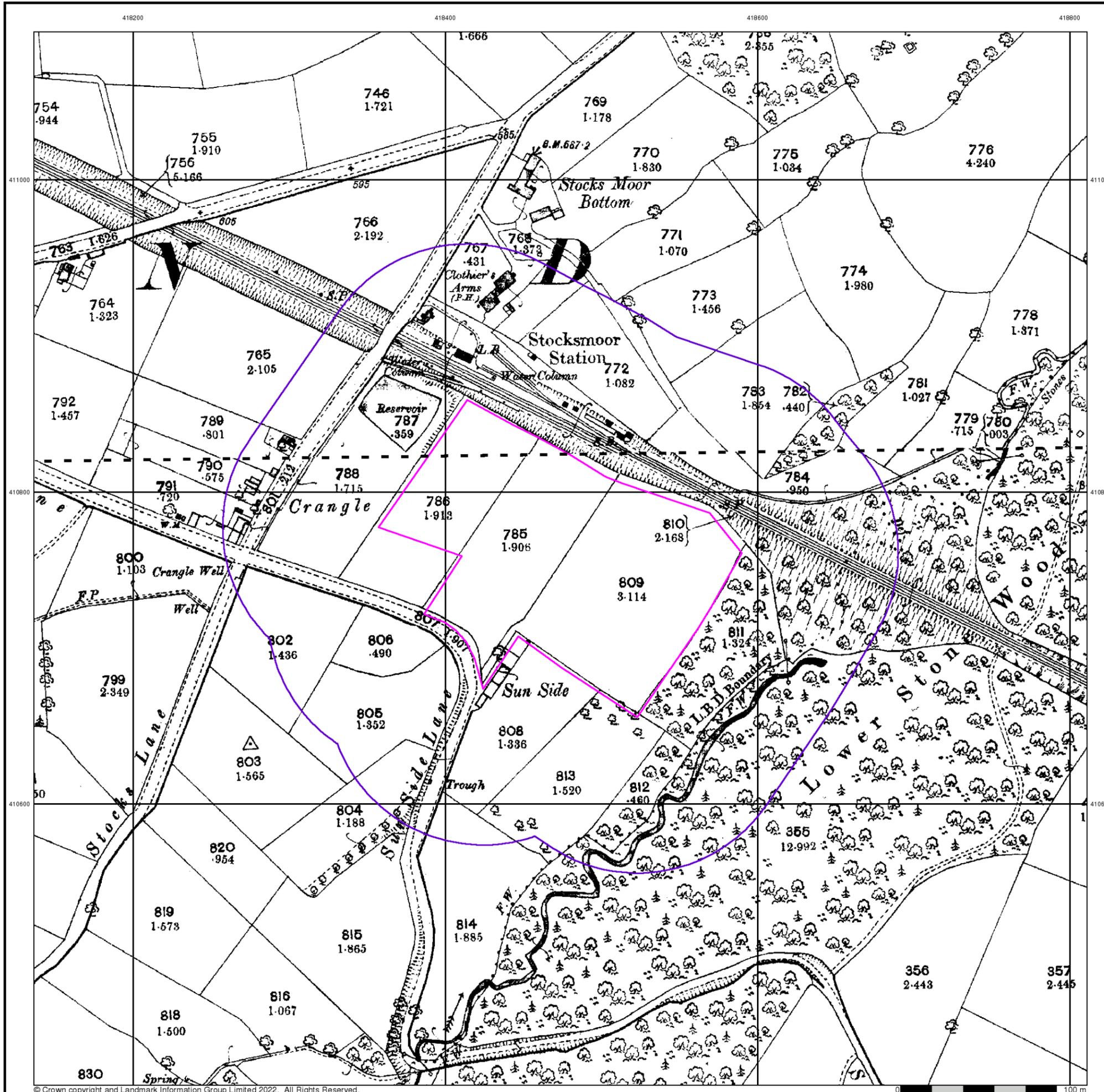
Order Number: 303375508\_1\_1  
 Customer Ref: PO19863/CH/4594  
 National Grid Reference: 418470, 410760  
 Slice: A  
 Site Area (Ha): 2.51  
 Search Buffer (m): 100

