

**Phase 1, Phase 2 and Phase 3 Report (combined) &
Revised Coal Mining Risk Assessment**

43 Bridle Street, Batley



Phase 1, Phase 2 and Phase 3 Report (combined) & Revised Coal Mining Risk Assessment

43 Bridle Street, Batley

Report Status

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Appendices	Drawings > Exploratory Hole Logs > Mining Remediation Authority permit > Groundsure Geo-Spatial Datapack
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The Ground Investigation Report has been written with reference to various sources of information. These are either appended or included as footnotes throughout this Report

Appointment

Soil and Structures Ltd were instructed by Advant Engineers on behalf of Mr Fayyaz (the Client) in May 2026 to prepare a combined Phase 1, Phase 2 and Phase 3 Report and Revised Coal Mining Risk Assessment (*this Report*) for a parcel of land located to the south-east of 43 Bridle Street, Batley (*the Site*).

This Report has been prepared in support of the ‘erection of detached dwelling’ as set out within planning application ref. 2023/93729.

Reliance on the advice presented herein rests solely with the Client.

Scope - General

In the ground everything is inter-related: from strength to pollution potential; through to, stability and drainage characteristics. This Report represents an **intrusive** assessment of ground conditions across the Site and provides advice on ground-related risk management. The Report also sets out how the groundworks completed as part of the development project will influence, and be influenced, by all these inter-related elements.

Scope and Legal Context - Specific

This Report presents advice on all aspects of ground engineering and assesses the ground-related hazards identified in the Ground Risk Register - Section 5.0.

The Report has also been prepared in anticipation of planning conditions relating to ‘contaminated land’ and ‘coal mining hazards’ and could otherwise be termed a *Ground Investigation Report (intrusive) & Remediation Strategy*.

This Report is intended to serve as the main point of reference for all ground-related matters noting that separate reporting is recommended in conclusions of this Report.

The more specific, legal context of the advice given in this Report relates to an assessment of:

- i) **Ground-related hazards that may affect the development** as governed by health and safety legislation.
- ii) **The suitability of the Site for its proposed use**, in accordance with national planning policy, the Environmental Protection Act 1990 (Part 2A), and the Environment Agency’s *Land Contamination Risk Management* (2020).
- iii) **The stability of the Site (assessment of potential coal mining related hazards)** in accordance with national planning policy and as governed by health and safety legislation.

Acceptance of this Report by the local planning authority’s contaminated land team and the Mining Remediation Authority is likely to be required – two statutory consultees.

With respect to the conditioning of the planning application, this Report is intended to support the discharge of planning conditions 3 to 6 (contaminated land) and condition 8 (coal mining) of application ref. 2023/93729.

Fieldwork

The fieldworks detailed in this Report were scoped and supervised by the Author of this Report.

Background to this Report

This Report is preceded by one ground-related report relating to the Site.

This report includes: a Coal Mining Risk Assessment prepared by the Coal Authority ref. 71009793802001 dated 16 January 2024.

1.0 The Site and Proposed Development

1.1 The Site

Location

The Site comprises an existing dwelling and associated outbuilding, driveway and garden on a parcel of land approximately 0.07 ha in area that is accessed via single access roadway (from the south-east) that is a continuation of Bridle Street, Batley – Figure 1.

At the point of the fieldworks, the Site was occupied by all the existing structures and features identified on the insert in Figure 1 and on the Ground Model in Section 5.0.

Topography

Ground levels fall at moderate angles towards the south-east across the Site from around 95 mAOD at the northern edge to 87 mAOD at the southern corner – Figure 1.

Utilities

Below ground utilities are recorded entering the Site (all major services) with evidence of overhead utility alignments (telecoms) also crossing the Site.

1.2 The Proposed Development

Development proposals

Include for 'erection of detached dwelling' – Figure 1.

① **Development works and risk:** An appreciation of the construction processes is essential for development-related risk assessments given the groundworks stand to meaningfully alter the level of risk, e.g. unstable slopes being removed by earthworks, or unsuitable material being exposed as part of the works.

To enable this development, the following groundworks are likely to be required, N.B. listing is outline only.

- > **Preparation:** Demolition of existing structure – highlighted blue on Ground Model in Section 5.0.
- > **Earthworks:** Reduced level excavations into the hillside to achieve the formation levels for the proposed dwelling (that will be 'cut' into the hillside).
- > **Utility Excavations:** Excavation of any drainage and other utility alignments.
- > **Foundations & Floor Slabs:** Foundation and floor slabs with perimeter retaining walls planned.
- > **Surfacing:** Formation of new hardstanding (access road and driveways) with no new soft landscaping planned.

① **Demolition works:** At the point of the fieldworks, the existing structure was due for demolition.

Demolition works represent an opportunity to complete extensive and cost-effective investigation of ground conditions.

In addition, it is recommended that, where safe to do so, the scope of the demolition work includes removal of all sub-structures (foundations and floor slabs) relating to the former structure. Completion of this work would reduce the risk presented by these features (sub-structures) and better 'enable' construction works.

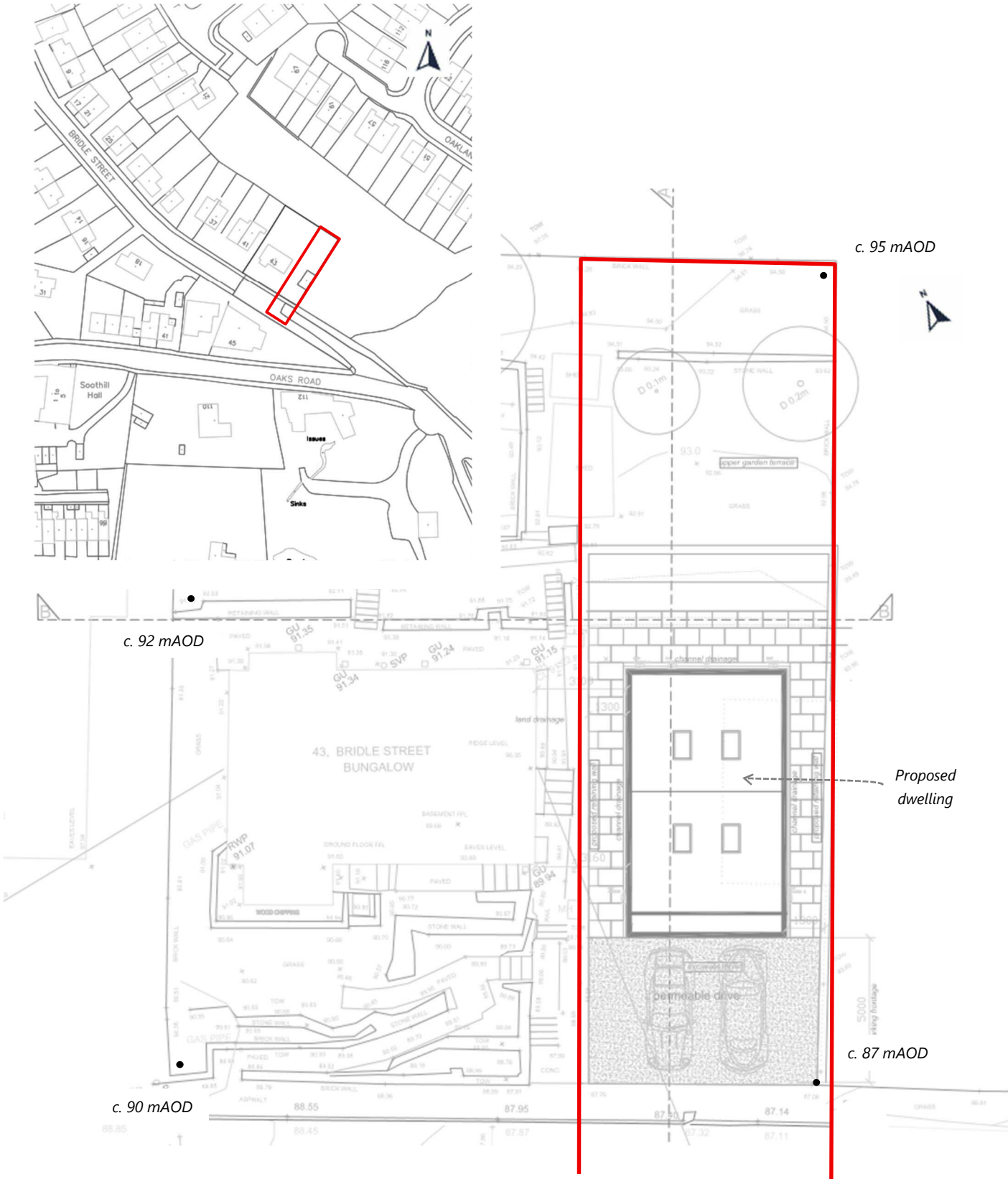


Figure 1: Development Plan

- > Extract from Client supplied drawing (copy appended) – red line = approximate planning / Site boundary
- > Site approximately centred on NGR 425481 , 423998
- > INSERT: Site location - extract from Client supplied drawing (copy appended)

2.0 Site Setting

① **Background information:** The Site’s mining geology is described in outline within the ‘Coal Mining Risk Assessment’ prepared by the Coal Authority ref. 71009793802001 dated 16 January 2024. The commentary within Section 2.3 supplements that presented within the above report referencing opensource data and validated by appended datapack.

2.1 History

Recorded history

The Site has been subject to one main phases of use since the 1850s (the date of the earliest available ordnance survey mapping).

> *The first phase:* c. 1950s 1900s when the Site was occupied by residential properties (terraces).

Before c. 1950s the plot was occupied by open fields

Through this phase of use it is considered:

- > Unlikely that *polluting material* (Controlled Waters) would have been introduced into the Site’s soils
Whilst it is plausible that small, disperse volumes of coal ash may have been introduced into the soils (from the household’s fire) if and where present, it is considered to have a very low pollution potential and therefore unlikely to pose a threat to Controlled Waters.
- > Plausible that *harmful material* (human health) would have been introduced into the Site’s soils
Whilst it is plausible that small, disperse volumes of coal ash may have been introduced into the soils (from the household’s fire) if and where present, they will represent ‘background concentrations’ across this existing residential Site and overall the chemical quality of the Site soils is considered to pose an acceptably low risk to human health. Furthermore, a large proportion of the existing soft landscaping will be removed through the process of developing the Site (reduced level excavation).
- > Unlikely that *gas generating material* would have been introduced into the Site’s soils
Noting that other potential sources of ground gas are identified.
- > Likely that *sub-structures* were present on Site
Including relic foundations relating to the outbuilding.
- > Unlikely that *unexploded ordnance* is present within the soils on Site
There is no evidence of the land having been used for military purposes and whilst Batley was subject to isolated targeted air raids during the Second World War^{1,2} there is no records of targeted raids or evidence of bomb damage on or adjacent to the Site on post-war mapping records.

The surrounding land has been occupied by similar land uses over the years – residential properties – with two specific exceptions: i) a former colliery c. 50 m to the south-east; and, ii) Soothill Quarry (sandstone) c. 100 m to the west.

¹Company database, based on National Archive data
² <https://www.google.com/maps/d/u/0/viewer?ie=UTF8&oe=UTF8&mra=0&mid=1vGRsy0Qq03OO7URBcF2CAAbXHj4&ll=53.76339480249814%2C-1.580936523653067&z=11>
³ <https://webapps.bgs.ac.uk/lexicon/lexicon.cfm?pub=PMCM>

Planning history

No, earlier planning applications are recorded against the Site.
Earlier planning applications are recorded relating to the residential estate centred around Oaklands Drive (north-east of the Site) however no ground-related information is attached to these.

2.2 Geology

Recorded Geology

The Site is recorded being underlain by bedrock of the Pennine Middle Coal Measures³ including a named sandstone unit – Haigh Moor Rock⁴ that was quarried to the west of the Site – *Figure 2 and 3.*

The presence of the existing garden terrace that likely includes variable thicknesses of Made Ground (likely historic excavation arisings) and the existing outbuilding that will have foundations and a floor slab associated with it.

In the Author’s experience, the Pennine Middle Coal Measures typically have low sulphate content and near neutral pH in the Batley district noting that this can vary markedly where coal mine workings are present, as evidenced here.

Exploratory Hole Records

Historic borehole records are not available for the Site itself however; there are numerous historic and confidential exploratory holes associated with the land immediately to the north and east of the Site. Many of these records relate to boreholes that, based on the frequency of holes, were likely investigating the presence/absence of coal and coal mine workings.

Structural Geology & Geomorphology

The bedrock deposits locally to the Site are recorded dipping at shallow angles (2.6 degrees) in an easterly direction within shallow coal mine workings immediately east of the Site however the presence of numerous faults suggests varied angles/directions may be present.

A geological fault is recorded crossing the Site on the older geological mapping – Figure 2 – trending east to west.
The Site’s is characterised by its hillside / sloping topography, outcropping bedrock deposits and the conjectured alignment of a geological fault.

Radon

Radon is emitted from naturally occurring uranium sources within a range of geologies. The United Kingdom Health Security Agency (UKHSA) data⁵ indicates between 5 to 10 % of dwellings are expected to be above the Action Level (200 Bq m⁻³). This data is based on geospatial ‘tiles’ set at a 1 km by 1 km resolution.
This translates to overall moderate chance the Site is affected by radon with the requirement for ‘basic radon protection measures to be incorporated within the proposed structures. In this scenario, inherent gas protection will be provided by a structural barrier (rafted foundation) with a gas resistant membrane also recommended to reduce the risk posed by other sources of ground gas (mine gas).

