



Coal Mining Risk Assessment: Desk Study

M Strobel

High House Farm

Greenbank

Whitehaven

Cumbria

CA28 9RB

10 February 2026

C Radiven BSc Hons MEnvSci MIMMM

Executive Summary

Brief	Arbtech Consulting Ltd was commissioned by M Strobel to prepare a Coal Mining Risk Assessment (CMRA) for the proposed redevelopment of High House Farm, Greenbank, Whitehaven, Cumbria, CA28 9RB. The development comprises the construction of four new dwellings alongside the existing farmhouse (Cumberland Council, temporary planning reference TA/2026/52). The purpose of this assessment is to identify and evaluate any potential legacy coal mining hazards and demonstrate compliance with national planning guidance and Coal Authority requirements for High-Risk Development Areas.
Site location	The site is located approximately 2.7 km south of Whitehaven and 1.6 km east of the Cumbrian coastline. It comprises the existing farmhouse with curtilage and surrounding agricultural land, including open fields and private access roads. Ancillary farm buildings are present but lie outside the proposed development footprint. The surrounding area is predominantly rural and agricultural.
Environmental Setting	High House Farm lies within the Coal Authority High-Risk Development Area over the Whitehaven Coalfield. The site is underlain by Pennine Middle Coal Measures Formation bedrock, comprising mudstone, siltstone, and sandstone. No superficial deposits are recorded across the development area. Historic mining data indicate the Main Seam at a depth of approximately 74 m beneath the site. Four mine entries exist nearby, of which one has been remediated. No recorded shallow workings, spine roadways, opencast coal sites, coal tips, mine gas incidents, or subsidence events are reported within 500 m of the site. Two minor faults intersect the Black Metal Seam at depth; however, no evidence of surface instability exists.
Conclusions of the Coal Mining Risk Assessment	The CMRA concludes that, although the site lies within a Coal Authority High-Risk Development Area, no recorded shallow coal workings or mine entries exist beneath the proposed development footprint. The depth of the Main Seam and the absence of active shallow workings or surface hazards indicate that the residual risk from historic coal mining is low. Probable shallow workings identified nearby (Edgehill Park, ~18–28 m depth) are unlikely to extend beneath High House Farm. Existing structures, including the long-standing farmhouse, have shown stability since pre-1888, providing additional confidence in ground conditions. Standard construction practices are considered sufficient to manage any residual risk.
Recommendations	Shallow strip or raft foundations should be constructed on a well-compacted granular sub-base, with below-ground services and drainage sealed to minimise interaction with residual features. The building envelope should follow standard good practice to mitigate settlement or gas ingress, and a site-specific Trigger and Treatment Protocol implemented under engineer supervision, with all events documented. Standard geotechnical assessment of shallow sub-base materials is recommended prior to construction. These measures ensure the High House Farm redevelopment can proceed safely, addressing residual risks from historic coal mining without intrusive investigation or specific remedial works.

The Executive Summary is intended as a summary only. Further detail and the limitation of the assessment is provided within the main body of the Report. Findings of this report are subject to consultation review by the relevant governing body.

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Introduction

Background

Arbtech Consulting Ltd has been commissioned by M Strobel to prepare a Coal Mining Risk Assessment (CMRA) for the site at High House Farm, Greenbank, Whitehaven, Cumbria, CA28 9RB. The proposed development (Cumberland Council, Copeland temporary planning reference TA/2026/52) comprises the redevelopment of site for 4No. dwellings in addition to the existing farmhouse that is on the site.

Confirmation is required that any potential legacy coal mining hazards have been suitably considered in accordance with current planning guidance and the Coal Authority's requirements. The site is located within the Coal Authority High Risk Development Area. Therefore, a Coal Mining Risk Assessment is required to document the potential risks associated with historic coal mining in relation to a proposed development.

Scope of Works

- ⇒ Review of all available information on the coal mining issues which are relevant to the application site;
- ⇒ Identify and assess the risks to the proposed development from coal mining, including the cumulative impact of issues;
- ⇒ Recommend mitigation measures to address the coal mining issues affecting the site, including any necessary remedial works and/or demonstrate how coal mining issues have influenced the proposed development; and
- ⇒ Demonstrate to the Local Planning Authority that the application site is, or can be made, safe and stable to meet the requirements of national planning policy with regard to development on unstable land.

A CMRA is required in the UK as part of the planning application process in coal mining areas, primarily due to address safety and land stability risks.