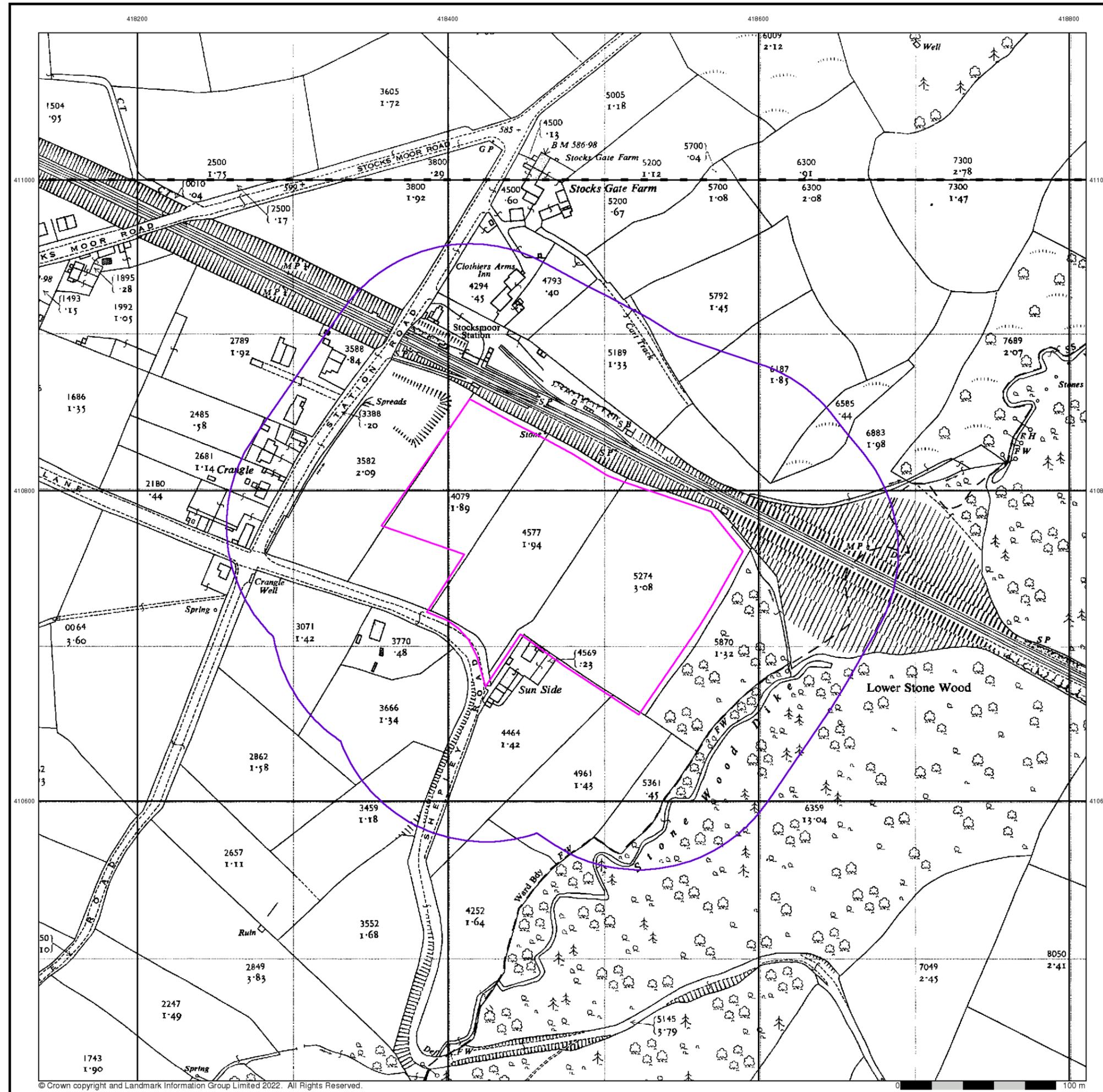
Site Details

Shepley Road, Stocksmoor



Tel: 0844 844 9952  
 Fax: 0844 844 9951  
 Web: www.envirocheck.co.uk





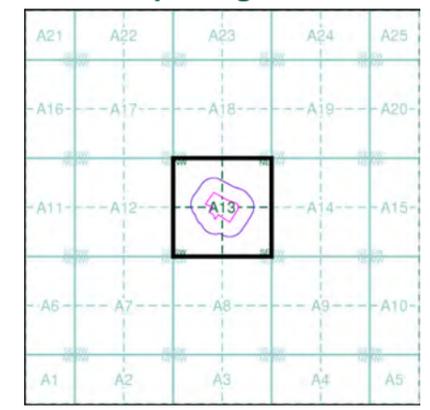
**Ordnance Survey Plan**  
**Published 1959 - 1960**  
**Source map scale - 1:2,500**

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)**

|        |      |         |
|--------|------|---------|
| SE1811 | 1959 | 1:2,500 |
| SE1810 | 1960 | 1:2,500 |

**Historical Map - Segment A13**



**Order Details**

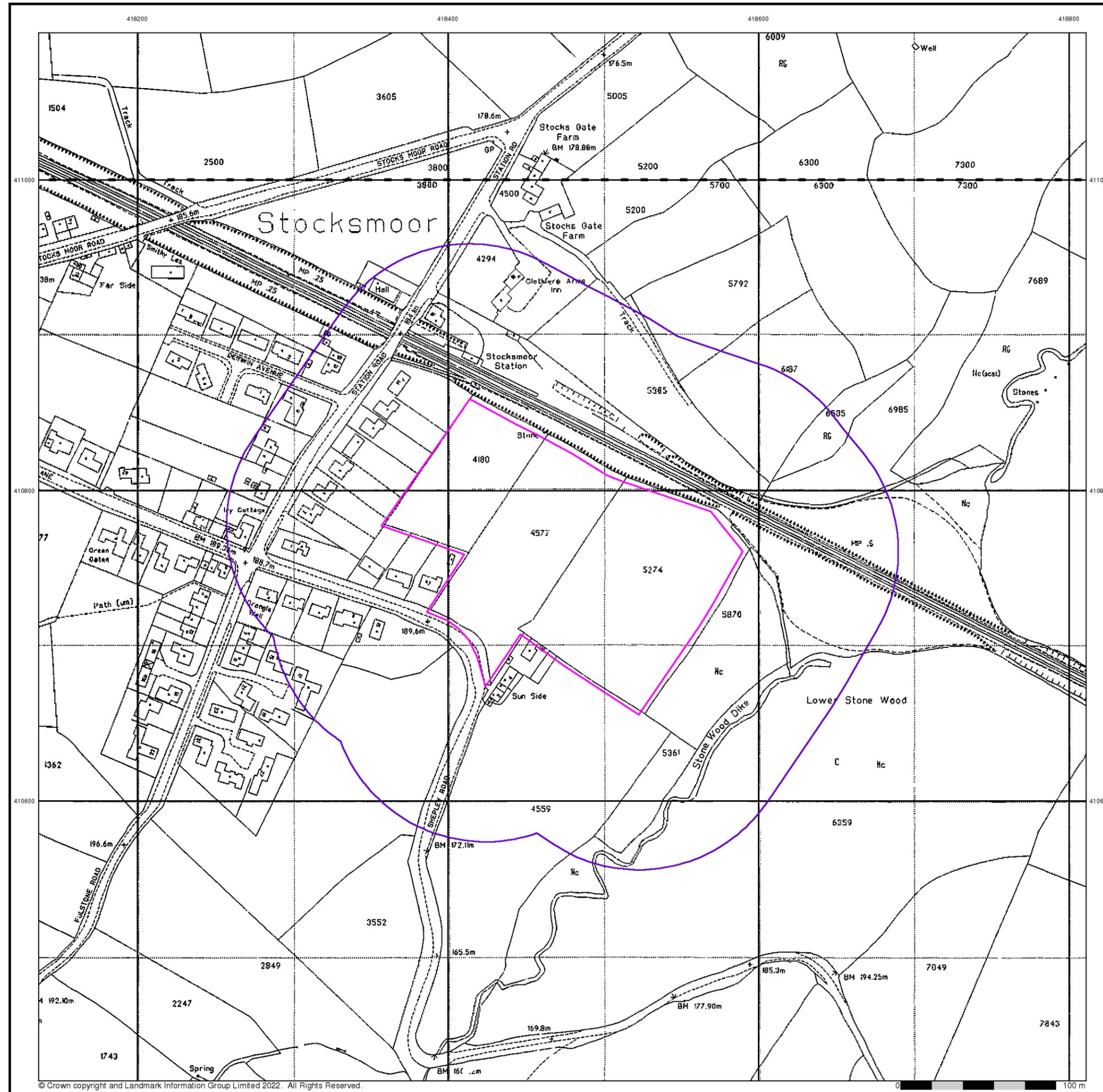
Order Number: 303375508\_1\_1  
 Customer Ref: PO19863/CH/4594  
 National Grid Reference: 418470, 410760  
 Slice: A  
 Site Area (Ha): 2.51  
 Search Buffer (m): 100

**Site Details**

Shepley Road, Stocks Moor



Tel: 0844 844 9952  
 Fax: 0844 844 9951  
 Web: www.envirocheck.co.uk



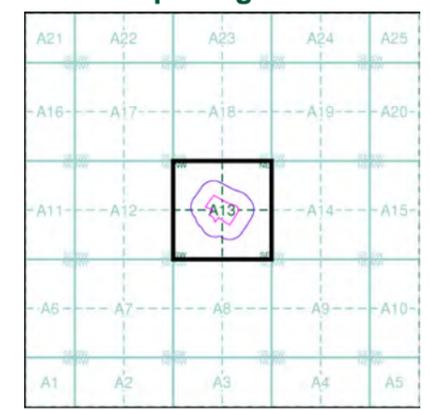
**Large-Scale National Grid Data**  
**Published 1992**  
**Source map scale - 1:2,500**