⁴ <https://webapps.bgs.ac.uk/lexicon/lexicon.cfm?pub=HMR>
⁵ [UKradon - UK maps of radon](#)

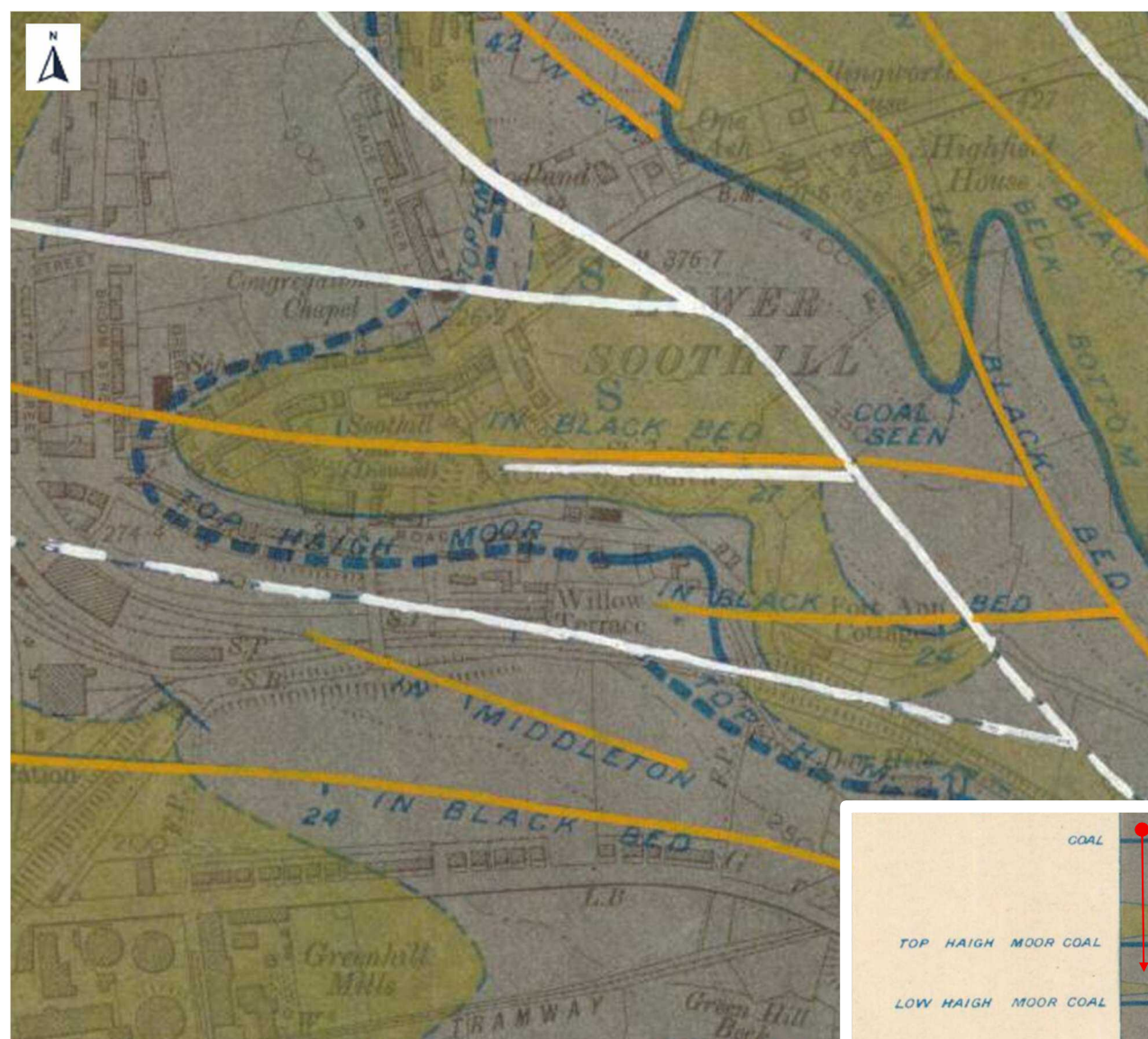


Figure 2: Extract from 1:10,560 British Geological Survey mapping (1908)

- > Reproduced under Open Government License (v 3.0)
- > **Red line** = approximate Site boundary
- > **INSERT** = vertical section with hypothetical borehole on Site (red arrow) noting Low Haigh Moor coal seam is not mapped locally to the Site.

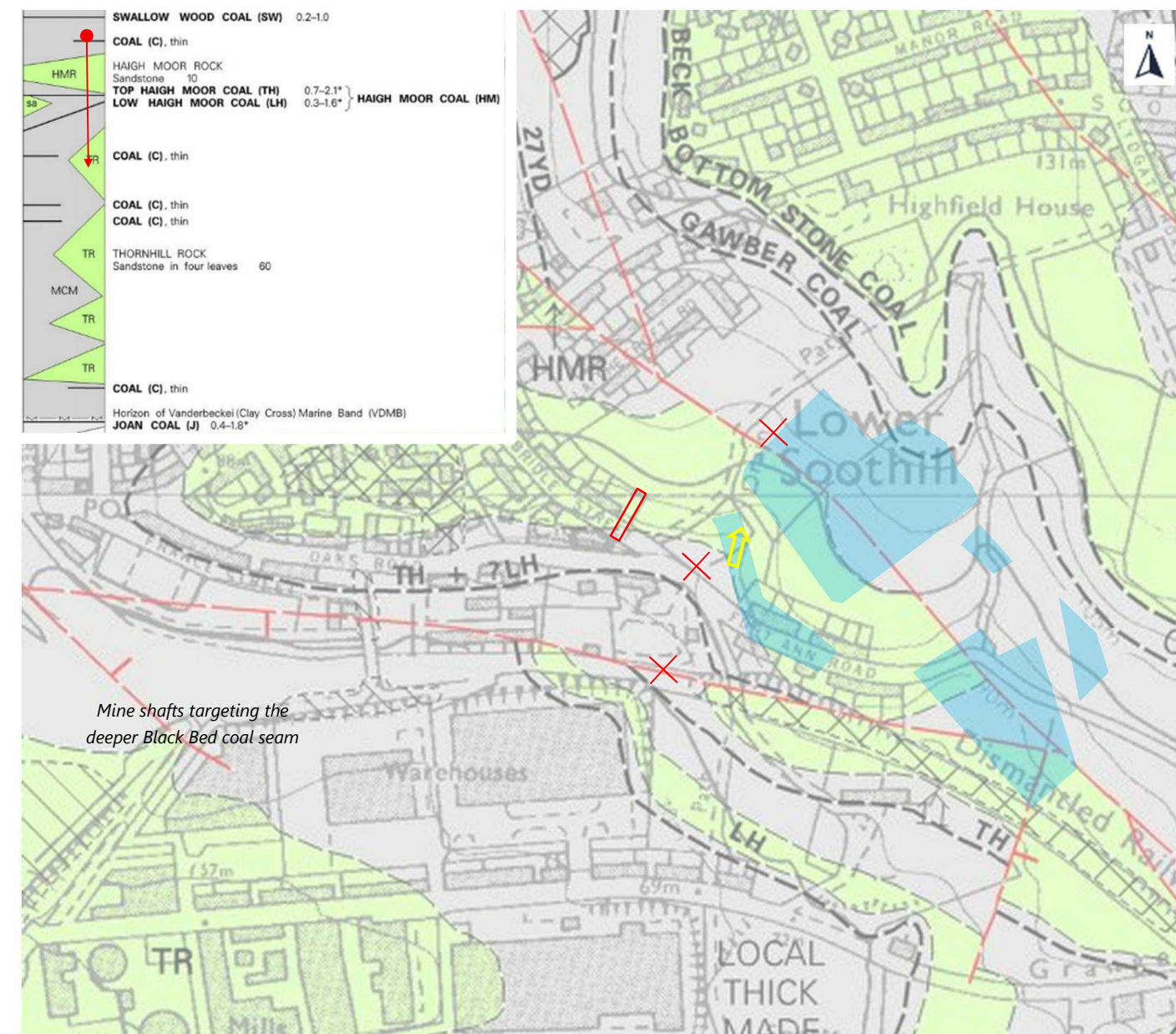
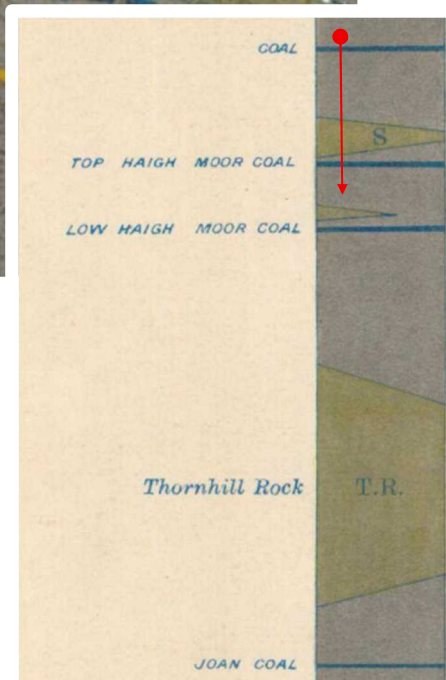


Figure 3: Extract from 1:10,000 British Geological Survey mapping

- > Reproduced under Open Government License (v 3.0)
- > **Red line** = approximate Site boundary
- > **Red crosses** = local mine shafts
- > **Yellow arrow** = local adit (horizontal tunnel into mine workings) with bearing indicated
- > **Blue shading** = approximate location of recorded shallow mine workings (within 30 m of the ground surface)
- > **INSERT** = vertical section with hypothetical borehole on Site (red arrow)

2.3 Mining Geology

Mining records reviewed

- > The Mining Remediation Authority’s (MRA) online interactive mapping⁶;
- > British Geological Survey mapping records and non-coal mining records⁷; and,
- > Other online references (as referenced throughout).

Recorded coal and non-coal mining

The Site is within a coalfield region and whilst coal mine workings are recorded beneath the Site (as set out within the earlier Coal Mining Risk Assessment) the shallowest is recorded at a depth of 130 m below ground level and therefore not considered to present a hazard to ground stability on the Site.

Notwithstanding this, additional, shallower coal seams are recorded within 50 m of the ground surface that had the potential to have been mined in the past.

No non-coal mine workings are recorded beneath the Site. Local mining of the ironstone deposits did occur (often co-deposited with or near the coal seams).

Mineable resources beneath the Site

There are three possible coal or coal-related seams within 50 m of the surface that had the potential to be extracted historically. These coal seams potentially recorded beneath the Site: the Swallow Wood, Top Haigh Moor and Low Haigh Moor as identified within the earlier Coal Mining Risk Assessment (prepared by the Mining Remediation Authority). It is noted that the Swallow Wood is often taken as an alternative name for the Top Haigh Moor coal seam⁸ with the Low Haigh Moor often converging with the Top Haigh Moor coal seam⁹.

① **Screening for the hazard presented by shallow coal mine instability:** 50 m is used as a provisional screening depth across which surface instability from historic coal mines more commonly presents an issue. Rarely, deeper depths can present a risk of surface instability.

More recent geological mapping – Figure 2 and Figure 3 – suggests the Top Haigh Moor is possibly co-deposited Low Haigh Moor coal seams underlie the Site and not the Swallow Wood.

Discrepancies across primary source data are common with contemporary mapping not necessarily more accurate than older mapping with generalisations and omissions made in support of clarity / ease of viewing.

In general, the Author of this Report finds the older geological mapping to commonly be more accurate noting that many of the local mine workings would be ‘live’ industries around the time the mapping was produced – either actively extracting coal or for ‘old pits’ existing within living memory. It would be reasonable to assume that the Swallow Wood Coal seam is present within the fault-block that the Site is located within.

In this instance, key line of evidence relating to the geological sequence beneath the Site are:

- i) The quarrying of the Haigh Moor Rock 100 m west of the Site, the geology of which would have been well-understood, placing the Site ‘above’ this rock unit based on the dip direction and angle locally;
- ii) The presence of an adit mine entry c. 50 m south-east of the Site (attached to a colliery) that indicates very shallow access to a coal seam was being sought. Abandonment plans (from when mines closed) – Figure 4 – indicate that mining roadways (access tunnels) were advanced into the hillside locally to the Site via a day-hole (alternate name for adit).

Whilst this is recorded against the Top Haigh Moor coal seam (likely deeper in the bedrock sequence) and, no recorded mining took place beneath the Site (west of the roadway), seemingly due to the presence of ‘bad coal’ and faults, the presence of a dedicated roadways does suggest that exploration towards the Site did take place.

- iii) Multiple boreholes having been drilled near the Site the pattern of which is strongly suggestive of a mine working investigation, the outcome of which is unknown (confidential records).

Taken together, it is considered likely that the Swallow Wood coal seam is present close to the surface beneath the Site and that, as an economically viable seam for extraction, may have been mined beneath the Site.

Cumulative collapse of coal mine workings can occur, i.e. where a collapse in a deeper working triggers a collapse in shallower workings. In general, even with exploratory hole data available, predicting if and where this mechanism could occur is very difficult to achieve with any kind of confidence and rather, it is reasonable to consider multiple seams an increased risk factor where there is more chance of this occurring.

This phenomenon is plausible in this geological setting given the depth to the next deepest coal seam (Top Haigh Moor / Low Haigh Moor) is shallower than 30 m below the surface of the Site.

Mine entries

Are not recorded within 20 m of the Site the distance over which instability within mine shafts is more likely to affect a parcel of land. Local mine shafts / mine entries are present – Figure 3.

Opencast workings

Are not recorded or anticipated on Site.

Very old / simple mining methods

May be present where shallow seams of coal and other coal-related minerals are recorded. The shallow presentation of the Swallow Wood coal seam means, if coal were present, ‘bell pits’ could have been sunk historically.

Bell pits are a significant ground hazard (multiple shafts with shallow, commonly open voids).

In this scenario, the moderate slope angle across local area would have made adit entries (day-holes / horizontal tunnels) more likely to have been advanced. Indeed, given bedrock (and coal) outcrops locally, this would have made the coal (a known resource locally) readily accessible to prospective / ‘pirate’ mining operations using this method.

Accurate assessment of the likelihood for bell pits to exist is difficult to achieve with local knowledge or geographical markers, e.g. LIDAR indentations, the most common method of screening for this hazard.

⁶ <https://datamine-cauk.hub.arcgis.com/>
⁷ [GeolIndex - British Geological Survey \(bgs.ac.uk\)](https://geolindex.bgs.ac.uk/)
⁸ https://en.wikipedia.org/wiki/Coal_seams_of_the_South_Yorkshire_Coalfield

⁹ <https://nora.nerc.ac.uk/id/eprint/7426/1/IR06135.pdf>

Mine gases

Current guidance¹⁰ currently screens various lines of evidence to determine if coal gas will present a hazard on a given Site. All coalfield regions will be ‘breathing’ (emitting to surface) gases that are generated in relic mineworking voids. In this scenario, there are two main risk factors - the presence of a geological fault close to the Site and the potential presence of shallow unrecorded mine workings.

The guidance highlights that faults can serve as more direct pathways for mine gas emissions but also notes (p 27) how there is high variability associated with faults including their width, infill material and angle all of which influence how likely they would serve as a direct pathway to the surface. There is also rarely the opportunity to confirm if workings are fully flooded or not.

In addition:

- i) Mine gas emissions are more commonly associated with mine entries and shallow, unflooded mine workings, neither of which are recorded but could be present on Site.

Taken together, given the two risk factors (the fault and potential shallow unrecorded mine workings) it is considered plausible that mine gas emissions pose an unacceptable risk to the proposed developed.

It is also noted that the recommended provision of ‘basic’ radon protection measures will serve as inherent protection (to a degree) against the ingress of ground gas (all sources).