Town and Country Planning Act 1990

National Planning Policy Framework (NPPF)

Coal Authority's standing advice and role under DMPO 2015

Sources of information

- ⇒ Consultants Coal Mining Report 51003550891001 (2026)
- ⇒ Information obtained from Groundsure.io and Mining Remediation Authority Interactive Mapping
- ⇒ Geological information obtained from the British Geological Survey
- ⇒ A Site history based on historic Ordnance Survey mapping of the area.
- ⇒ Available past desk-based or intrusive site investigation works assessments of ground conditions for the application site or adjacent/nearby sites.
- ⇒ Review of historic coal mining within the Whitehaven Coalfield, including colliery records and seam workings relevant to the site
- ⇒ Review of regional mining legacy in west Cumbria, with particular reference to historic underground coal extraction and recorded mine entries in the vicinity of the site

Site Context

Site Information

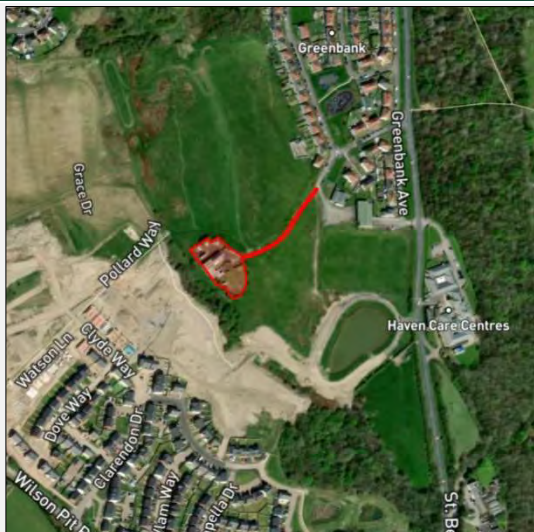


Fig.1 2026 Aerial Photograph

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Mapbox© OpenStreetMap© Maxar



Fig 2 Contains OS data © Crown copyright and database rights 2026©
Mapbox© OpenStreetMap© Maxar

Site co-ordinates:	(NGR) 297386, 515639	Site Area:	c.0.29ha
Site Location	The site is located c. 2.7km to the south of Whitehaven; 1.6km to the east of the Cumbrian Coastline within Greenbank. The site features as a wider farm property accessed off a private Road off Gameriggs Road to the northeast off the B5345 St. Bees Road.		
Current Site use	The site forms part of the wider High House Farm agricultural holding and comprises an existing farmhouse with associated curtilage, access arrangements and surrounding open land. The farmhouse is in residential use, with the remainder of the site comprising open fields, areas of grassland and a private access road extending from Gameriggs Road to the northeast. A small number of ancillary agricultural outbuildings are present within the wider farmholding, although these are generally located away from the proposed development area. There is no evidence of recent industrial or commercial use or significant ground disturbance at the surface, and land use is considered to be predominantly agricultural and residential in nature.		
Surrounding Area and Coal Mining	The site lies in a rural agricultural area south of Whitehaven, within the Coal Authority High-Risk Development Area over the Whitehaven Coalfield. Recorded Main Seam workings exist at ~74 m depth, with four mine entries nearby, one of which has been remediated. No opencast sites, coal tips, mine gas incidents, or reported subsidence have been recorded within 500 m. A CMRA is required to assess potential hazards and demonstrate that the proposed redevelopment of four dwellings and the existing farmhouse can be safely undertaken.		

Data Review

Environmental Setting and Geology

Feature		Information
BGS 1:50 000 Series – Sheet 28 Whitehaven (Bedrock and Superficial geology) (Representative mapping presented as Appendix 2)	Artificial	No recorded Infilled Ground or Artificial Deposit recorded on the subject site.
	Superficial	No Superficial geology is recorded on site.
	Bedrock	Bedrock geology is recorded as Pennine Middle Coal Measures Formation-Mudstone, Siltstone and Sandstone.
	BGS Logs	No BGS logs on the subject site itself, the nearest is c.290m to the northeast from the centre of the site Ref. NX91NE169 to locate old mine workings with a resting water level of c.12mbgl. The location was a significant distant and within an area identifying superficial deposits present, however bedrock is consistent and can be used to be indicative, though geological features in terms of coal mining varies significantly to conditions on site. Interbedded Sandstone and Shale is shown to vary in form between 14.6mbgl over Mudstone at a completion depth of 28.96mbgl showing 3 voids at 21mbgl (0.22m thick), 22mbgl (0.30m thick).
Minerals and Mining	Coal Report	The site is within an area which could be affected by past, current or future coal mining.
	Development Risk	A development high risk is associated with the site from coal mining as a band-oriented northwest to southeast within the Pennine Lower Coal Measures Formation to the west of the property.
Whitehaven Coalfield	Historical Mining Context – West Cumbria	The Whitehaven Coalfield is one of the historic coal-producing areas of West Cumbria, with mining activity documented from the 17th century. The area developed as a key centre for deep coal mining, primarily extracting seams of the Main Coal Measures, which include the Main Seam, Low Main, and other localised beds. Coal production historically supported both local industries and export via Whitehaven Harbour, contributing to the town's economic growth during the 18th and 19th centuries. Mining in the Whitehaven Coalfield was carried out using traditional deep mining techniques, including shaft access and underground roadways. By the early 20th century, much of the coalfield had been worked extensively, although mining declined after nationalisation in 1947 and many collieries were gradually closed.