'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)**

|        |      |         |
|--------|------|---------|
| SE1811 | 1992 | 1:2,500 |
| SE1810 | 1992 | 1:2,500 |

**Historical Map - Segment A13**



**Order Details**

Order Number: 303375508\_1\_1  
 Customer Ref: PO19863/CH/4594  
 National Grid Reference: 418470, 410760  
 Slice: A  
 Site Area (Ha): 2.51  
 Search Buffer (m): 100

**Site Details**

Shepley Road, Stocksmoor



Tel: 0844 844 9952  
 Fax: 0844 844 9951  
 Web: www.envirocheck.co.uk

## Appendix E

### Search Responses & other Correspondence



## Envirocheck<sup>®</sup> Report:

### Datasheet

#### Order Details:

**Order Number:**

303375508\_1\_1

**Customer Reference:**

PO19863/CH/4594

**National Grid Reference:**

418470, 410760

**Slice:**

A

**Site Area (Ha):**

2.51

**Search Buffer (m):**

1000

#### Site Details:

Shepley Road, Stocksmoor

#### Client Details:

Mr M Perrin  
Lithos Consulting Ltd  
Parkhill  
Walton Road  
Wetherby  
LS22 5DZ

| Data Type   | Page Number | On Site | 0 to 250m | 251 to 500m | 501 to 1000m (*up to 2000m) |
|---|-------------|---------|-----------|-------------|-----------------------------|
| <b>Agency &amp; Hydrological</b>                              |             |         |           |             |                             |
| BGS Groundwater Flooding Susceptibility                       | pg 1        | Yes     | Yes       | Yes         | n/a                         |
| Contaminated Land Register Entries and Notices                |             |         |           |             |                             |
| Discharge Consents  | pg 2        |         |           |             | 10                          |
| Prosecutions Relating to Controlled Waters                    |             |         | n/a       | n/a         | n/a                         |
| Enforcement and Prohibition Notices                           |             |         |           |             |                             |
| Integrated Pollution Controls                                 |             |         |           |             |                             |
| Integrated Pollution Prevention And Control                   |             |         |           |             |                             |
| Local Authority Integrated Pollution Prevention And Control   |             |         |           |             |                             |
| Local Authority Pollution Prevention and Controls             |             |         |           |             |                             |
| Local Authority Pollution Prevention and Control Enforcements |             |         |           |             |                             |
| Nearest Surface Water Feature                                 | pg 4        |         | Yes       |             |                             |
| Pollution Incidents to Controlled Waters                      | pg 4        |         |           | 1           | 12                          |
| Prosecutions Relating to Authorised Processes                 |             |         |           |             |                             |
| Registered Radioactive Substances                             |             |         |           |             |                             |
| River Quality   | pg 7        |         |           |             | 1                           |
| River Quality Biology Sampling Points                         |             |         |           |             |                             |
| River Quality Chemistry Sampling Points                       |             |         |           |             |                             |
| Substantiated Pollution Incident Register                     | pg 7        |         |           |             | 2                           |
| Water Abstractions  | pg 7        |         |           |             | (*24)                       |
| Water Industry Act Referrals                                  |             |         |           |             |                             |
| Groundwater Vulnerability Map                                 | pg 13       | Yes     | n/a       | n/a         | n/a                         |
| Groundwater Vulnerability - Soluble Rock Risk                 |             |         | n/a       | n/a         | n/a                         |
| Groundwater Vulnerability - Local Information                 |             |         | n/a       | n/a         | n/a                         |
| Bedrock Aquifer Designations                                  | pg 13       | Yes     | n/a       | n/a         | n/a                         |
| Superficial Aquifer Designations                              |             |         | n/a       | n/a         | n/a                         |
| Source Protection Zones                                       | pg 13       |         | 1         | 1           |                             |
| Extreme Flooding from Rivers or Sea without Defences          |             |         |           | n/a         | n/a                         |
| Flooding from Rivers or Sea without Defences                  |             |         |           | 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                         |
| OS Water Network Lines  | pg 13       |         | 3         | 10          | 47                          |

| Data Type   | Page Number | On Site | 0 to 250m | 251 to 500m | 501 to 1000m (*up to 2000m) |
|---|-------------|---------|-----------|-------------|-----------------------------|
| <b>Waste</b>  |             |         |           |             |                             |
| BGS Recorded Landfill Sites   |             |         |           |             |                             |
| Historical Landfill Sites   | pg 21       |         |           | 1           |                             |
| Integrated Pollution Control Registered Waste Sites                 |             |         |           |             |                             |
| Licensed Waste Management Facilities (Landfill Boundaries)          |             |         |           |             |                             |
| Licensed Waste Management Facilities (Locations)                    |             |         |           |             |                             |
| Local Authority Landfill Coverage                                   | pg 21       | 1       | n/a       | n/a         | n/a                         |
| Local Authority Recorded Landfill Sites                             |             |         |           |             |                             |
| Potentially Infilled Land (Non-Water)                               | pg 21       |         | 1         | 4           | 4                           |
| Potentially Infilled Land (Water)                                   | pg 21       |         |           |             | 2                           |
| Registered Landfill Sites   |             |         |           |             |                             |
| Registered Waste Transfer Sites                                     |             |         |           |             |                             |
| Registered Waste Treatment or Disposal Sites                        |             |         |           |             |                             |
| <b>Hazardous Substances</b>   |             |         |           |             |                             |
| Control of Major Accident Hazards Sites (COMAH)                     |             |         |           |             |                             |
| Explosive Sites   |             |         |           |             |                             |
| Notification of Installations Handling Hazardous Substances (NIHHS) |             |         |           |             |                             |
| Planning Hazardous Substance Consents                               |             |         |           |             |                             |
| Planning Hazardous Substance Enforcements                           |             |         |           |             |                             |