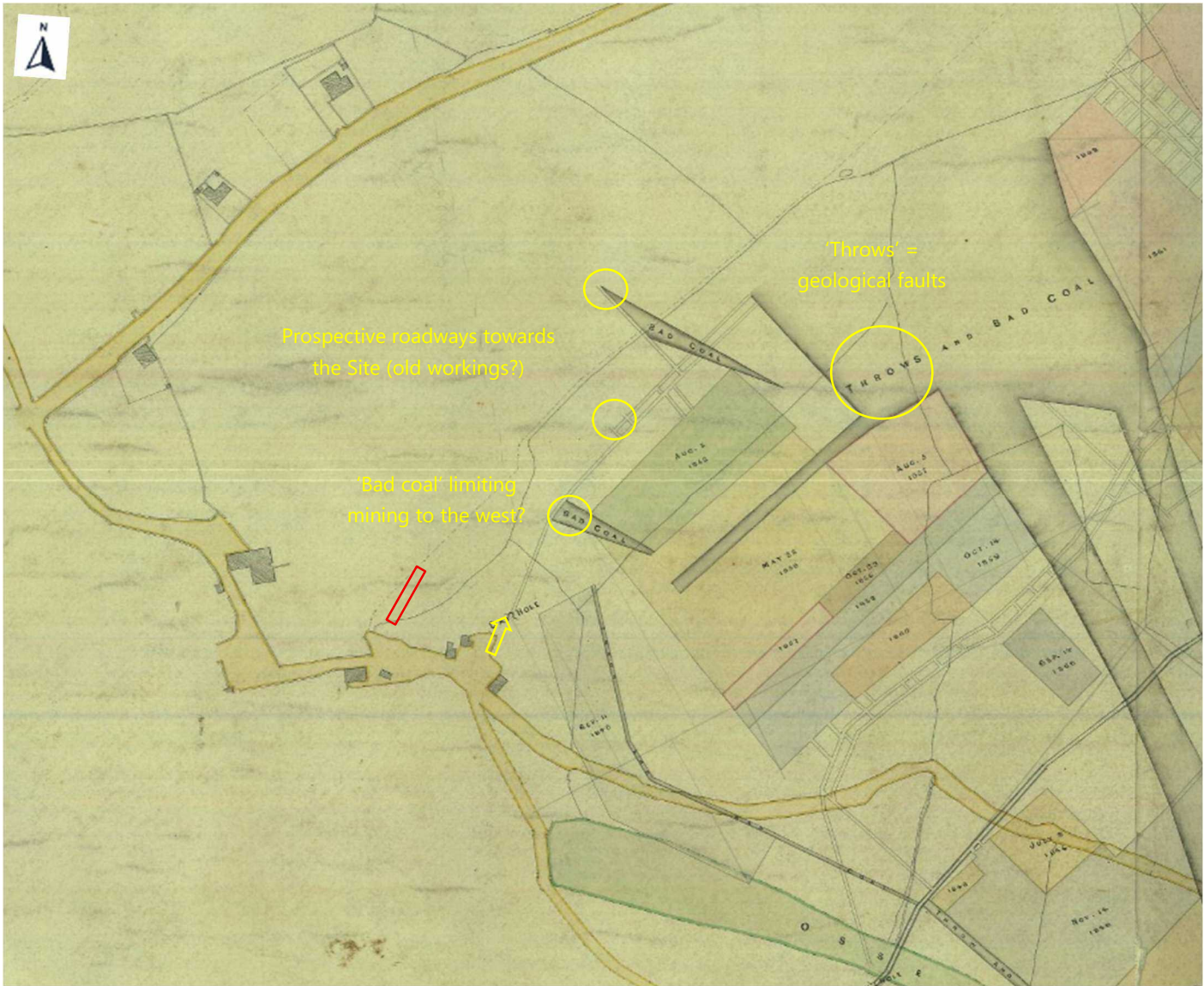


Figure 4: Extract from Soothills, Babes and Chideswell mine abandonment plan (21891161)

- > Reproduced under Open Government License (v 3.0)
- > Red line = approximate Site boundary
- > Yellow arrow = local adit (horizontal tunnel into mine workings) with bearing indicated – as illustrated on Figure 4
- > Yellow circles = key features

¹⁰ CL:AIRE 2021 - Good Practice for Risk Assessment for Coal Mine Gas Emissions

2.4 Hydrogeology & Hydrology

A water catchment is divided into two main elements; groundwater (hydrogeology); and surface water (hydrology). The groundwater regime is chiefly governed by the geology and the surface water regime controlled by the topography and surface cover. For any given site, these regimes are likely to influence each other and be influenced by off-site factors, e.g. groundwater levels being 'recharged' higher up a catchment.

Groundwater and surface water regime

The Site's groundwater and surface water regime is influenced by;

- The Site's sloping topography indicating that surface water runoff towards the south is likely to occur during inclement weather.
- The presence of mixed 'soft' (garden) and 'hard' (buildings and hardstanding) cover across the Site indicating that effective infiltration rates will vary (rainwater draining to ground).
- The recorded presence of a named sandstone unit (Haigh Moor Rock) that outcrops across the Site bedrock (fissure flow / secondary porosity dominating; likely variable but generally 'good' drainage characteristics; Secondary A aquifer; no Source Protection Zones {SPZ}).
- The historic presence of 'issues' at higher elevations to the Site suggesting, as anticipated, that 'layered' aquifer bodies are present locally, i.e. groundwater flowing or 'cascading' down more permeable bedrock layers within the Coal Measures that have highly contrasting permeabilities.
- Groundwater levels that likely lie both above (see note above) and below the Site.
- A very low chance of surface water, river and reservoir flooding across the Site¹¹.

Rainwater falling onto the Site is anticipated to currently be draining through the shallow soils or entering the existing drainage system with surface water ponding unlikely during inclement weather, given the anticipated good drainage characteristics and sloping topography.

The nearest surface watercourse appears to be the unnamed drain arising from 'issues' c. 50 m south of the Site at its closest point.

2.5 Environmental Setting

The environmental setting relates to land designations either on-site or within the surrounding area that have the potential to influence or present a risk to the proposed development.

Landfills

Landfills (historic¹² and/or active¹³) are recorded within 250 m of the Site, the distance across which viable pathways for gas migration are more likely.

A single landfill is recorded within this distance. This includes 'Grange Road Railway Cutting' (ref. EAHL35043) located c. 145 m south-east of the Site at its closest point.

The landfill was registered to accept unspecified wastes until 1989 (last input).

¹¹ <https://www.gov.uk/check-long-term-flood-risk>

¹² <https://www.data.gov.uk/dataset/17edf94f-6de3-4034-b66b-004ebd0dd010/historic-landfill-sites1>

Given the accepted waste is unknown, the landfill is assumed to be a credible source of ground gas. Furthermore, it is noted that the landfill last accepted waste in 1989 (37 years ago) placing the landfill within the methanogenesis stage of its lifecycle (if degradable material was present) indicating that, if generating gases, the landfill will only likely be generating methane and depleting/depleted concentrations. This indicates the landfill likely has a low ground gas generation potential.

However, for this gas to present an unacceptable risk to the Site and the proposed development, plausible pathways need to exist between the Site and the landfill.

With respect to shallow and deep pathways: the Site lies around 2 m higher than the landfill and is separated by a main road (Fort Ann Road / Oaks Road) and Fenby Avenue within which utility corridors (drainage, gas) will be present. These utility corridors will serve as preferential pathways through which ground gas can plausibly migrate, accumulate and degas to atmosphere. The tortuous nature of these utility corridors (crossing over one another) means direct pathways between the Site and the landfill are improbable. Similarly, the presence of early 19th century structures with evidence of basements/cellars (St Lukes House) will themselves serve as more preferential sumps (lower pressures) for the accumulation of any shallow ground gas.

Where these utility corridors or basements are not present, shallow, undifferentiated Coal Measures bedrock deposits are mapped and recorded with the landfill located with the same wider fault block (secondary faults present throughout) indicating that the same bedrock continues between the two parcels of land. Bedrock is generally dipping in a north-easterly/easterly direction locally to the Site indicating that gases lighter than air are more likely to present a threat (flowing 'up' bedding planes). Notwithstanding this, the transmission of gas from the landfill beneath the Site is considered improbable given the Site and landfill's location on a sloping valley side where there is considered a much greater chance of de-gassing to atmosphere than transmission beneath the Site.

Taken together, gas transmission from Grange Road Railway Cutting (former landfill) and the Site is considered improbable and is therefore considered to represent an acceptably low risk to the proposed development. Further assessment is not recommended, e.g. ground gas monitoring.

It is noted that both radon and mine gas is identified as a plausible hazard for which risk reduction measures are recommended that will serve as inherent protection against all ground gases.

Historic infilled land, e.g. ponds and quarries, are not recorded on Site or within 100 m of Site; the distance across which viable pathways for gas migration are more likely. For completeness, a former sandstone quarry is located around 100 m west of the Site that has since been developed for residential housing (Brentwood Close).

Statutory protected areas, e.g. SSSI are not recorded on the Site¹⁴.

¹³ <https://www.data.gov.uk/dataset/ad695596-d71d-4cbb-8e32-99108371c0ee/permitted-waste-sites-licensed-landfill-site-boundaries1>

¹⁴ <https://magic.defra.gov.uk/MagicMap.aspx>

3.0 Fieldworks – Exploratory Holes, In-Situ Testing, Laboratory Testing and Monitoring

The intrusive investigation (Table 1) was designed in general accordance with guidance for site investigations¹⁵ referencing the Site setting, the anticipated ground conditions, access and responding to the revealed ground conditions.

Comments on the scope of the fieldwork:

The primary aim of any ground investigation is to profile the deeper ground conditions across the Site given the shallow, unrecorded mine workings were identified as the main risk driver for the Site. In addition, the investigation was scoped to assess the general characteristics of the shallow soils.

Permits: The ground investigation fieldworks were conducted under a permit issued by the Mining Remediation Authority (ref. 31676 – copy appended).

Table 1: Scope and Rationale of the Intrusive Investigation Fieldworks

Activity	Ref.	Rationale
Exploratory Holes		
Rotary openhole boreholes (38 mm diameter)	RO101 and RO102	To characterise the shallow ground conditions and existing foundations (TP105); enable in-situ testing; and, support a classification of materials present in the ground.
In-Situ Testing		
Downhole camera survey	TP102	To enable a preliminary infiltration rate to be determined within the shallow soils/rocks.
Gas monitoring		
Other		
Logging of materials within exploratory holes.	All holes	To characterise: ground conditions; and support classification of materials present in the ground. Material descriptions are detailed on the Ground Model in Section 5.0 and copies of the exploratory hole logs appended.
Site inspection	Whole area	To inspect the general condition of the land and any structures (as a marker for the how the ground behaves under load) as well as any landform features, natural or non-natural, that may be of relevance to the development.

Geotechnical sampling was not completed based on the nature of the material revealed, the Author’s experience working in this geology (Haigh Moor Rock) and conservative assumptions about the coal seam deposits and associated mine workings.

Environmental sampling was not completed noting that: i) mass excavation of soils is planned as part of the development works (removal from Site); ii) existing soft landscaping areas remain unaltered (associated with an existing residential dwelling – same end use); and, iii) natural soils are typically present at very shallow depths across the Site.

Apart from the groundwater and gas monitoring during the drilling works no monitoring was completed or scheduled as part of the fieldworks.

Fieldwork observations

The Site inspection revealed:

- No evidence of potentially harmful or polluting material on Site, e.g. chemical stores, suspected asbestos containing material or former fire pits.
- The existing structure (two storey) was inspected (by the Author of this Report) with evidence of minor cracking on the western elevation – Photograph 2 – that might be associated with ground movement (subsidence), N.B. this observation does not constitute a structural survey and should be treated only as a potential indicator that ground movement has occurred historically.
- No evidence of uneven ground surfaces on Site, or locally to the Site, that might otherwise suggest shallow voiding is present.

Fieldwork decision making:

- RO101 was advanced with no obvious indication of mine workings with the void encountered at 4.80 m depth initially considered to be a fissure within the sandstone and not coal or mine working related. The continuous nature of the drilling beneath the void was another indication of this.

Having been advanced to 17 m depth through otherwise generally solid/intact suspected sandstone deposits it was initially thought that the risk posed by mine workings was low, i.e. apart from the loss of flush no clear evidence was encountered with the ‘voided’ region barely perceivable (small voids). The subsequent camera survey confirmed the presence of voiding and
- RO102 confirmed very similar ground conditions to RO101 and suggests historic coal mine workings are present beneath the Site. An alternative hypothesis is that this is a broad fault zone exists beneath the Site however, the presentation of the voiding is ‘flatter’ within intact, generally undisturbed bedrock deposits above and below the coal deposits. Another key indicator is the presence of delaminated roof deposits, i.e. the bedding plains of rock above the coal are ‘open’.

¹⁵ BS 5930:2015+A1:2020 Code of practice for ground investigations

4.0 Ground Conditions– Anticipated and Revealed

Anticipated ground conditions:

Based on the Site setting the presence of four main materials were anticipated across the Site:

1. **Surface coverings**, e.g. hardstanding (concrete) or Topsoil; over,
2. **Localised Made Ground** including possible reworked natural soils associated with historic building works and the formation of the 'terraces' across the Site; over,
3. **Residual soil** – completely weathered bedrock likely recovered as silty gravelly sand; over,
4. **Undifferentiated Coal Measures** – mudstone, siltstone and sandstone with:
 - a. **Swallow Wood coal** – intact or mined coal seam; over,
 - b. **Haigh Moor Rock** – massive, named sandstone unit – quarried locally to the Site.

Revealed ground conditions:

The intrusive investigation undertaken on Site confirmed the anticipated conditions with:

No variations; and,

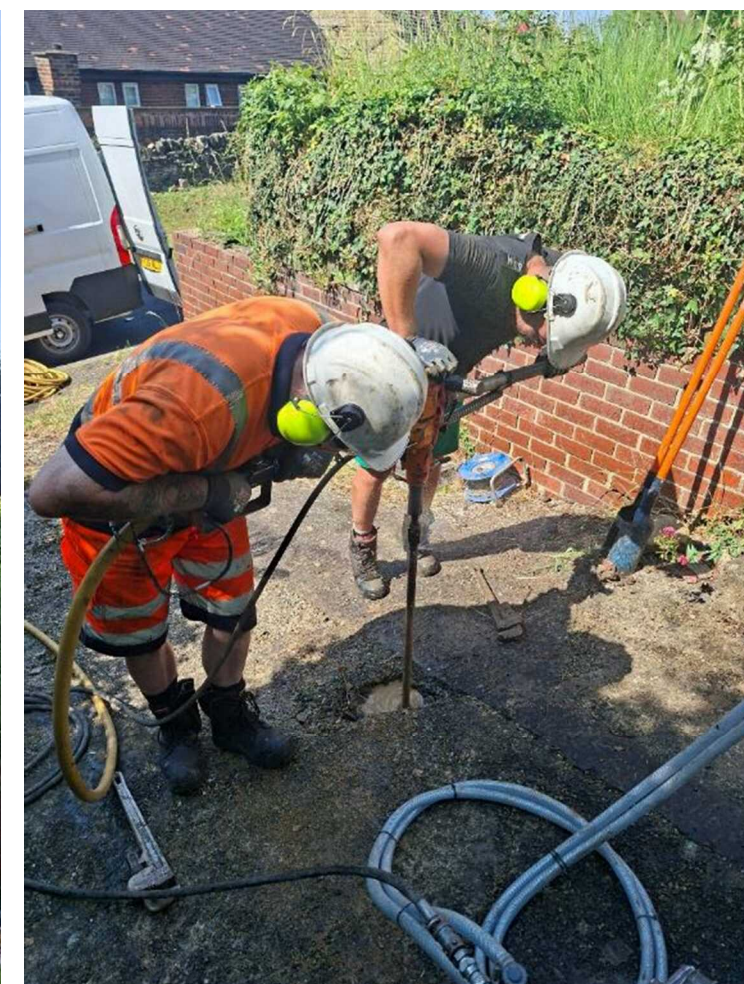
Three main observations

- > **Observation 1:** Evidence of coal and mine workings was noted at a depth of 84.00 mAOD within the two boreholes.
- > **Observation 2:** Possible groundwater (resting water level) was encountered at a depth of 79.4 mAOD (10.50 m below ground level) within RO101 after having been left to equalise 20 minutes following drilling (with water flush).
- > **Observation 3:** No evidence of potentially harmful or polluting material, e.g. stained, odorous or suspected asbestos containing material, was observed within the soils in the hand pits.

The revealed ground conditions are tabulated on the following page with the Ground Model for the Site presented in Section 5.0.