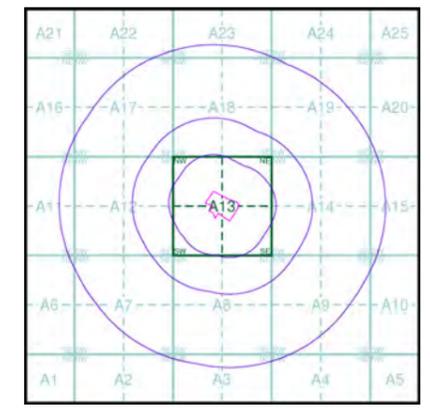
| Data Type   | Page Number | On Site | 0 to 250m | 251 to 500m | 501 to 1000m (*up to 2000m) |
|---|-------------|---------|-----------|-------------|-----------------------------|
| <b>Geological</b>   |             |         |           |             |                             |
| BGS 1:625,000 Solid Geology                                       | pg 22       | Yes     | n/a       | n/a         | n/a                         |
| BGS Estimated Soil Chemistry                                      | pg 22       | Yes     | Yes       | Yes         | Yes                         |
| BGS Recorded Mineral Sites  | pg 24       |         | 1         | 4           | 7                           |
| BGS Urban Soil Chemistry  |             |         |           |             |                             |
| BGS Urban Soil Chemistry Averages                                 |             |         |           |             |                             |
| CBSCB Compensation District                                       |             |         | n/a       | n/a         | n/a                         |
| Coal Mining Affected Areas  | pg 26       | Yes     | n/a       | n/a         | n/a                         |
| Mining Instability  | pg 26       | Yes     | n/a       | n/a         | n/a                         |
| Man-Made Mining Cavities  |             |         |           |             |                             |
| Natural Cavities  |             |         |           |             |                             |
| Non Coal Mining Areas of Great Britain                            |             |         |           | n/a         | n/a                         |
| Potential for Collapsible Ground Stability Hazards                | pg 26       | Yes     |           | n/a         | n/a                         |
| Potential for Compressible Ground Stability Hazards               |             |         |           | n/a         | n/a                         |
| Potential for Ground Dissolution Stability Hazards                |             |         |           | n/a         | n/a                         |
| Potential for Landslide Ground Stability Hazards                  | pg 26       | Yes     | Yes       | n/a         | n/a                         |
| Potential for Running Sand Ground Stability Hazards               |             |         |           | n/a         | n/a                         |
| Potential for Shrinking or Swelling Clay Ground Stability Hazards | pg 27       | Yes     | Yes       | n/a         | n/a                         |
| Radon Potential - Radon Affected Areas                            |             |         | n/a       | n/a         | n/a                         |
| Radon Potential - Radon Protection Measures                       |             |         | n/a       | n/a         | n/a                         |
| <b>Industrial Land Use</b>  |             |         |           |             |                             |
| Contemporary Trade Directory Entries                              | pg 28       |         | 1         | 2           | 5                           |
| Fuel Station Entries  |             |         |           |             |                             |
| Points of Interest - Commercial Services                          | pg 28       |         |           |             | 1                           |
| Points of Interest - Education and Health                         |             |         |           |             |                             |
| Points of Interest - Manufacturing and Production                 | pg 28       |         |           |             | 3                           |
| Points of Interest - Public Infrastructure                        | pg 29       |         | 2         |             | 5                           |
| Points of Interest - Recreational and Environmental               | pg 29       |         |           | 3           | 2                           |
| Gas Pipelines   |             |         |           |             |                             |
| Underground Electrical Cables                                     |             |         |           |             |                             |

| Data Type                            | Page Number | On Site | 0 to 250m | 251 to 500m | 501 to 1000m (*up to 2000m) |
|--------------------------------------|-------------|---------|-----------|-------------|-----------------------------|
| <b>Sensitive Land Use</b>            |             |         |           |             |                             |
| Ancient Woodland                     | pg 30       |         | 3         | 2           | 3                           |
| Areas of Adopted Green Belt          | pg 30       | 1       |           |             |                             |
| Areas of Unadopted Green Belt        | pg 30       | 1       |           |             |                             |
| 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             |             |         |           |             |                             |
| Ramsar Sites                         |             |         |           |             |                             |
| Sites of Special Scientific Interest |             |         |           |             |                             |
| Special Areas of Conservation        |             |         |           |             |                             |
| Special Protection Areas             |             |         |           |             |                             |
| World Heritage Sites                 |             |         |           |             |                             |



- General**
- Specified Site
  - Specified Buffer(s)
  - Bearing Reference Point
  - Map ID
- 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 (Buffered Point)
  - EA Historic Landfill (Polygon)
  - 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
  - Potentially Infilled Land (Non-water)
  - Potentially Infilled Land (Non-water)
  - Potentially Infilled Land (Non-water)
  - Potentially Infilled Land (Water)
  - Potentially Infilled Land (Water)
  - Potentially Infilled Land (Water)
  - Registered Landfill Site
  - Registered Landfill Site (Location)
  - Registered Landfill Site (Point Buffered to 100m)
  - Registered Landfill Site (Point Buffered to 250m)
  - 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
  - NIHHS Site
  - Planning Hazardous Substance Consent
  - Planning Hazardous Substance Enforcement
  - BGS Recorded Mineral Site
- Geological**
- BGS Recorded Mineral Site

**Site Sensitivity Map - Slice A**



**Order Details**

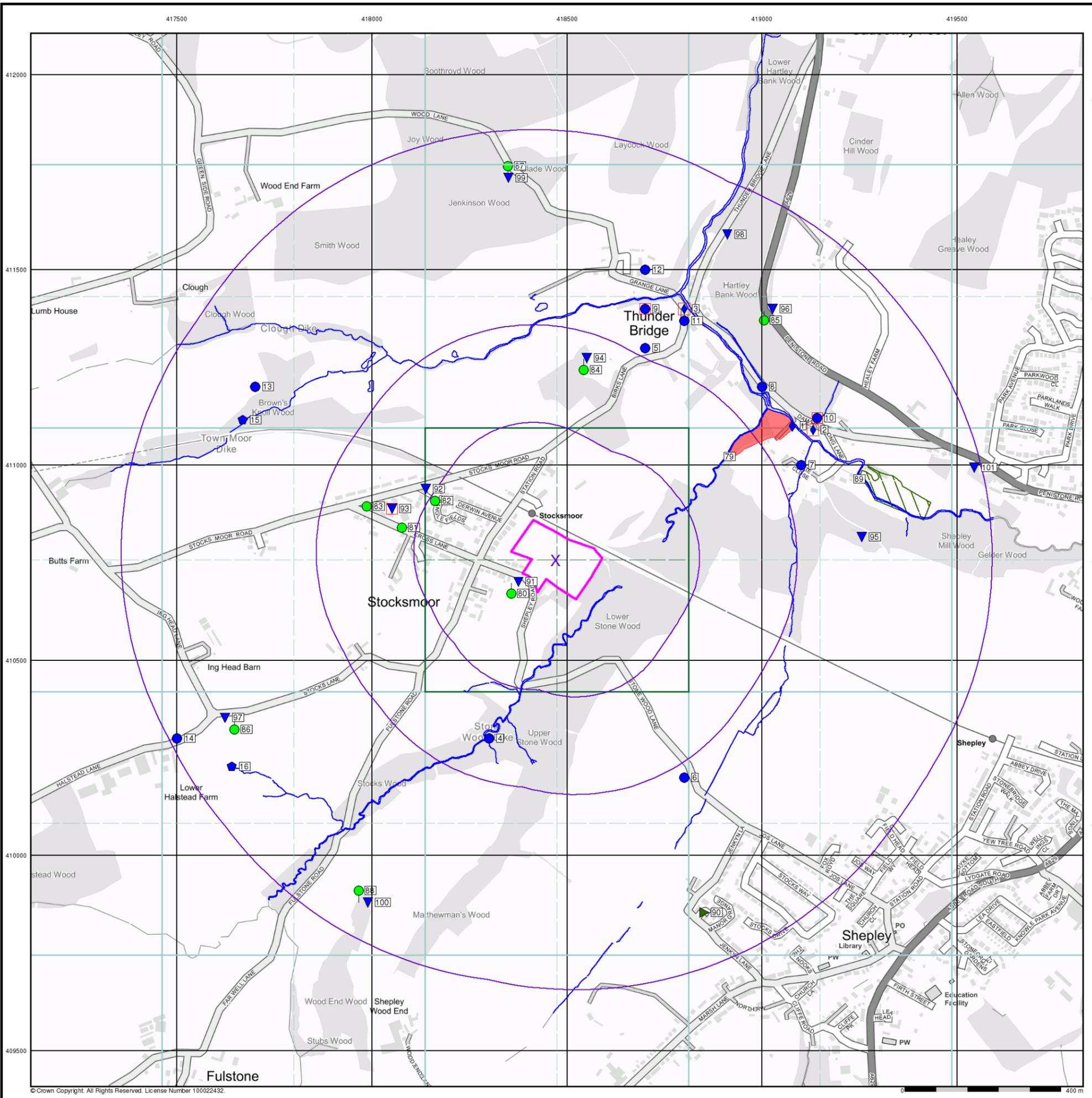
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 Customer Ref: PO19863/CH/4594  
 National Grid Reference: 418470, 410760  
 Slice: A  
 Site Area (Ha): 2.51  
 Search Buffer (m): 1000