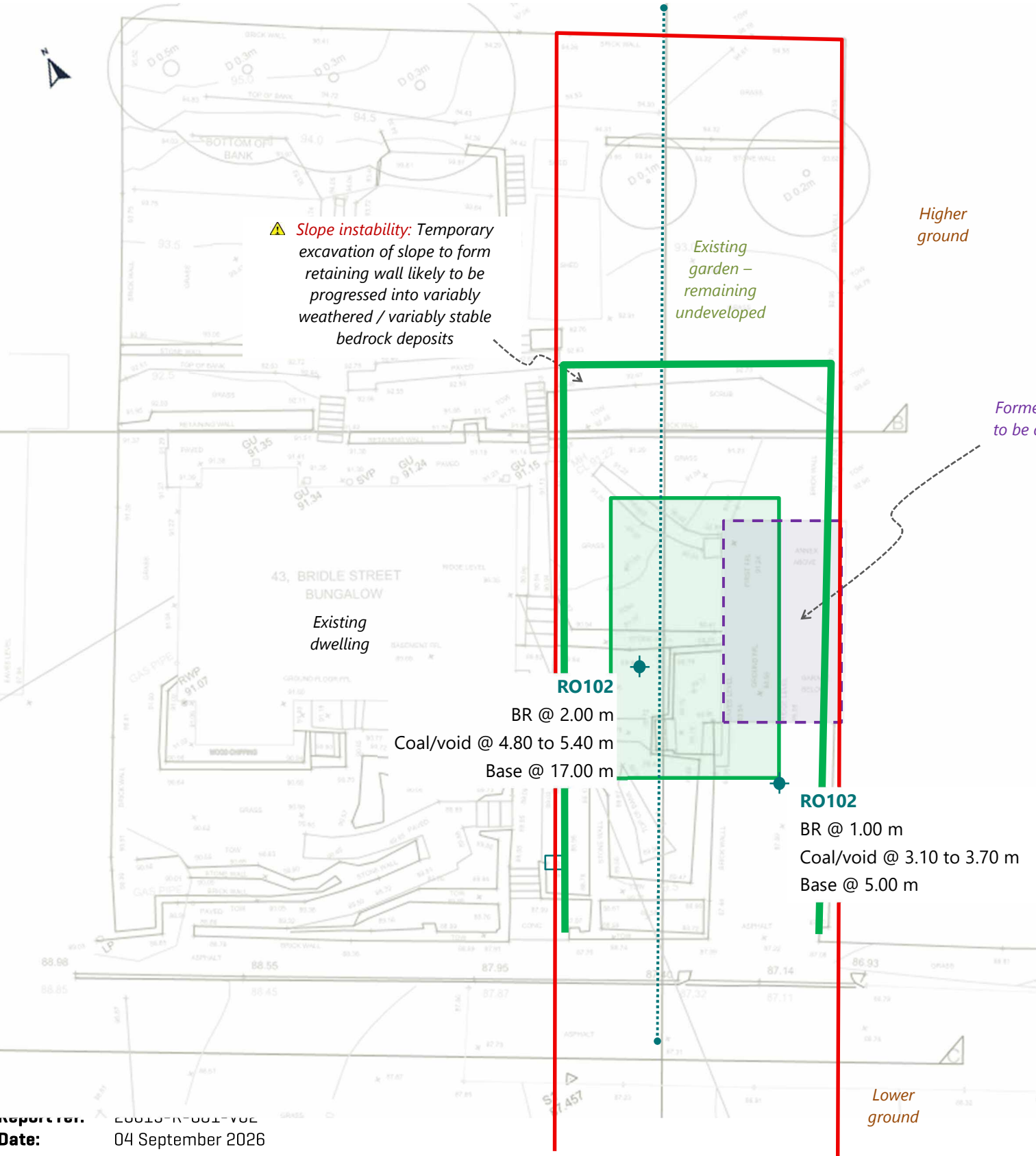
Photograph 1: General presentation of the Site looking south towards Bridle Street – RO101 in foreground



Photograph 2: General presentation of existing structure with minor cracking circled in yellow + drilling RO102

Revealed Ground Conditions

5.0 Ground Model – Plan – Site Scale

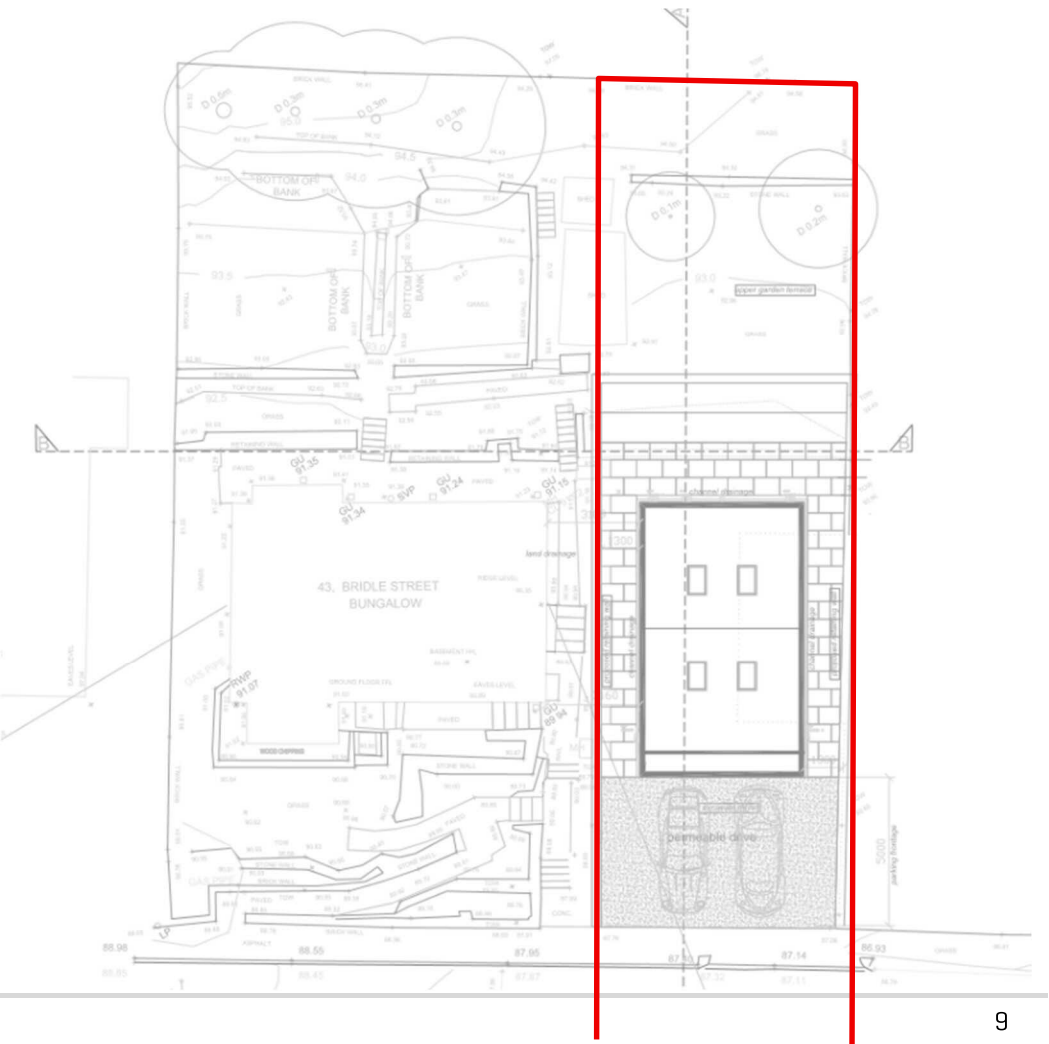


Key

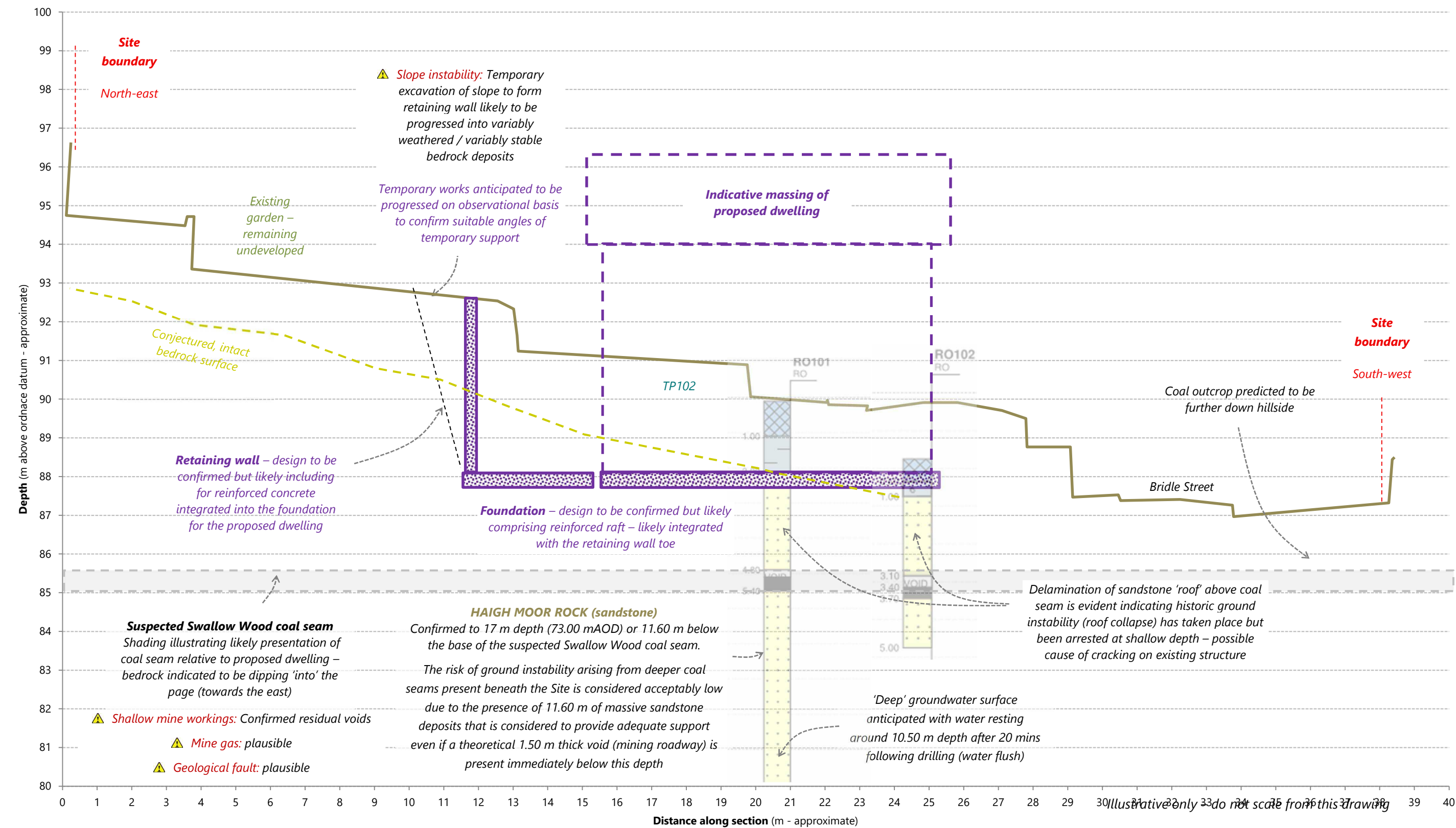
- Site boundary (extending into Bridle Street)
- Former structure
- Proposed structure / dwelling

Ground Investigation Key

- Soil and Structures – June 2026
- Rotary open hole borehole



5.0 Ground Model – Profile



Phase 1, Phase 2 and Phase 3 Report (combined) & Revised Coal Mining Risk Assessment

43 Bridle Street, Batley

Ground Risk Register – Construction Issue

Hazard	Primary Receptors & Risk Pathways	Background threat ¹	Assessment of Risk ²	Risk Management ³
Historical Hazards				
Made Ground (polluting material)	Controlled Waters (lateral or vertical migration)	High	No evidence	Responsive
Made Ground (harmful material)	Groundworkers and end-users (various pathways)	Medium	No evidence	Responsive
Made Ground (geotechnical hazards)	Structures and infrastructure (excessive settlement)	Medium	No evidence	Responsive
Sub-Structures	Excavations (slow progress) and/or structures or infrastructure (excessive settlement)	Medium	Known hazard and unacceptable risk	Risk reduction
Ground gas (landfill or infilled land)	Groundworkers and end-users (migration of gas into confined/internal spaces)	Low	Plausible hazard but acceptably low risk	Inherent risk reduction
Unexploded Ordnance	Groundworkers or sub-structures (explosion risk)	Low	No evidence	Responsive
Aggressive geology (non-natural)	Buried concrete (chemical attack)	Low	No evidence	Responsive
Geological Hazards				
Slope instability	Structures and infrastructure (slope failure - various mechanisms)	High	Known hazard and unacceptable risk	Risk reduction
Collapsible soil	Excavations (unstable) and structures and infrastructure (excessive settlement)	High	No evidence	Responsive
Running sand	Excavations (unstable) and groundworkers (liquefaction of soils)	High	No evidence	Responsive
Radon	End users (migration of gas into internal spaces)	High	Known hazard and unacceptable risk	Risk reduction
Ground dissolution	Structures or infrastructure (collapse or excessive settlement)	Medium	No evidence	Responsive
Shrink-swell	Structures and infrastructure (excessive settlement - long-term)	Medium	No evidence	Responsive
Ground gas (natural sources)	Groundworkers and end-users (migration of gas into confined/internal spaces)	Medium	No evidence	Responsive
Aggressive geology (natural)	Buried concrete (chemical attack)	Low	Plausible hazard but acceptably low risk	Risk reduction (precautionary)
Compressible soil	Structures (excessive settlement - long-term)	Low	No evidence	Responsive
Mining Hazards				
Surface instability (mine shafts)	End users, structures or infrastructure (collapse or excessive settlement)	High	No evidence	Responsive
Ground gas (mine gas)	Groundworkers and end-users (migration of gas into confined/internal spaces)	High	Plausible hazard and unacceptable risk	Risk reduction (precautionary)
Surface instability (shallow mining)	End users and structures or infrastructure (collapse or excessive settlement)	Medium	Known hazard and unacceptable risk	Risk reduction
Surface instability (opencast)	Structures and infrastructure (excessive settlement)	Medium	No evidence	Responsive
Coal Outcrops	Groundworks (spontaneous combustion) and risk to structures (excessive settlement)	Medium	No evidence	Responsive
Geological Faults	Structures or infrastructure (excessive settlement)	Low	Plausible hazard and unacceptable risk	Risk reduction (precautionary)
Notes:				
1. Background threat is included to help contextualise the relative risk associated with each hazard and to support proportionate risk management. Overly conservative measures can add unnecessary cost, while insufficient controls may expose people and assets to real risk. Background threat levels are based on an in-house qualitative review of publicly available incident data (e.g. HSE records) and associated impacts such as programme delays. For example, unexploded ordnance is classed as a low background threat due to the absence of fatal incidents since 1949, whereas collapsible ground is classed as high due to the frequency and severity of excavation-related fatalities. Further details are available on request. 2. Risk assessments are 'live' documents and may change as new information becomes available. Ground risk assessment is typically a step-wise process, with desk-based conclusions refined or confirmed through intrusive investigation – lines of evidence are set out earlier within the Report. 3. Risk management: recommended risk reduction measures are set out within Section 6.0 of the Report. Where 'responsive' risk management is recommended, this does not imply no risk; rather, it requires operatives to remain alert to unexpected or unforeseen ground conditions.				

6.0 Ground Engineering – Risk Management and Design Considerations

The main design considerations include, but are not limited to;

- > Extensive excavation – level reductions – into the existing slope to achieve formation levels including excavation and removal of residual sub-structures associated with the existing structure;
- > The presence of a shallow bedrock surface that, within 2 to 3 m of the formation level includes residual voids, likely associated within historic, unrecorded mine workings in what is likely the Swallow Wood coal seam;
- > The lack of evidence of groundwater within 1.90 m (68.00 mAOD) depth of the ground surface locally to TP102 and no seepage points along the embankment along the southern edge of the Site (66.50 mAOD).