**Site Details**

Shepley Road, Stocksmoor



Tel: 0844 844 9952  
 Fax: 0844 844 9951  
 Web: www.envirocheck.co.uk



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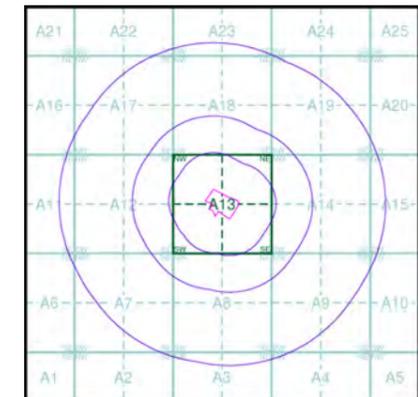
**General**

- Specified Site
- Specified Buffer(s)
- 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**

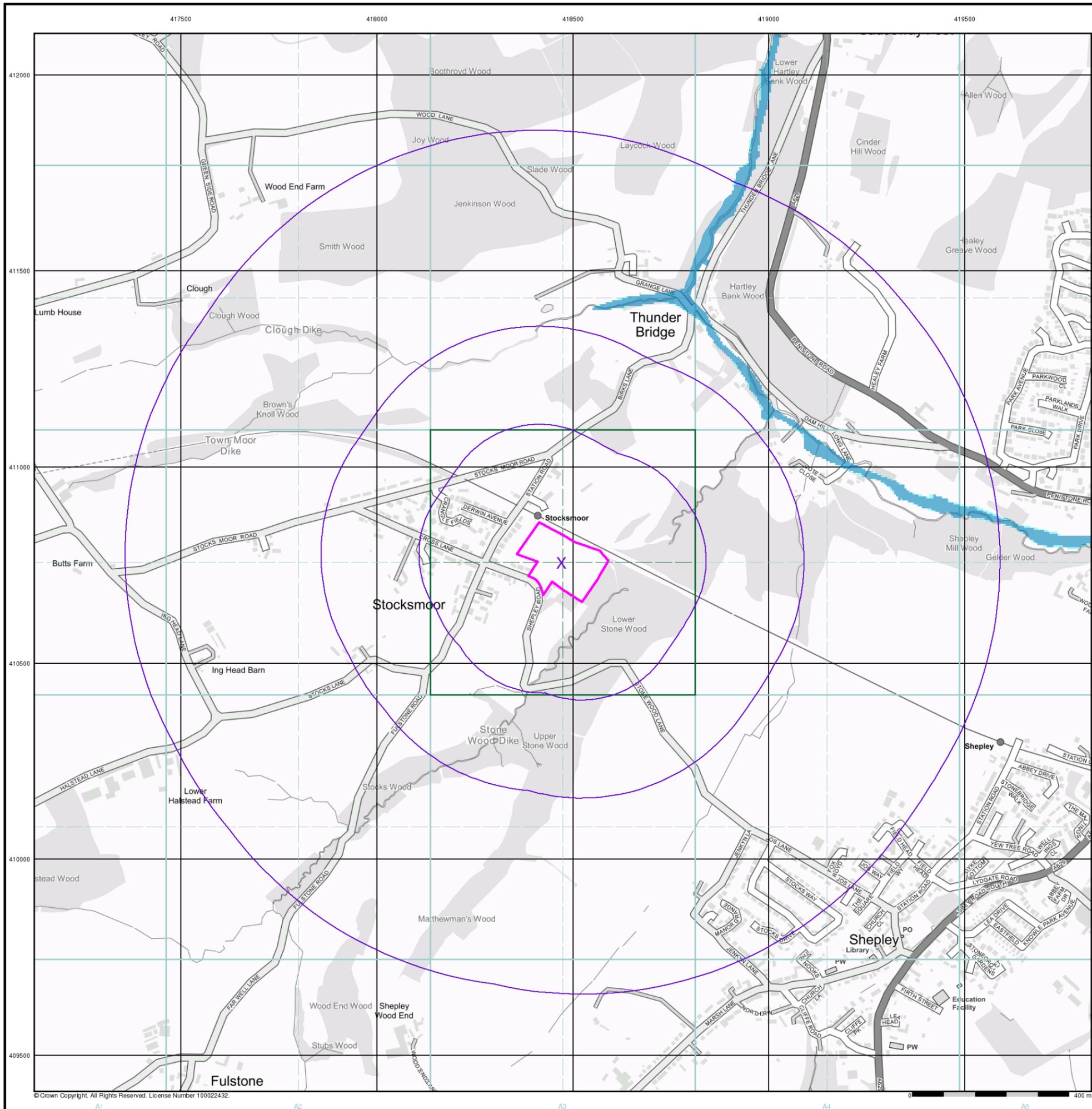
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 Customer Ref: PO19863/CH/4594  
 National Grid Reference: 418470, 410760  
 Slice: A  
 Site Area (Ha): 2.51  
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**Site Details**

Shepley Road, Stocksmoor



Tel: 0844 844 9952  
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### General

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

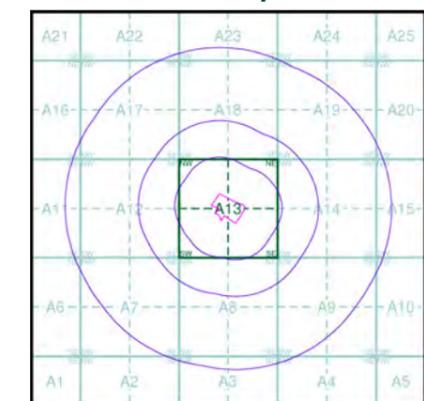
### OS Water Network Data

- |              |                         |
|--------------|-------------------------|
| Canal        | Drain                   |
| Reservoir    | Other                   |
| Foreshore    | Lake                    |
| Marsh        | Transfer                |
| Tidal River  | Lock Or Flight Of Locks |
| Inland River | Sea                     |