Key watch-points for all groundworks:

- ① **Below ground utilities:** Utility strikes represent one of the highest background threats of injury, death and programme delays of all ground-related hazards. The investigation of existing utilities is typically work completed by utility specialists with reference within this Report included for completeness.
- ① **Excavation access:** Excavation collapses carry a high background threat of injury and death – even collapses within shallow excavations can pose a risk of harm. Personnel access into any excavations should therefore only be undertaken with adequate support and appropriate risk assessment. Advice on the general stability of excavations is therefore offered on a preliminary basis only within this Report. Further guidance is available¹⁶.
- ① **Materials management.** For all scenarios, developing a strategy for management of materials/soils in advance of the works commencing is recommended to maximise recovery/reuse and maintain soil conditioning, e.g. not repeatedly handling or compacting Topsoil. In some scenarios, formalising this plan¹⁷ will be required.

Preliminary advice on the re-use and recovery of materials is presented within this Report with indicative material classes given in accordance with Series 0600¹⁸ of the Manual of Contract Documents for Highway Works.

For material re-use as an engineering or load-bearing fill the Engineer's approval will be required. Additional testing may be required to confirm grading and where necessary, a compaction regime.

- ① **Waste classification of excavation arisings.** The waste classification of soils is something that should be approached in a step-wise manner, in line with current guidance¹⁹:

Step 1: Confirming whether a soil is Hazardous or Non-Hazardous (through solid soil testing) followed by

Step 2: Waste acceptance criteria (WAC) testing only when and where off-Site disposal is confirmed as the fate for the material.

Groundworks contractors have access to waste brokerage firms and landfills directly where acceptance criteria can vary and, as such, are generally best placed to confirm waste classifications. The waste classification any material surplus to requirements (requiring disposal) will need to be agreed with the groundworks contractor in advance of works commencing. Any advice on waste classification is therefore offered on a preliminary basis in this Report.

- ① **Construction workers health and safety.** Contractors working in the ground will be exposed to the soils and any materials contained within them throughout the duration of the works phase (demolition or construction).

Based on the history of this plot, it is unlikely acutely harmful or polluting material is present in the soils beneath the Site, e.g. oil-stained soils, however 'sharps' (glass, angular slate) is likely to be present in the shallow soils – reworked natural soils with construction material present within it.

The appointed contractor should satisfy themselves of having in place suitable measures to protect workers and neighbours against the compounds detected within the Site soils.

¹⁶ CIRIA Report 97 - Trenching practice. 2nd edition

¹⁷ <https://claire.co.uk/projects-and-initiatives/dow-cop/28-framework-and-guidance/111-dow-cop-main-document>

¹⁸ <https://www.standardsforhighways.co.uk/search/471049cb-7dd8-452a-81e6-fc8af7d31b91>

¹⁹ [Classify different types of waste: your legal responsibilities - GOV.UK](#)

6.1 Groundworks

Excavations

Excavations are anticipated to:

- Encounter the materials set out in Section 4.0 and as illustrated on the Ground Model in Section 5.0
- Be progressed at typical rates using any sized plant slowing as higher strength, more intact bedrock deposits are encountered (likely from depths of around 1.00 m below ground level) where larger >5 tonne plant and likely use of a breaker will be required to maintain typical rates of excavation (that are likely to be slowed by the bedrock in any case).
- Likely remain free-draining due to 'good' drainage characteristics in the shallow sandstone (partially due to the fractured/disturbed nature of the bedrock deposits because of the shallow voids).

⚠ **Slope stability:** Risk reduction recommended.

- Excavations are anticipated to generally, remain open and stable noting that Site-wide reduced level excavations up to c. 5.0 m are likely to be required to suit formation levels for which an observational approach to the temporary works design is recommended, i.e. rock mass characterisation to confirm safe angles of temporary support.

For preliminary design purposes it is recommended that:

- > Cut faces are anticipated to have 'favourable' conditions of self-support with intact sandstone deposits expected across most of the excavation face, noting that the upper 1 m is likely weathered to soil-like strength characteristics and likely to require a much shallower batter.
- > Temporary and permanent works are co-ordinated to limit the amount of time the slope is exposed to potential instability.
- > Laterally sequential formation of the retaining wall is likely to be favourable (sectional construction sequencing allowing for more favourable conditions of support).
- > The access arrangements being constrained such that a piled retaining wall is unlikely to be viable.
- > Intact bedrock is anticipated to be self-supporting at angles of up to 70 degrees in the temporary condition but likely steeper, subject to inspection of the exposed face by a suitably qualified engineer.

⚠ **Sub-structures:** Inherent risk reduction.

- Reduced level excavation will result in the removal of any old sub-structures relating to the former structure.

⚠ **Surface instability (shallow mining):** Risk reduction recommended.

- Excavations will be advanced within 2 to 3 m of the roof of residual voids associated with mine workings. Without risk reduction, these voids could propagate to the surface of the reduced level excavation and present a potential threat to personnel and plant through ground collapse/crush risk.
- Stabilisation of the mining voids (grouting) in advance of groundworks being completed is recommended. This will likely necessitate the demolition of the existing structure to have been completed however; this should be confirmed as part of the Scope of Works for Ground Stabilisation.

Earthworks (cut and fill)

Will be required levels after development reduced relative to existing levels. A net export of material (from excavations) will be required.

Waste classification (preliminary)

Any reworked natural soils (Made Ground) and weathered or intact bedrock deposits requiring removal and off-Site disposal are likely to class as EWC 17 05 04 (mirror non-hazardous).

It is recommended that reference to the key watch-points in Section 5.0 are made for general advice on material management and reference to Section 5.1 is made for more specific advice on the materials anticipated to be encountered.

6.2 Structural Engineering

Proposed foundations

Options are restricted in these ground conditions and will likely be guided towards the use of shallow low ground pressure, reinforced, spread footing (raft) formed within the natural sandstone deposits with specific attention given to:

- The sandstone deposits will themselves offer 'very good' levels of support to foundations noting that they are likely to have become fractured/disturbed because of the shallow mining voids present at very shallow depths guiding the requirement for a low ground pressure, reinforced, spread footing (following treatment of the residual voids).
- A groundwater surface that is anticipated to be deeper than 3 m below ground level but may be exposed to seepage flows from higher elevations.

⚠ **Surface instability (shallow mining):** Risk reduction recommended.

- Without risk reduction, ground instability may occur resulting in loss of support to the underside of foundations and potential foundation failure.
- Stabilisation of the mining voids (grouting) in advance of groundworks being completed is recommended. This will likely necessitate the demolition of the existing structure to have been completed however; this should be confirmed as part of the Scope of Works for Ground Stabilisation.

⚠ **Geological fault:** Risk reduction recommended.

- Geological fault reactivation (movement) is uncommon in the UK and unlikely to adversely impact the proposed development. More likely, the formation soils may vary in nature and/or strength.
- The recommended use of a fully-stiffened raft with low ground pressure will mitigate against any potential differences in strength characteristics across the fault (if present).

Assuming a fully-stiffened raft formed at a minimum depth of 0.50 m below ground level (frost-heave mitigation) within the sandstone deposits, a presumed bearing capacity of upwards of 75 kN/m² could be adopted as part of the foundation design (BS EN 1997-1 methodology based on a conservative estimate of the strength characteristics of the formation soils). This bearing pressure reflects the fact this foundation will be stressing grout placed within the residual mining voids that will likely be the limiting strength factor in sandstone with otherwise 'good' strength characteristics, e.g. upwards of weak to medium strong rock strength anticipated.

As noted above, in advance of foundations being formed a programme of ground stabilisation will be required to fill the residual mining voids present beneath the structure.

Proposed floor slabs

Options are restricted in these ground conditions guided by the recommended use of a reinforced raft (integrated floor-slab).

Specific attention should be given to:

⚠ Radon: Risk reduction recommended.

- The provision of basic radon protection is recommended in line with current guidance²⁰. This would be achieved through the provision of a continuous, well-sealed damp proof membrane (1200 gauge and thicker) however, in this scenario it is recommended the membrane is 'upgraded' to a gas resistant membrane that meets the requirements of Table 7 of current guidance.²¹

⚠ Mine gas: Risk reduction recommended.

- The presence of mining voids at a shallow depth beneath the proposed dwelling coupled with the recorded presence of a geological fault serve as two key markers for an increased likelihood of mine gas presenting an unacceptable risk to the proposed development.

Whilst no mine gas was recorded during the drilling works, these were completed during a heat-done (high pressure event) suggesting that gases, if present, may have been suppressed within the ground. All coalfield regions 'breathe' mine gas with emissions generally occurring at points where open voids are present, e.g. mine shafts or where shallow mine workings are present, as evidenced in this scenario.

The stabilisation (filling) of the mining voids will reduce the risk of mine gas migration to an extent however; it is also recommended that ground gas protection is provided to the structural slab.

In this scenario, the structure would be considered Type A (private/small room sizes) and a Characteristic Gas Situation (CS) rating of CS2 considered appropriate noting other mitigating factors, e.g. ground stabilisation works.

Taken together it is recommended that two forms of ground gas protection are provided to the dwelling achieving a 'score' of 3.5 points (Table 4²¹).

This score could be achieved using a reinforced raft (structural barrier; 1.5 points with minimal penetrations) and a gas resistant membrane that meets the requirements of Table 7 of current guidance²¹ (2 points).

Retaining walls

Will be required as part of the proposed development.

⚠ Slope stability: Risk reduction recommended.

- Refer to note within Section 6.1 with respect to temporary works.
- For the permanent condition, the retaining wall will likely be supporting up to 5 m of weathered bedrock / intact bedrock the exact condition and mass strength characteristics of which is unknown at this stage.

For preliminary design purposes it is recommended that:

- > For the retaining wall design, within bedrock it is common to treat the material as a very dense granular material (unless there is evidence to suggest more or less favourable conditions) to conservatively estimate the coefficient of earth pressure (k_0).
- > In this scenario, k_0 could be taken as 0.25 within the intact sandstone deposits.
- > Similarly, the unconfined compressive strength (UCS) of the sandstone deposits at the formation level is expected to be greater than 250 kN/m² noting again, that the bearing pressure will be guided by the requirement to stabilisation of the mining voids (strength of grout limiting factor).
- > Adequate drainage to the rear of the retaining wall is provided to limit the potential for excessive hydrostatic pressure build ups that otherwise are expected to be minimal (seepage flows only with no maintained groundwater surface anticipated).

Buried concrete

Placed in all soils encountered as part of this investigation can be designed to suit DS-2 AC-2 classifications²² and groundwater regarded as 'mobile'.

This classification is precautionary, in lieu of chemical testing and accounts for the presence of very shallow coal mine workings beneath the formation.

6.3 Civil Engineering

Hard-standing

Levels for the new access road and driveways will be slightly lower than the existing ground surface with a net cut (removal) of material anticipated to allow a suitable construction to be installed.

Based on the revealed ground conditions and likely formation levels, the sub-grade is expected to mainly comprise natural weathered sandstone deposits (sandy gravelly clay) with localised, residual thicknesses of Made Ground in places where hardstanding crosses areas where utility corridors are present, e.g. drains.

The shallow weathered sandstone deposits are to offer generally 'good' levels of support with a preliminary, sub-grade CBR of at least 3.0 % proposed at a depth of 0.45 m below ground level.

⚠ Surface instability (shallow mining): Risk reduction recommended.

- Formation levels for new hardstanding will be advanced within 2 to 3 m of the roof of residual voids associated with mine workings. Without risk reduction, ground instability may occur resulting in loss of support to the hardstanding and potential ground collapse.
- Stabilisation of the mining voids (grouting) beneath areas of proposed hardstanding and in advance of groundworks being completed is recommended. This will likely necessitate the demolition of the existing structure to have been completed however; this should be confirmed as part of the Scope of Works for Ground Stabilisation.

²⁰ BRE 211 Guidance on protective measures for new buildings ... (2023 Edition)

²¹ BS8485:2015+A1:2019 code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings

²² BRE SD1 Concrete in aggressive ground

- Following stabilisation works it is recommended that all new hardstanding (paving and driveways) is reinforced with a combined geo-grid and geo-textile to provide additional tensile / spanning support to the construction.

Drainage

Rainwater falling onto the Site is anticipated to currently be draining through the shallow soils or entering the existing drainage system with surface water ponding unlikely during inclement weather, given the anticipated good drainage characteristics and sloping topography.

Specific attention should be given to:

⚠ **Surface instability (shallow mining):** Risk reduction recommended.

- The recorded presence of shallow mining voids presents a risk of ground instability that, even following stabilisation, may be subject to instability driven by the action of infiltrating water.

No drainage to ground is recommended for the proposed development.

- A groundwater surface that is anticipated to be deeper than 83 mAOD throughout the year.

Water supply pipes

Are likely to be laid within natural weathered sandstone deposits based on the proposed layout (water pipes coming in from main road).

These soils will present a low risk of fouling/pollution to new water supply pipes and therefore all suitable materials may be used for new water supply pipes, e.g. HDPE.

6.4 Landscaping

Soft landscaping

No new areas of soft landscaping are proposed with the existing garden area partitioned of and retained in its current condition. No further assessment is recommended.

Whilst considered unlikely, if and where any new soil forming material is brought onto Site its chemical quality will need to be confirmed as being 'suitable for use'. Where required, the advice of the Author of this Report should be required.

7.0 Conclusions and Recommendations

Based on available information and the scope of this Report (**intrusive** assessment) the ground conditions and associated, ground-related risks on Site are considered generally well characterised and consistent with the anticipated ground conditions.

It is reiterated that any ground investigation offers a snapshot of ground conditions from discrete exploratory hole positions and therefore variations in ground conditions cannot be ruled out.

In this scenario, given the requirement for **demolition works** to be progressed in advance of construction works commencing, where possible under the terms of the planning application, the demolition works would serve as a valuable opportunity for risk reduction, e.g. removing sub-structures, and in this scenario, enabling the Site so ground stabilisation works can be progressed.

7.1 Conclusions

A summary of the risk management process is presented within the **Ground Risk Register** on the following page.

- > **Further assessment** is not recommended.
If and where unexpected or unforeseen material is encountered, e.g. oil-stained soils, then further assessment may be required to support the design of a suitable response plan.
- > **Risk management / mitigation** is recommended to reduce the level of risk presented by various hazards to acceptably low levels details of which are presented throughout Section 6.0 of this Report alongside more general ground engineering advice.

7.2 Recommendations

Recommended follow-on work includes:

1. **Submission of the Ground Investigation Report (intrusive)** to the project design team and other stakeholders, e.g. the local planning authority and building control; and
As noted within the introduction to this section, it is reiterated that the demolition works stand to serve as a valuable opportunity for both further assessments, e.g. confirming ground conditions, and risk reduction, e.g. removing sub-structures
2. **Follow-on reporting** is recommended in the form of:
 - i) **Scope of Works & Specification for Ground Stabilisation**
Design documentation for the treatment of the shallow mine workings to enable specialist sub-contractors to price and action the recommended ground stabilisation works.
 - ii) **Validation Report**
Final sign-off document to confirm the recommended remedial works (contaminated land related) have been completed satisfactorily (refer to Section 8.0).

① **Photographic diary of the demolition works:** As reiterated throughout this Report, it is recommended that, as a minimum, a photographic record of any groundworks is maintained to document the physical condition and nature of the ground conditions across the Site during the demolition works. This information will serve as a valuable record for the project as well as any future groundworks on the Site.

① **Photographic diary of the groundworks:** It is recommended that a photographic record of any groundworks is maintained to document the physical condition and nature of the ground conditions across the Site. As noted above, this information will serve as a valuable record for the project as well as any future groundworks on the Site

8.0 Remediation Strategy

Based on scale of the recommended remedial works, advice on managing ‘contaminated land related’ hazards is set out within this combined report.

This section, the ‘Remediation Strategy’ offers advice on risk mitigation measures or ‘remedial actions’ that have been recommended to bring the site up to a condition that would be deemed ‘suitable for use’.

The legal context of this advice is rooted within national planning policy guidance (the National Planning Policy Framework) that is governed by planning law (various acts).

In this scenario, the Site would be deemed ‘suitable for use’ if residual risk is reduced to acceptable levels relating to one ground-related hazard; i) mine gas and radon. It is noted that risk mitigation in relation to other ground-related hazards is also recommended, e.g. shallow mine workings and slope stability, advice on which is given within Section 6.0 of this Report.

8.1 Risk Assessment Summary

Source(s)	Mine gases and radon
Pathway	Ingress and accumulation within internal spaces
Receptor	End users (mine gas is toxic, asphyxiant, explosive and radon is radioactive/carcinogenic)

Risk is not static and can change for various reasons.

In this scenario, whilst considered unlikely, the ground stabilisation works may reveal much higher concentrations of ground gas that may guide the requirement for additional forms of protection, e.g. passive / active ventilation beneath the floor slab.

8.2 Remedial Action 1 – Provision of a Ground Gas Protection Measures (mine gases and radon)

The objective of this remedial action: is to reduce the potential (and therefore the risk) for mine gas and radon to enter the proposed dwelling.

This remedial action can be achieved through: the provision of ground gas protection measures to the dwelling that achieve ‘3.5 points’ or more (CS2 classification for Type A building).

This option has been selected based a precautionary approach allowing for two forms of protection to the properties (structural barrier and gas resistant barrier).

The structural barrier should be:

- > Cast in-situ monolithic reinforced ground bearing raft with minimal penetrations (1.5 points).

The membrane should be:

- > A gas resistant membrane that meets the requirements of Table 7 of current guidance²¹ (2 points).
- > Well-sealed, e.g. double-jointed and service penetrations sealed, such that it can act as an effectively ‘air tight’ barrier to the movement of any mine gas and radon gas up into the habitable space.

- > *Detailing of Ground Gas Protection:* The detailing of ground gas protection should be completed by the Engineer or Architect (subject to responsibilities under the contract).

Guidance on detailing ground gas protection is provided within current guidance²¹.

- > *Installation of Ground Gas Protection:* The installation of mine gas and radon protection measures shall be completed by the main contractor (raft installation and membrane installation) , an experienced house-building contractor.

This approach is considered appropriate for this development type (low-rise residential single dwelling development) under current good practice guidance²³.

① **Follow-on trades** should be made aware that any damage to the membrane is unacceptable and stands to compromise the gas protection.

8.3 Other Actions – Response Plan for Unexpected or Unforeseen Harmful or Polluting Material

The objective of this action is to: ensure any unforeseen harmful or polluting material is dealt with in a way that ensures the development can still be deemed ‘suitable for use’ on completion and that future liabilities associated with the land are limited, e.g. pollution incidents.

This objective can be achieved through: continual inspection of soils during groundworks.

If and where any material is revealed on Site that is suspected as being unsuitable, i.e. potentially harmful, then the advice of the Engineer or the Author of this Report should be sought.

Examples of ‘unforeseen contamination’ could include visibly stained or odorous soils. If and where soils are encountered that differ physically or in colour from those detailed and illustrated herein then it is also recommended that the advice of the Engineer or the author of this Report is sought.

The Engineer should in turn notify the local planning authority’s Contaminated Land Team of the encounter.

If and where the unforeseen contamination requires remedial action that differs from the actions detailed herein, then a revised Remediation Strategy should be submitted to local planning authority’s Contaminated Land Team and agreed in advance of any work on or around the potentially contaminated material recommencing.

8.4 Validation Plan

The following lines of evidence should be sought to demonstrate the recommended remedial work has been completed satisfactorily:

For the **ground gas protection measures** it is recommended that:

- ☑ *For the structural barrier (raft):* photographs of the raft’s formwork, reinforcement, penetrations (service ducts) and final condition are provided by the Contractor.
- ☑ *For the gas resistant barrier:* that the membrane’s installation is verified by an independent consultant or qualified and experienced installer.

²³ [Hazardous Ground Gas - An essential guide for housebuilders - NHBC](#)

Phase 1, Phase 2 and Phase 3 Report (combined) & Revised Coal Mining Risk Assessment

43 Bridle Street, Batley

SOIL AND
STRUCTURES

The appointed 'verifier' shall likely be the Author of this Report who is a *competent, experienced and suitably trained* individual with specific experience of detailed quantitative risk assessment (for ground gas and radon) and inspection and sign-off of ground gas protection (various designs) for over 1000 properties.

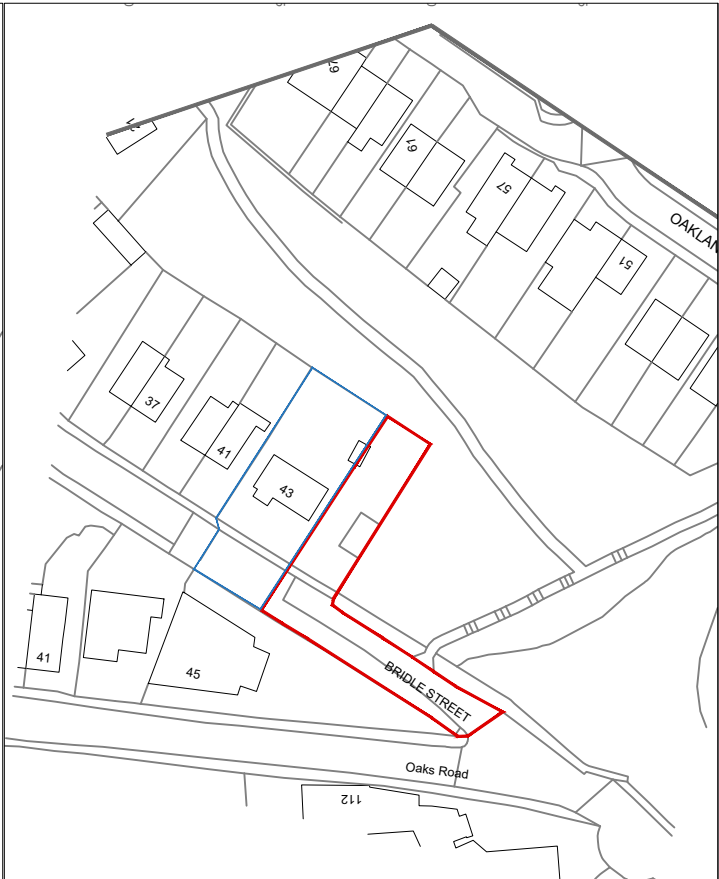
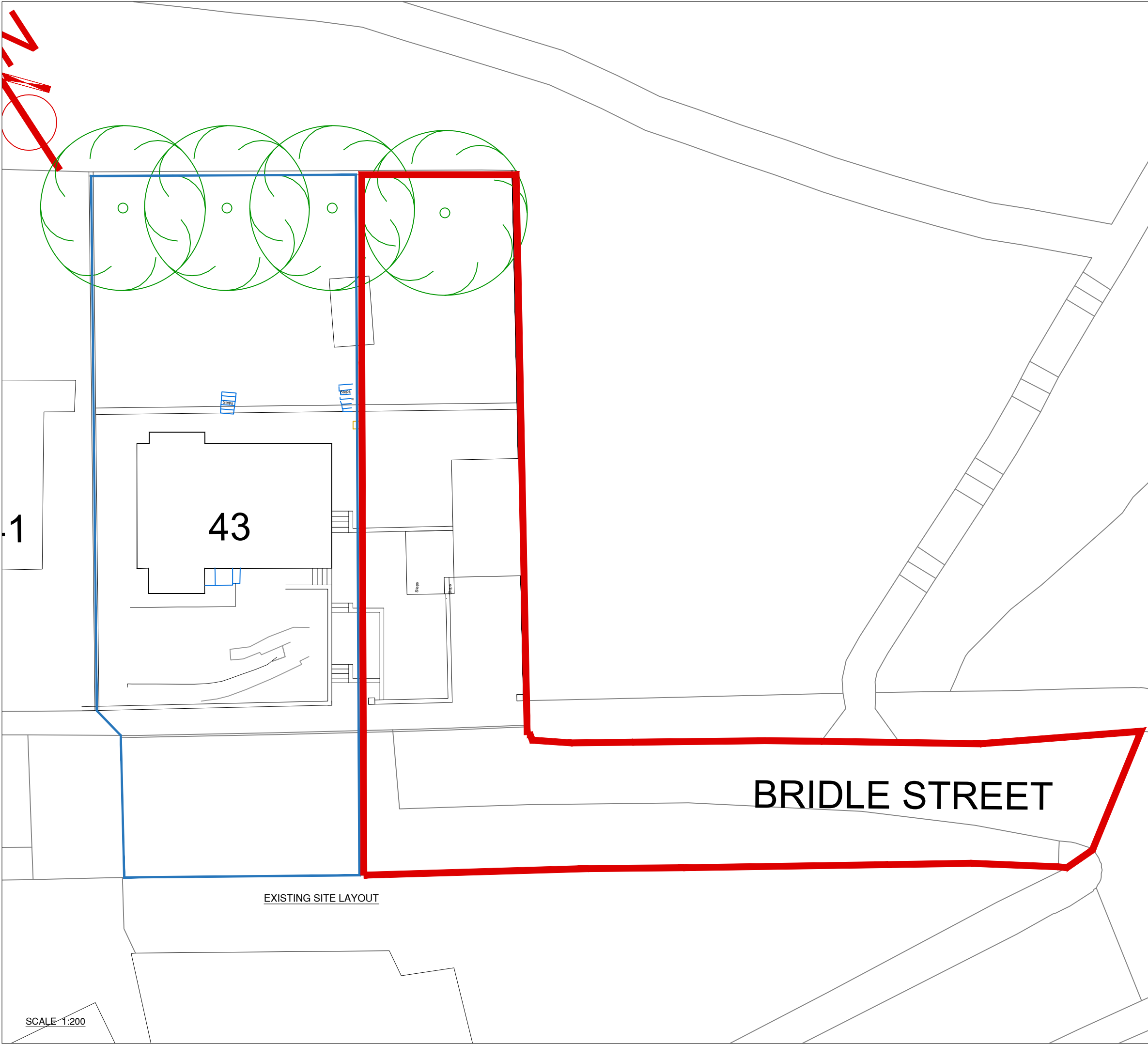
Signed inspection report (example report²⁴) shall be prepared by the 'verifier', confirming that the agreed ground gas resistant membrane has been installed correctly in line with the design and current guidance^{5,6}.

Any non-conformances, e.g. inadequate sealing of service penetrations or multiple punctures, shall be immediately identified by the 'verifier' and, where not able to be rectified adequately on the inspection visit, an additional visit scheduled to demonstrate that appropriate steps have been taken to address the non-conformance.

For *unexpected encounters of potentially harmful or polluting material* it is recommended that:

- ☒ Confirmation of the response plan having been completed satisfactorily should be included within the Validation Report.

²⁴ <https://claire.co.uk/overview-of-gpvs-scheme?start=7>



LOCATION PLAN
SCALE 1:1250

NOTES

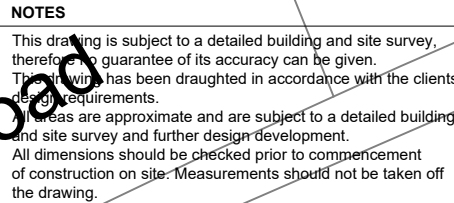
This drawing is subject to a detailed building and site survey, therefore no guarantee of its accuracy can be given. This drawing has been draughted in accordance with the clients design requirements. All areas are approximate and are subject to a detailed building and site survey and further design development. All dimensions should be checked prior to commencement of construction on site. Measurements should not be taken off the drawing.

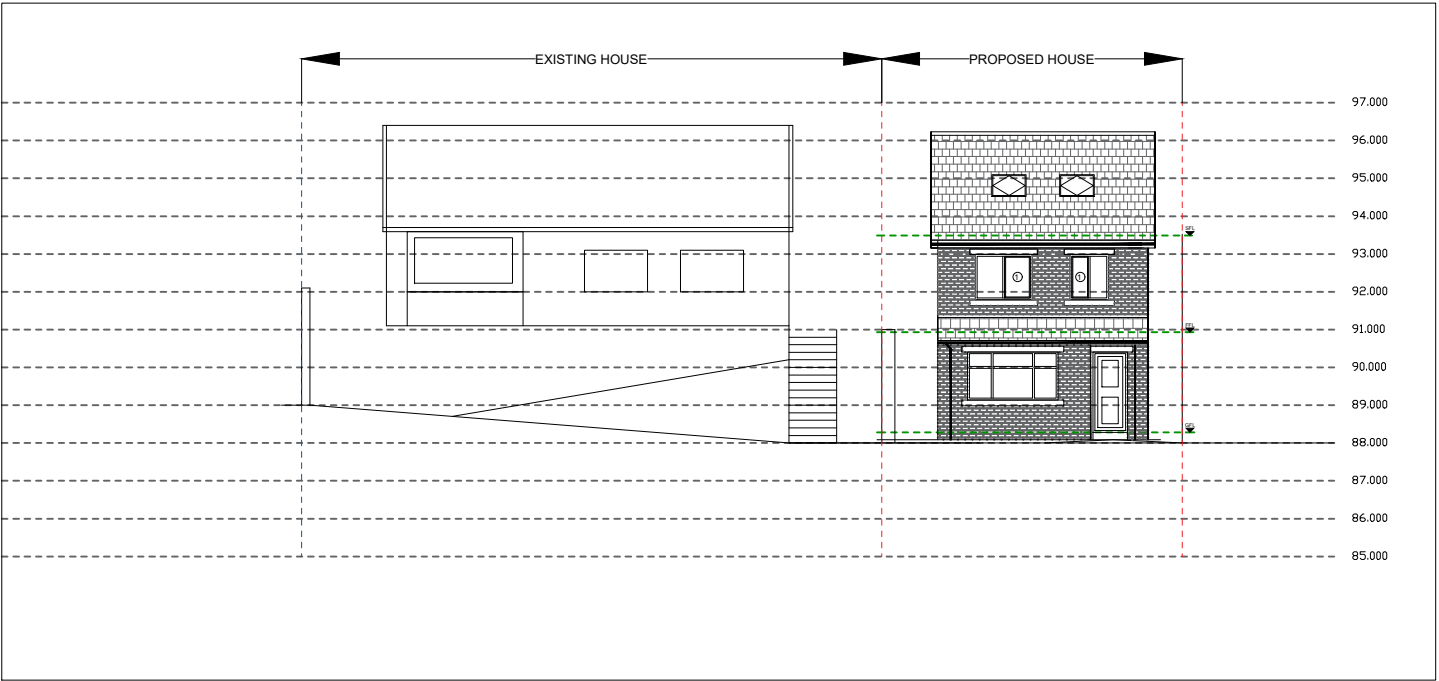
c	Amended to Highways plans	07.10.25
B	Site plans and location plans amended	18.04.25
A	Site plans and location plans amended	17.01.24
Rev	Revision	Date