### Contours (height in meters)

- Standard Contour 105 Mean Low Water
- Master Contour 100 Mean High Water
- Spot Height 167.3

### OS Water Network Map - Slice A



### Order Details

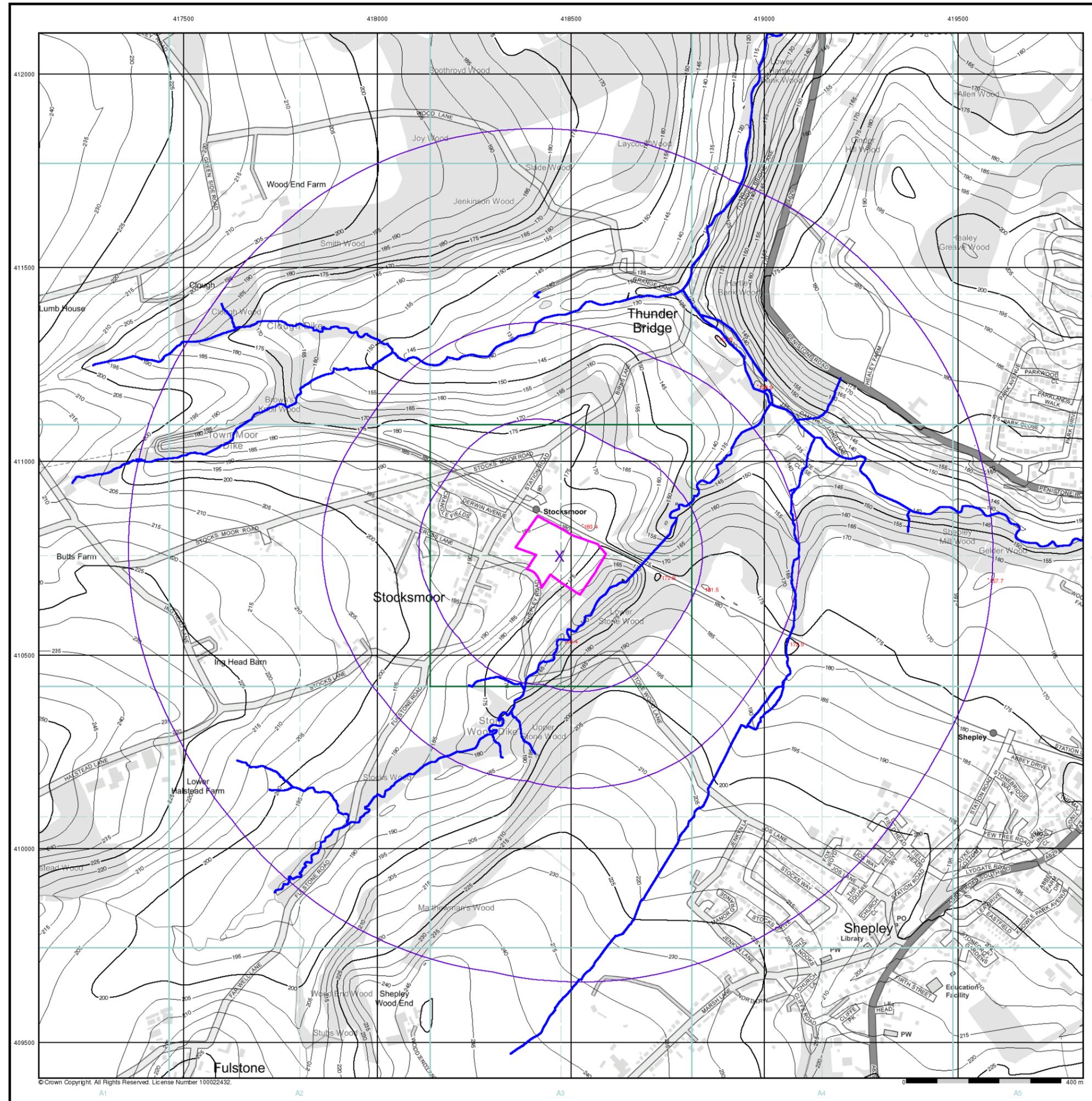
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 Customer Ref: PO19863/CH/4594  
 National Grid Reference: 418470, 410760  
 Slice: A  
 Site Area (Ha): 2.51  
 Search Buffer (m): 1000