JOB
PROPOSED CONSTRUCTION OF DETACHED DWELLING

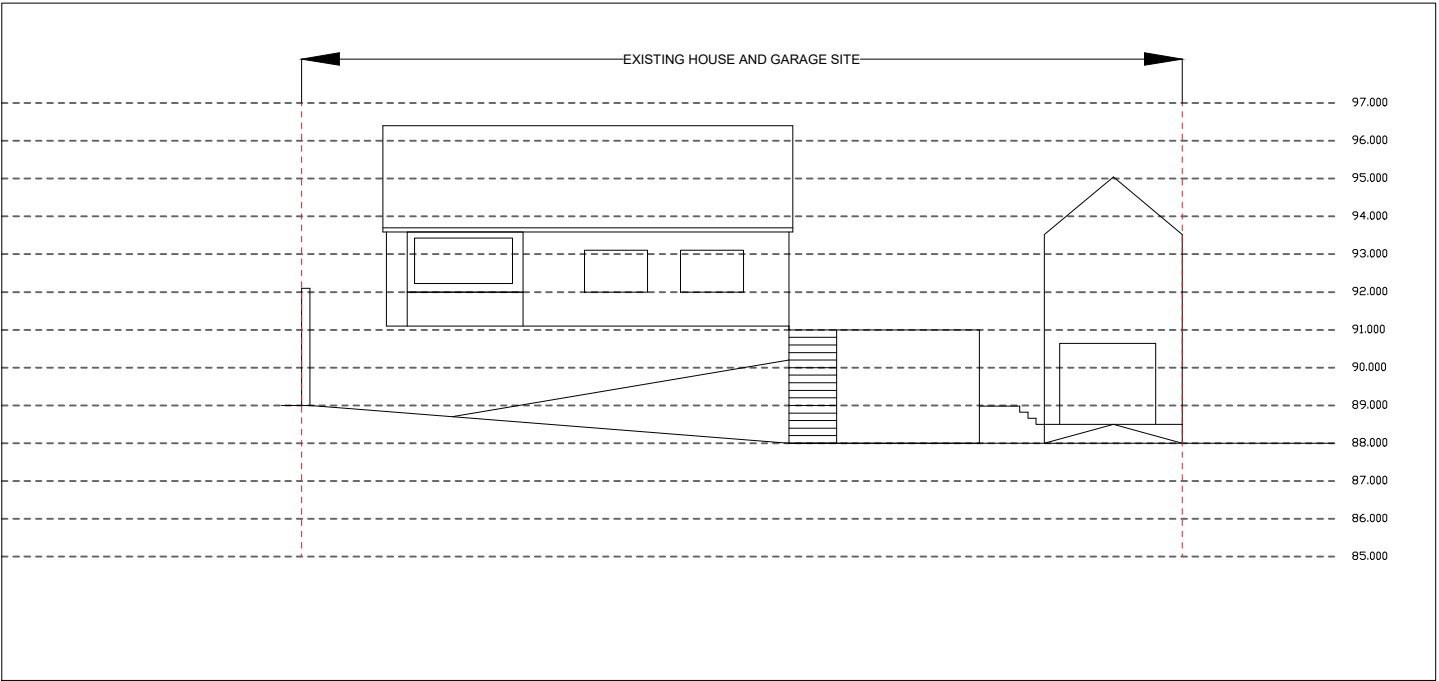
ADDRESS
LAND AT SIDE OF
43 BRINDLE STREET
BATLEY
WF17 6LU
H & HF INVESTMENTS LTD

DATE	SCALE	SHEET	
06.12.2023	1:1250 / 1:200	1@A3	





PROPOSED STREET SCENE PLANS



EXISTING STREET SCENE PLANS

NOTES

This drawing is subject to a detailed building and site survey, therefore no guarantee of its accuracy can be given.

This drawing has been draughted in accordance with the clients design requirements.

All areas are approximate and are subject to a detailed building and site survey and further design development.

All dimensions should be checked prior to commencement of construction on site. Measurements should not be taken off the drawing.

c		Amended to Highways plans	07.10.25
B		Site plans and location plans amended	18.04.25
A		Site plans and location plans amended	17.01.24
Rev		Revision	Date
JOB			
PROPOSED CONSTRUCTION OF DETACHED DWELLING			
ADDRESS			
LAND AT SIDE OF 43 BRINDLE STREET BATLEY WF17 6LU H & HF INVESTMENTS LTD			
DATE	SCALE	SHEET	
06.12.2023	1:200	5@A3	

Key to exploratory hole symbols and abbreviations

SAMPLE TYPES

ACM - Asbestos sample	AMAL - Amalgamated sample	B - Bulk disturbed sample
BLK - Block sample	C - Core sample	CBR - CBR test sample
D - Disturbed sample	ES - Environmental sample	EW - Environmental water sample
G - Gas sample	J - Jar sample	L - Liner sample
TW - Pushed thin wall sample	U - Undisturbed sample	UT - Undisturbed thin wall sample
W - Water sample	T - Tub sample	JT - Jar and Tub sample

IN-SITU TESTS

HV - Hand shear vane	HV(r) - Hand shear vane residual	PID - Photo ionisation detector
PP - Hand penetrometer	SPT - Standard penetration test	SPT(C) - SPT using cone

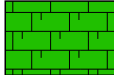
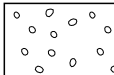
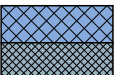
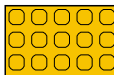
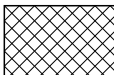
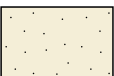
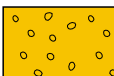
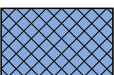
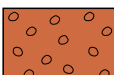
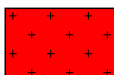
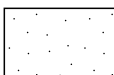
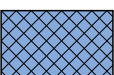
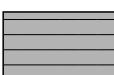
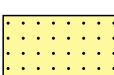
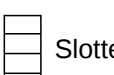
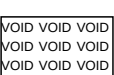
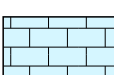
GROUNDWATER

 Groundwater strike	 Groundwater rest level
--	--

ROTARY CORE DETAILS

TCR - Total core recovery (%)	SCR - Solid core recovery (%)	RQD - Rock quality designation (%)
FI - Fracture index	NI - Non-intact core	AZCL - Assumed zone of core loss

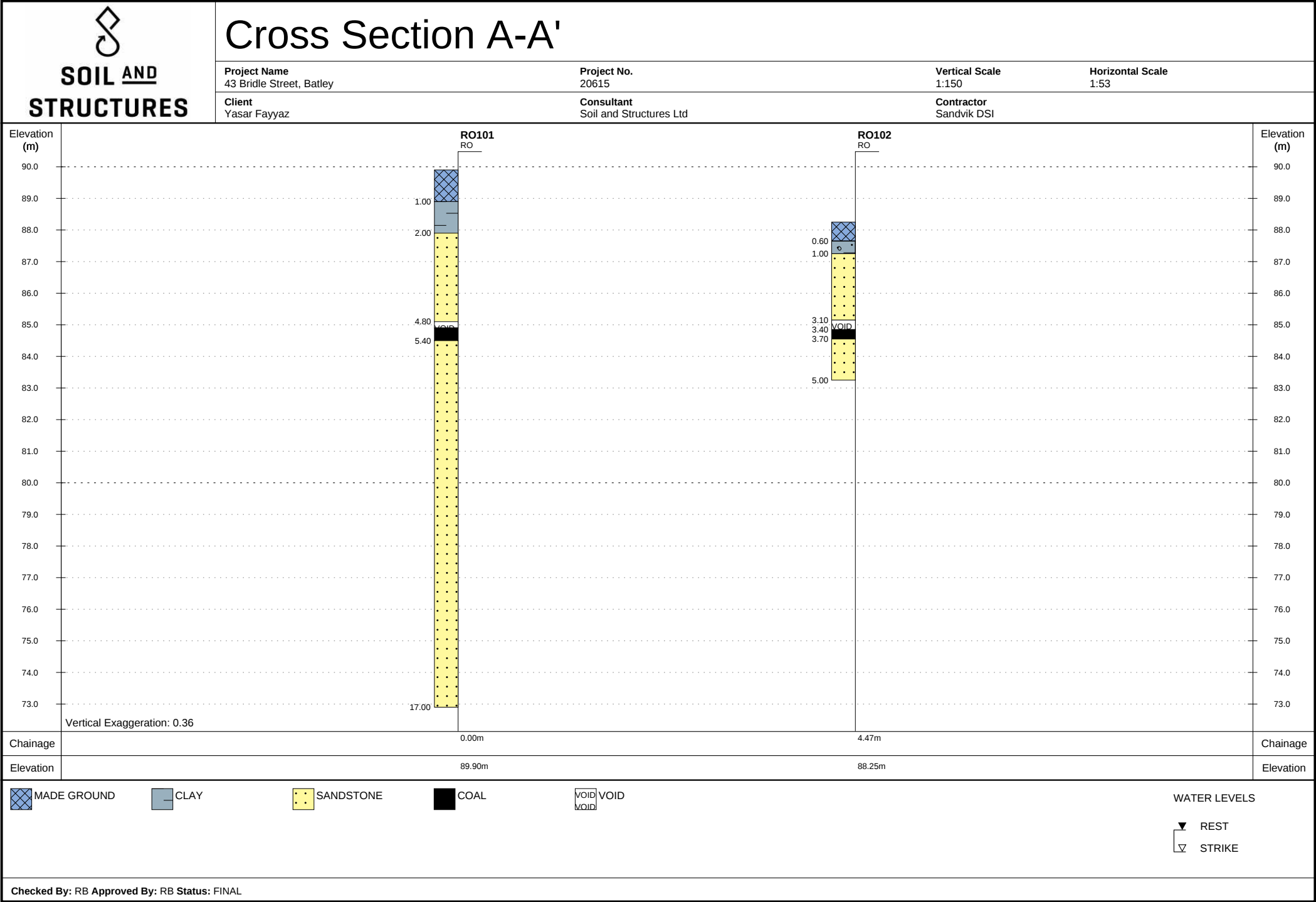
LEGEND

 Topsoil	 Clay	 Chalk	 Sand backfill
 Peat	 Silt	 Breccia	 Gravel backfill
 Made ground [cohesive]	 Sand	 Conglomerate	 Arisings
 Concrete	 Gravel	 Metamorphic	 Bentonite
 Wood	 Cobbles	 Igneous	 Concrete
 Brick	 Boulders		 Grout
 Bituminous material	 Mudstone		 Plain pipe
 Gypsum	 Siltstone		
 Coal	 Sandstone		 Slotted pipe
 Void	 Limestone		

 SOIL AND STRUCTURES		Open Hole Log										RO101 Sheet 1 of 1		
		Hole Type RO		Easting 425483.00		Northing 423985.00		Ground Level (m) 89.90		Scale 1:100				
		Project Name 43 Bridle Street, Batley				Project No. 20615		Start Date 2026-06-26		End Date 2026-06-26				
Client Yasar Fayyaz				Consultant Soil and Structures Ltd				Contractor Sandvik DSI						
Inst/ Backfill	Water Levels	Samples and Tests			Coring				Frac	Level m	Depth (thickness) m	Strata		
		Depth (m)	Type/ Ref	Results	Core Run	TCR (%)	SCR (%)	RQD (%)				Legend	Description	
												 (TRIAL PIT) Grass over brown sandy slightly gravelly SILT with cobbles. Sand is fine to coarse. Gravel is fine to coarse sandstone and occasional brick. Cobbles are small to medium angular to sub-angular sandstone and brick.	0.5	
													 [MADE GROUND]	1.0
													Camera to 4.20 m depth before blockage (0.00 - 5.20m)	1.5
													Smooth, fast drilling, brown flush	2.0
													[Suspected weathered bedrock]	2.5
													Smooth, slow drilling, light brown flush	3.0
													[SANDSTONE (camera inspection), Evidence of delamination (camera inspection)]	3.5
														4.0
														4.5
														5.0
														5.5
														6.0
														6.5
														7.0
														7.5
														8.0
												8.5		
												9.0		
												9.5		
												10.0		
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												18.0		
												18.5		
												19.0		
												19.5		
												20.0		
Remarks											Method, Plant, Stability, Dimensions			Logger
PURPOSE: Ground profiling (deep) to confirm presence/abcense of coal seam. TERMINATION: Target depth achieved - engineer terminated. GROUND GAS: None detected during drilling or at cavity on completion. GROUNDWATER: Drilling with water flush - water present in borehole cavity on completion with depth after 20 mins logged here.											0.00 - 17.00m RO Hand held rotary			RB
Checked By: RB Approved By: RB Status: FINAL														

 SOIL AND STRUCTURES	Open Hole Log				RO101
	SUPPLEMENTARY INFO				
	Hole Type RO	Easting 425483.00	Northing 423985.00	Ground Level (m) 89.90	Scale 1:100
Project Name 43 Bridle Street, Batley		Project No. 20615	Start Date 2026-06-26	End Date 2026-06-26	
Client Yasar Fayyaz		Consultant Soil and Structures Ltd	Contractor Sandvik DSI		
Water Strike - General					
Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks	
17.00					
Water Strike - Details					
Struck (m)	Rose To (m)	Time (mins)	Remarks		
17.00	10.50	20			
Remarks			Method, Plant, Stability, Dimensions		Logger
PURPOSE: Ground profiling (deep) to confirm presence/abcense of coal seam. TERMINATION: Target depth achieved - engineer terminated. GROUND GAS: None detected during drilling or at cavity on completion. GROUNDWATER: Drilling with water flush - water present in borehole cavity on completion with depth after 20 mins logged here.			0.00 - 17.00m RO Hand held rotary		RB
Checked By: RB Approved By: RB Status: FINAL					

 SOIL AND STRUCTURES				Open Hole Log RO102 Sheet 1 of 1											
Hole Type RO		Easting 425485.00		Northing 423981.00		Ground Level (m) 88.25		Scale 1:100							
Project Name 43 Bridle Street, Batley				Project No. 20615		Start Date 2026-06-26		End Date 2026-06-26							
Client Yasar Fayyaz				Consultant Soil and Structures Ltd				Contractor Sandvik DSI							
Inst/ Backfill	Water Levels	Samples and Tests			Coring				Frac	Level m	Depth (thickness) m	Strata			
		Depth (m)	Type/ Ref	Results	Core Run	TCR (%)	SCR (%)	RQD (%)				Legend	Description		
											(0.60)		(TRIAL PIT) Concrete over brown and dark brown slightly sandy slightly gravelly CLAY with cobbles. [MADE GROUND]	0.5	
											87.65 0.60 (0.40)				
											87.25 1.00		Camera to 3.60 m depth before blockage (0.00 - 3.60m)	1.0	
													Brown with light orangish brown and grey mottling slightly sandy slightly gravelly CLAY with stiff consistency. Gravel is fine angular to sub-angular lithorelics of sandstone and siltstone. [Weathered bedrock]	1.5	
											(2.10)			2.0	
														2.5	
														3.0	
											85.15 3.10 (0.30)	VOID VOID	Smooth, slow drilling, light brown flush [SANDSTONE (camera inspection)]	3.5	
											84.85 3.40 (0.30)				
											84.55 3.70		Void, loss of flush [Suspected SWALLOW WOOD COAL, Evidence of workings (camera inspection)]	4.0	
										(1.30)			4.5		
													Flush lost (3.10m)	5.0	
													Blocky, fast drilling [Suspected SWALLOW WOOD COAL, Evidence of bitumenous coal (camera inspection)]	5.5	
													Smooth, very slow drilling, no flush [Suspected HAIGH MOOR ROCK]	6.0	
													End of Borehole at 5.00m	7.0	
														7.5	
														8.0	
														8.5	
														9.0	
														9.5	
														10.0	
														10.5	
														11.0	
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														18.0	
														18.5	
														19.0	
														19.5	
														20.0	
Remarks												Method, Plant, Stability, Dimensions		Logger	
PURPOSE: Ground profiling (shallow) to confirm depth to suspected coal seam and mine workings. TERMINATION: Target depth achieved - engineer terminated. GROUND GAS: None detected during drilling or at cavity on completion.												0.00 - 4.00m RO Hand held rotary		RB	
Checked By: RB Approved By: RB Status: FINAL															