### Site Details

Shepley Road, Stocksmoor

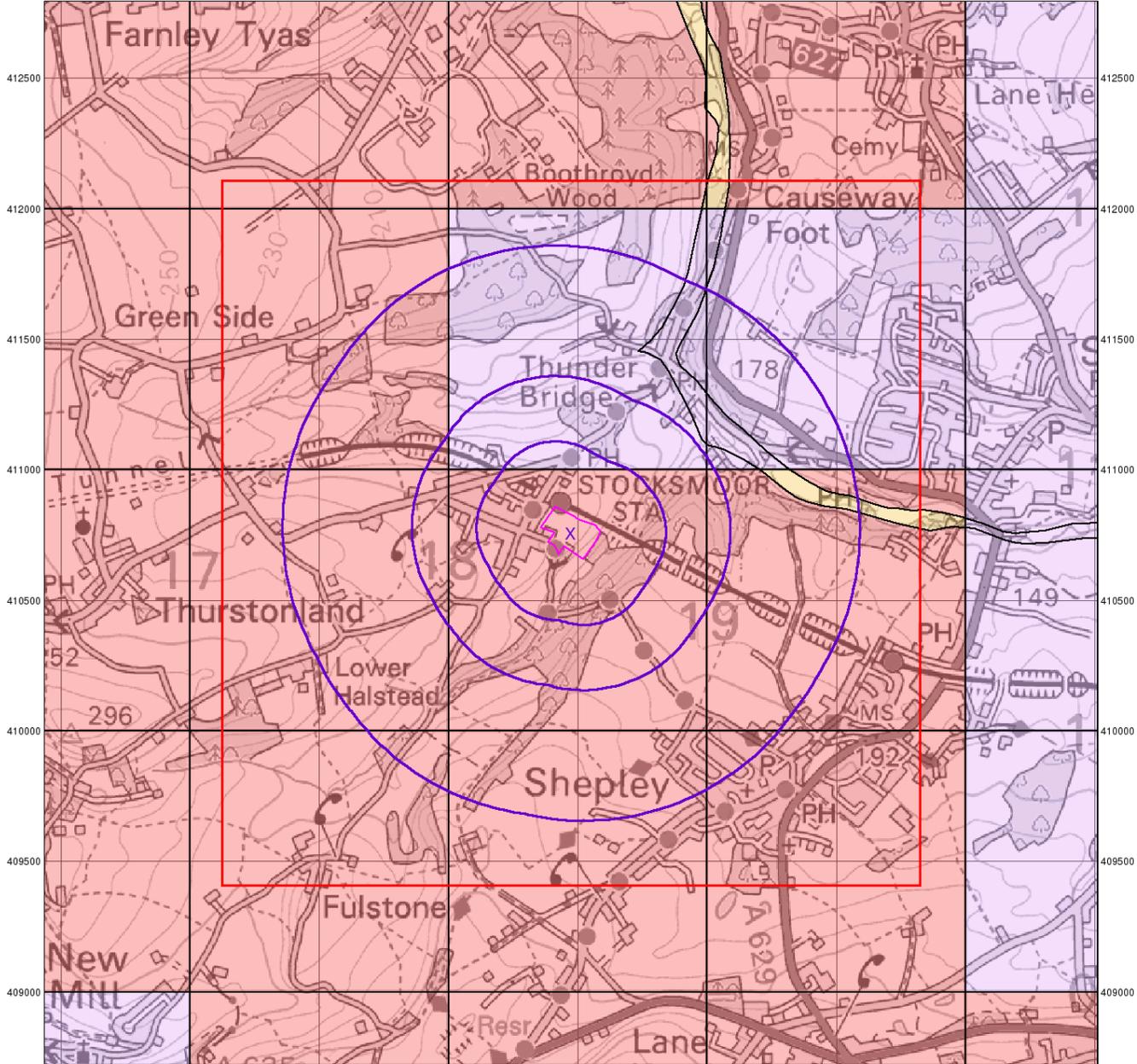


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## Groundwater Vulnerability

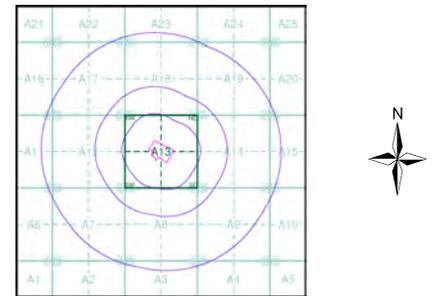
### General

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

### Agency and Hydrological

- | Bedrock Aquifers                        | Superficial Aquifers                    |
|---|---|
| High Vulnerability, Principal Aquifer   | High Vulnerability, Principal Aquifer   |
| High Vulnerability, Secondary Aquifer   | High Vulnerability, Secondary Aquifer   |
| Medium Vulnerability, Principal Aquifer | Medium Vulnerability, Principal Aquifer |
| Medium Vulnerability, Secondary Aquifer | Medium Vulnerability, Secondary Aquifer |
| Low Vulnerability, Principal Aquifer    | Low Vulnerability, Principal Aquifer    |
| Low Vulnerability, Secondary Aquifer    | Low Vulnerability, Secondary Aquifer    |
| Unproductive Aquifer                    |   |
| Soluble Rock                            |   |

### Site Sensitivity Context Map - Slice A



### Order Details

Order Number: 303375508\_1\_1  
 Customer Ref: PO19863/CH/4594  
 National Grid Reference: 418470, 410760  
 Slice: A  
 Site Area (Ha): 2.51  
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### Site Details

Shepley Road, Stocksmoor



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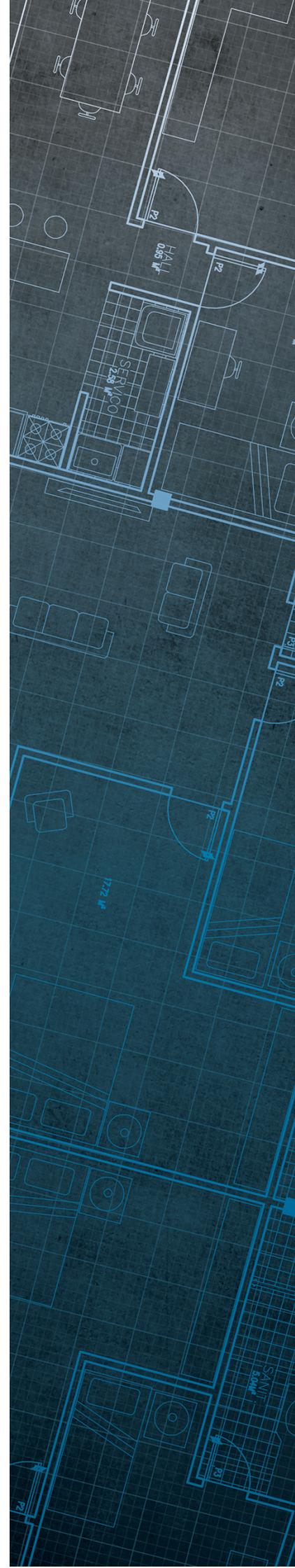


The Coal  
Authority

# Consultants Coal Mining Report

Shepley Road  
Stocksmoor  
HD4 6XW

|                        |                 |
|------------------------|-----------------|
| Date of enquiry:       | 2 November 2022 |
| Date enquiry received: | 2 November 2022 |
| Issue date:            | 2 November 2022 |
| Our reference:         | 51003322213001  |
| Your reference:        | PO19864/CH/4594 |



# Consultants

# Coal Mining Report

This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

## Client name

LITHOS CONSULTING LTD

## Enquiry address

Shepley Road  
Stocksmoor  
HD4 6XW

## How to contact us

0345 762 6848 (UK)  
+44 (0)1623 637 000 (International)

200 Lichfield Lane  
Mansfield  
Nottinghamshire  
NG18 4RG

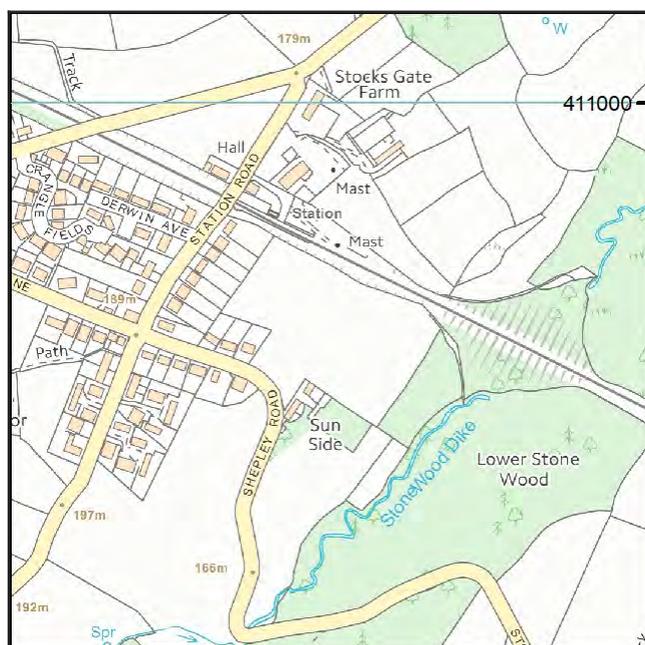
[www.groundstability.com](http://www.groundstability.com)

 @coalauthority

 /company/the-coal-authority

 /thecoalauthority

 /thecoalauthority



Approximate position of property



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# Section 1 – Mining activity and geology

## **Past underground mining**

No past mining recorded.