MADE GROUND

CLAY

SANDSTONE

COAL

VOID

VOID

WATER LEVELS

REST

STRIKE

Checked By: RB Approved By: RB Status: FINAL

Created using Pebble Geo

43 Bridle Street

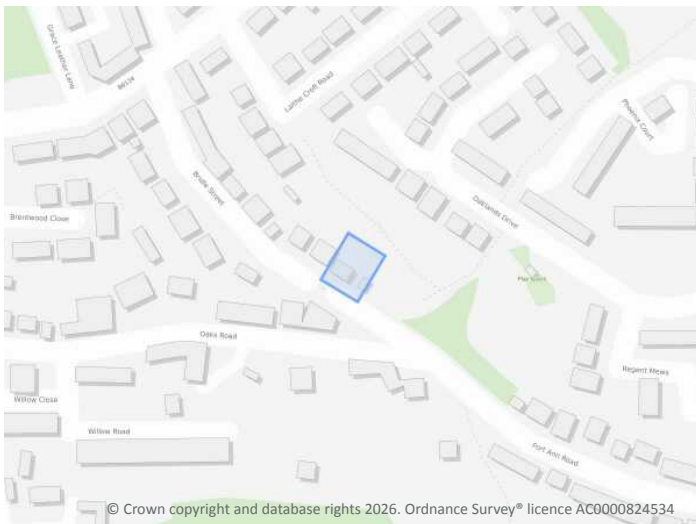
Order Details

Date: 04/09/2026
Your ref: 26025-01
Our Ref: GS-O92-JE6-33V-XBK

Site Details

Location: 425482 423992
Area: 0.07 ha
Authority: [Kirklees Council](#) ↗

Site plan



Quick Links

Summary of findings [p. 2](#) >
OS MasterMap site plan [p.13](#) >
Aerial image [p. 9](#) >

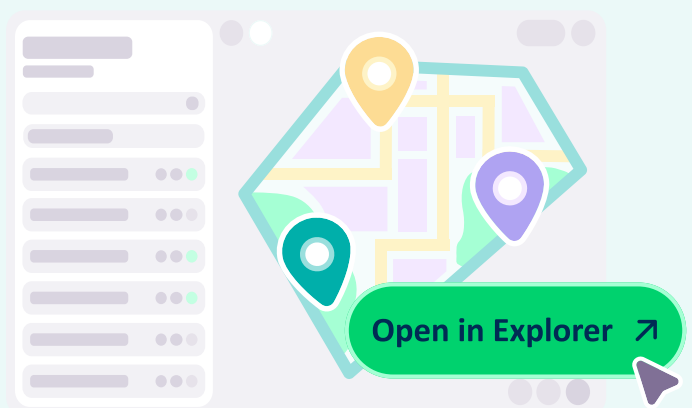
[Insight User Guide](#) ↗

Open this site in Explorer!

Access the data now in our interactive workspace.

- Map and interpret 130+ datasets across 170 years
- Generate insights and visuals quickly
- Revisit and collaborate with your team

Access to Groundsure Explorer requires an Insights account.
12 months access begins at purchase.



Summary of findings

Page	Section	Past land use >	On site	0-50m	50-250m	250-500m	500-2000m
14 >	1.1 >	Historical industrial land uses >	0	0	34	135	-
21 >	1.2 >	Historical tanks >	0	0	9	57	-
23 >	1.3 >	Historical energy features >	0	0	7	29	-
25	1.4	Historical petrol stations	0	0	0	0	-
25	1.5	Historical garages	0	0	0	0	-
25	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped >	On site	0-50m	50-250m	250-500m	500-2000m
26 >	2.1 >	Historical industrial land uses >	0	0	40	172	-
34 >	2.2 >	Historical tanks >	0	0	18	94	-
38 >	2.3 >	Historical energy features >	0	0	11	52	-
41	2.4	Historical petrol stations	0	0	0	0	-
41	2.5	Historical garages	0	0	0	0	-
Page	Section	Waste and landfill >	On site	0-50m	50-250m	250-500m	500-2000m
42	3.1	Active or recent landfill	0	0	0	0	-
42	3.2	Historical landfill (BGS records)	0	0	0	0	-
43 >	3.3 >	Historical landfill (LA/mapping records) >	0	0	1	3	-
43 >	3.4 >	Historical landfill (EA/NRW records) >	0	0	2	1	-
44 >	3.5 >	Historical waste sites >	0	0	0	5	-
45	3.6	Licensed waste sites	0	0	0	0	-
45 >	3.7 >	Waste exemptions >	0	0	2	24	-
Page	Section	Current industrial land use >	On site	0-50m	50-250m	250-500m	500-2000m
48 >	4.1 >	Recent industrial land uses >	0	1	8	-	-
49 >	4.2 >	National Geographic Database (NGD) - Current or recent tanks >	0	0	1	-	-
49	4.3	Current or recent petrol stations	0	0	0	0	-
50	4.4	Sites determined as Contaminated Land	0	0	0	0	-
50	4.5	Control of Major Accident Hazards (COMAH)	0	0	0	0	-



50	4.6	Regulated explosive sites	0	0	0	0	-
50	4.7	Hazardous substance storage/usage	0	0	0	0	-
50	4.8	Historical licensed industrial activities (IPC)	0	0	0	0	-
51	4.9	Licensed industrial activities (Part A(1))	0	0	0	0	-
51 >	4.10 >	<u>Licensed pollutant release (Part A(2)/B) ></u>	0	0	0	4	-
51	4.11	Radioactive Substance Authorisations	0	0	0	0	-
52	4.12	Licensed Discharges to controlled waters	0	0	0	0	-
52	4.13	Pollutant release to surface waters (Red List)	0	0	0	0	-
52	4.14	Pollutant release to public sewer	0	0	0	0	-
52	4.15	List 1 Dangerous Substances	0	0	0	0	-
52	4.16	List 2 Dangerous Substances	0	0	0	0	-
53 >	4.17 >	<u>Pollution Incidents (EA/NRW) ></u>	0	0	0	3	-
53	4.18	Pollution inventory substances	0	0	0	0	-
53	4.19	Pollution inventory waste transfers	0	0	0	0	-
54	4.20	Pollution inventory radioactive waste	0	0	0	0	-
Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
55	5.1	Superficial aquifer	None (within 500m)				
56 >	5.2 >	<u>Bedrock aquifer ></u>	Identified (within 500m)				
58 >	5.3 >	<u>Groundwater vulnerability ></u>	Identified (within 50m)				
59	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
59	5.5	Groundwater vulnerability- local information	None (within 0m)				
60 >	5.6 >	<u>Groundwater abstractions ></u>	0	0	0	4	22
67 >	5.7 >	<u>Surface water abstractions ></u>	0	0	0	0	1
67	5.8	Potable abstractions	0	0	0	0	0
67	5.9	Source Protection Zones	0	0	0	0	-
68	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-
Page	Section	Hydrology >	On site	0-50m	50-250m	250-500m	500-2000m
69 >	6.1 >	<u>Water Network (OS NGD) ></u>	0	0	3	-	-
70	6.2	Surface water features	0	0	0	-	-

70 >	6.3 >	WFD Surface water body catchments >	1	-	-	-	-
70 >	6.4 >	WFD Surface water bodies >	0	0	0	-	-
71 >	6.5 >	WFD Groundwater bodies >	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
72	7.1	Risk of flooding from rivers and the sea	None (within 50m)				
72	7.2	Historical Flood Events	0	0	0	-	-
72	7.3	Flood Defences	0	0	0	-	-
73	7.4	Flood Storage Areas	0	0	0	-	-
74	7.5	Flood Zone 2	None (within 50m)				
74	7.6	Flood Zone 3	None (within 50m)				
Page	Section	Surface water flooding					
75	8.1	Surface water flooding	Negligible (within 50m)				
Page	Section	Groundwater flooding >					
76 >	9.1 >	Groundwater flooding >	Negligible (within 50m)				
Page	Section	Environmental designations >	On site	0-50m	50-250m	250-500m	500-2000m
77	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
78	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
78	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
78	10.4	Special Protection Areas (SPA)	0	0	0	0	0
78	10.5	National Nature Reserves (NNR)	0	0	0	0	0
79	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
79 >	10.7 >	Designated Ancient Woodland >	0	0	0	0	9
79	10.8	Biosphere Reserves	0	0	0	0	0
80	10.9	Forest Parks	0	0	0	0	0
80	10.10	Marine Conservation Zones	0	0	0	0	0
80 >	10.11 >	Green Belt >	0	0	1	0	6
81	10.12	Proposed Ramsar sites	0	0	0	0	0
81	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
81	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0



81	10.15	Nitrate Sensitive Areas	0	0	0	0	0
82	10.16	Nitrate Vulnerable Zones	0	0	0	0	0
83 >	<u>10.17 ></u>	<u>SSSI Impact Risk Zones ></u>	1	-	-	-	-
84	10.18	SSSI Units	0	0	0	0	0
Page	Section	<u>Visual and cultural designations ></u>	On site	0-50m	50-250m	250-500m	500-2000m
85	11.1	World Heritage Sites	0	0	0	-	-
86	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
86	11.3	National Parks	0	0	0	-	-
86 >	<u>11.4 ></u>	<u>Listed Buildings ></u>	0	0	1	-	-
87 >	<u>11.5 ></u>	<u>Conservation Areas ></u>	1	0	0	-	-
87	11.6	Scheduled Ancient Monuments	0	0	0	-	-
87	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	<u>Agricultural designations ></u>	On site	0-50m	50-250m	250-500m	500-2000m
88 >	<u>12.1 ></u>	<u>Agricultural Land Classification ></u>	Grade 3b (within 250m)				
89	12.2	Open Access Land	0	0	0	-	-
89	12.3	Tree Felling Licences	0	0	0	-	-
90	12.4	Environmental Stewardship Schemes	0	0	0	-	-
90	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	<u>Habitat designations ></u>	On site	0-50m	50-250m	250-500m	500-2000m
91 >	<u>13.1 ></u>	<u>Priority Habitat Inventory ></u>	0	1	5	-	-
92	13.2	Habitat Networks	0	0	0	-	-
92 >	<u>13.3 ></u>	<u>Open Mosaic Habitat ></u>	0	0	1	-	-
92	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	<u>Geology 1:10,000 scale ></u>	On site	0-50m	50-250m	250-500m	500-2000m
94 >	<u>14.1 ></u>	<u>10k Availability ></u>	Identified (within 500m)				
95 >	<u>14.2 ></u>	<u>Artificial and made ground (10k) ></u>	0	0	4	5	-
97	14.3	Superficial geology (10k)	0	0	0	0	-
97	14.4	Landslip (10k)	0	0	0	0	-
98 >	<u>14.5 ></u>	<u>Bedrock geology (10k) ></u>	2	0	12	14	-

100 >	14.6 >	Bedrock faults and other linear features (10k) >	0	1	11	9	-
Page	Section	Geology 1:50,000 scale >	On site	0-50m	50-250m	250-500m	500-2000m
102 >	15.1 >	50k Availability >	Identified (within 500m)				
103 >	15.2 >	Artificial and made ground (50k) >	0	0	1	3	-
104	15.3	Artificial ground permeability (50k)	0	0	-	-	-
105	15.4	Superficial geology (50k)	0	0	0	0	-
105	15.5	Superficial permeability (50k)	None (within 50m)				
105	15.6	Landslip (50k)	0	0	0	0	-
105	15.7	Landslip permeability (50k)	None (within 50m)				
106 >	15.8 >	Bedrock geology (50k) >	2	0	8	7	-
107 >	15.9 >	Bedrock permeability (50k) >	Identified (within 50m)				
108 >	15.10 >	Bedrock faults and other linear features (50k) >	0	1	11	6	-
Page	Section	Boreholes >	On site	0-50m	50-250m	250-500m	500-2000m
109 >	16.1 >	BGS Boreholes >	0	13	33	-	-
Page	Section	Natural ground subsidence >					
112 >	17.1 >	Shrink swell clays >	Very low (within 50m)				
113 >	17.2 >	Running sands >	Negligible (within 50m)				
114 >	17.3 >	Compressible deposits >	Negligible (within 50m)				
115 >	17.4 >	Collapsible deposits >	Very low (within 50m)				
116 >	17.5 >	Landslides >	Low (within 50m)				
118 >	17.6 >	Ground dissolution of soluble rocks >	Negligible (within 50m)				
Page	Section	Mining and ground workings >	On site	0-50m	50-250m	250-500m	500-2000m
120 >	18.1 >	BritPits >	0	0	1	6	-
122 >	18.2 >	Surface ground workings >	0	0	29	-	-
124 >	18.3 >	Underground workings >	0	0	5	5	0
124	18.4	Underground mining extents	0	0	0	0	-
124	18.5	Historical Mineral Planning Areas	0	0	0	0	-
125	18.6	Non-coal mining	0	0	0	0	0
125	18.7	JPB mining areas	None (within 0m)				



125	18.8	The Coal Authority non-coal mining	0	0	0	0	-
125	18.9	Researched mining	0	0	0	0	-
126	18.10	Mining record office plans	0	0	0	0	-
126	18.11	BGS mine plans	0	0	0	0	-
126 >	18.12 >	Coal mining >	Identified (within 0m)				
126	18.13	Brine areas	None (within 0m)				
127	18.14	Gypsum areas	None (within 0m)				
127	18.15	Tin mining	None (within 0m)				
127	18.16	Clay mining	None (within 0m)				
Page	Section	Ground cavities and sinkholes	On site	0-50m	50-250m	250-500m	500-2000m
128	19.1	Natural cavities	0	0	0	0	-
128	19.2	Mining cavities	0	0	0	0	0
128	19.3	Reported recent incidents	0	0	0	0	-
128	19.4	Historical incidents	0	0	0	0	-
Page	Section	Radon >					
130 >	20.1 >	Radon >	Between 5% and 10% (within 0m)				
Page	Section	Soil chemistry >	On site	0-50m	50-250m	250-500m	500-2000m
132 >	21.1 >	BGS Estimated Background Soil Chemistry >	4	4	-	-	-
133	21.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
133	21.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
Page	Section	Railway infrastructure and projects >	On site	0-50m	50-250m	250-500m	500-2000m
134	22.1	Underground railways (London)	0	0	0	-	-
134	22.2	Underground railways (Non-London)	0	0	0	-	-
135	22.3	Railway tunnels	0	0	0	-	-
135 >	22.4 >	Historical railway and tunnel features >	0	0	19	-	-
136	22.5	Royal Mail tunnels	0	0	0	-	-
136 >	22.6 >	Historical railways >	0	0	2	-	-
136	22.7	Railways	0	0	0	-	-
137	22.8	Crossrail 2	0	0	0	0	-

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Recent aerial photograph



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Capture Date: 30/05/2021

Site Area: 0.07ha



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01273 257 755

Date: 4 September 2026

Recent site history - 2018 aerial photograph



Capture Date: 01/07/2018

Site Area: 0.07ha



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Date: 4 September 2026

Recent site history - 2012 aerial photograph



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Capture Date: 26/03/2012

Site Area: 0.07ha



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Date: 4 September 2026

Recent site history - 1999 aerial photograph



Capture Date: 10/07/1999

Site Area: 0.07ha



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