## **Probable unrecorded shallow workings**

None.

## **Spine roadways at shallow depth**

No spine roadway recorded at shallow depth.

## **Mine entries**

None recorded within 100 metres of the enquiry boundary.

## **Abandoned mine plan catalogue numbers**

None available.

## **Outcrops**

No outcrops recorded.

## **Geological faults, fissures and breaklines**

No faults, fissures or breaklines recorded.

## **Opencast mines**

None recorded within 500 metres of the enquiry boundary.

## **Coal Authority managed tips**

None recorded within 500 metres of the enquiry boundary.

## Section 2 – Investigative or remedial activity

Please refer to the 'Summary of findings' map (on separate sheet) for details of any activity within the area of the site boundary.

### Site investigations

None recorded within 50 metres of the enquiry boundary.

### Remediated sites

None recorded within 50 metres of the enquiry boundary.

### Coal mining subsidence

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

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

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

### Mine gas

None recorded within 500 metres of the enquiry boundary.

### Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

## Section 3 – Licensing and future mining activity

### Future underground mining

None recorded.

### Coal mining licensing

None recorded within 200 metres of the enquiry boundary.

### Court orders

None recorded.

### Section 46 notices

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

### Withdrawal of support notices

The property is not in an area where a notice to withdraw support has been given.

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

### Payments to owners of former copyhold land

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

## Section 4 – Further information

Based on the responses in this report, no further information has been highlighted.

## Section 5 – Data definitions

The datasets used in this report have limitations and assumptions within their results. For more guidance on the data and the results specific to the enquiry boundary, please **call us on 0345 762 6848** or **email us at [groundstability@coal.gov.uk](mailto:groundstability@coal.gov.uk)**.

### Past underground coal mining

Details of all recorded underground mining relative to the enquiry boundary. Only past underground workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination, will be included.

### Probable unrecorded shallow workings

Areas where the Coal Authority believes there to be unrecorded coal workings that exist at or close to the surface (less than 30 metres deep).

### Spine roadways at shallow depth

Connecting roadways either, working to working, or, surface to working, both in-seam and cross measures that exist at or close to the surface (less than 30 metres deep), either within or within 10 metres of the enquiry boundary.

### Mine entries

Details of any shaft or adit either within, or within 100 metres of the enquiry boundary including approximate location, brief treatment details where known, the mineral worked from the mine entry and conveyance details where the mine entry has previously been sold by the Authority or its predecessors British Coal or the National Coal Board.

### Abandoned mine plan catalogue numbers

Plan numbers extracted from the abandoned mines catalogue containing details of coal and other mineral abandonment plans deposited via the Mines Inspectorate in accordance with the Coal Mines Regulation Act and Metalliferous Mines Regulation Act 1872. A maximum of 9 plan extents that intersect with the enquiry boundary will be included. This does not infer that the workings and/or mine entries shown on the abandonment plan will be relevant to the site/property boundary.

### Outcrops

Details of seam outcrops will be included where the enquiry boundary intersects with a conjectured or actual seam outcrop location (derived by either the British Geological Survey or the Coal Authority) or intersects with a defined 50 metres buffer on the coal (dip) side of the outcrop. An indication of whether the Coal Authority believes the seam to be of sufficient thickness and/or quality to have been worked will also be included.

### Geological faults, fissures and breaklines

Geological disturbances or fractures in the bedrock. Surface fault lines (British Geological Survey derived data) and fissures and breaklines (Coal Authority derived data) intersecting with the enquiry boundary will be included. In some circumstances faults, fissures or breaklines have been known to contribute to surface subsidence damage as a consequence of underground coal mining.

### **Opencast mines**

Opencast coal sites from which coal has been removed in the past by opencast (surface) methods and where the enquiry boundary is within 500 metres of either the licence area, site boundary, excavation area (high wall) or coaling area.

### **Coal Authority managed tips**

Locations of disused colliery tip sites owned and managed by the Coal Authority, located within 500 metres of the enquiry boundary.

### **Site investigations**

Details of site investigations within 50 metres of the enquiry boundary where the Coal Authority has received information relating to coal mining risk investigation and/or remediation by third parties.

### **Remediated sites**

Sites where the Coal Authority has undertaken remedial works either within or within 50 metres of the enquiry boundary following report of a hazard relating to coal mining under the Coal Authority's Emergency Surface Hazard Call Out procedures.

### **Coal mining subsidence**

Details of alleged coal mining subsidence claims made since 31 October 1994 either within or within 50 metres of the enquiry boundary. Where the claim relates to the enquiry boundary confirmation of whether the claim was accepted, rejected or whether liability is still being determined will be given. Where the claim has been discharged, whether this was by repair, payment of compensation or a combination of both, the value of the claim, where known, will also be given.

Details of any current 'Stop Notice' deferring remedial works or repairs affecting the property/site, and if so the date of the notice.

Details of any request made to execute preventative works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991. If yes, whether any person withheld consent or failed to comply with any request to execute preventative works.

### **Mine gas**

Reports of alleged mine gas emissions received by the Coal Authority, either within or within 500 metres of the enquiry boundary that subsequently required investigation and action by the Coal Authority to mitigate the effects of the mine gas emission.

### **Mine water treatment schemes**

Locations where the Coal Authority has constructed or operates assets that remove pollutants from mine water prior to the treated mine water being discharged into the receiving water body.

These schemes are part of the UK's strategy to meet the requirements of the Water Framework Directive. Schemes fall into 2 basic categories: Remedial – mitigating the impact of existing pollution or Preventative – preventing a future pollution incident.

Mine water treatment schemes generally consist of one or more primary settlement lagoons and one or more reed beds for secondary treatment. A small number are more specialised process treatment plants.

### **Future underground mining**

Details of all planned underground mining relative to the enquiry boundary. Only those future workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination will be included.

### **Coal mining licensing**

Details of all licenses issued by the Coal Authority either within or within 200 metres of the enquiry boundary in relation to the under taking of surface coal mining, underground coal mining or underground coal gasification.

### **Court orders**

Orders in respect of the working of coal under the Mines (Working Facilities and Support) Acts of 1923 and 1966 or any statutory modification or amendment thereof.

### **Section 46 notices**

Notice of proposals relating to underground coal mining operations that have been given under section 46 of the Coal Mining Subsidence Act 1991.

### **Withdrawal of support notices**

Published notices of entitlement to withdraw support and the date of the notice. Details of any revocation notice withdrawing the entitlement to withdraw support given under Section 41 of the Coal Industry Act 1994.

### **Payment to owners of former copyhold land**

Relevant notices which may affect the property and any subsequent notice of retained interests in coal and coal mines, acceptance or rejection notices and whether any compensation has been paid to a claimant.