Environmental Setting and Geology

Feature		Information
		The legacy of historical mining in the area includes recorded mine entries, shafts, and shallow workings, although in many cases records are incomplete. Within the immediate vicinity of High House Farm, workings are recorded at approximately 74 m depth in the Main Seam, and four mine entries are documented, with one recently remediated. There is no evidence of opencast operations, coal tips, or recorded mine gas incidents within 500 m, and no reported subsidence affecting the site. This historical context demonstrates that while the area has a long history of coal extraction, the depth of workings and the largely rural, agricultural nature of the site suggest that any residual coal mining risk is moderate and manageable, provided that appropriate recommendations and mitigation measures are adopted during redevelopment.
	Colliery Records	Historic coal mining in the Whitehaven area was focused on deep seams of the Main Coal Measures, with documented extraction in the Main Seam beneath the site at approximately 74 m depth. Coal Authority records identify four mine entries within or adjacent to the site boundary, of which one has been recently remediated. No opencast coal sites, coal tips, recorded mine gas incidents, or subsidence events have been reported within 500 m of the site. The nearest historic collieries to the site were the Whitehaven Colliery workings, which ceased production in the early 20th century. These collieries are some distance from the proposed development footprint, and no evidence exists to suggest direct impacts on the site from past mining operations. Overall, while the site lies within an area of historic coal mining, the depth of workings and absence of shallow or unrecorded features indicate that the likelihood of coal mining-related hazards affecting the proposed redevelopment of four dwellings and the existing farmhouse is low to moderate, subject to standard site recommendations and mitigation measures.

Mining Activity and Geology

Feature	Information
Strategy	The Coal Authority Mining Report (Ref.51003550891001) dated 3 rd February 2026 has been obtained for the site and is presented as Appendix 3 with a summary of findings in Appendix 4. Additional sources of information have been used to carry out the assessment, pertinent images are included in Appendix 2.
Past underground mining	Recorded underground workings: Whitehaven Colliery, Main Seam at ~74 m depth beneath the site (Coal Authority ref 00C4; dip 4.4° west; extraction thickness 2.0 m; last mined 1933.
Probable unrecorded shallow workings	The site is not in an area of probable unrecorded shallow workings.
Spine roadways at shallow depth	No spine roadway recorded at shallow depth.
Mine entries	No mine entries are located within the site boundary or within the zone of likely influence of the proposed development. Four recorded shafts exist nearby, but all lie outside the development footprint and are sufficiently distant such that they do not pose a risk to the proposed dwellings or access road. One shaft (297515-008) has been remediated in 2024, further reducing any potential residual risk in the surrounding area. The absence of mine entries beneath the development ensures that standard engineering practice can be applied without specific coal mine entry mitigation for the proposed dwellings or access arrangements. ⇒ Shafts 297515-005 & 297515-006 (~36 m and ~17 m north of site centre): These are closest to the northern boundary and the private access road, treatment unknown. ⇒ Shafts 297515-007 & 297515-008 (~26 m and ~56 m southwest): These lie closer to the southwest. Shaft 297515-008 remediated February–April 2024 by drilling and grouting to full depth and capped with 4.4 m × 4.4 m reinforced concrete at rockhead.
Abandoned Mine Plans	Coal Authority records identify several abandoned mine plan catalogue numbers intersecting the enquiry boundary (NW1393, NW1384, NW1381, PO0, NW1390, NW1387, NW1395). These indicate historic coal mining plans exist for areas adjacent to the site, but do not confirm workings directly beneath the proposed development. The depth of recorded workings (~74 m) and absence of shallow features suggest these plans reflect the broader Whitehaven Colliery network and do not materially affect the site's coal mining risk.

Mining Activity and Geology

Feature	Information
Outcrops	The site lies within the Whitehaven Coalfield and is underlain by workable coal seams as recorded in the Coal Authority data: ⇒ Black Metal Seam: workable, outcropping within the site boundary, bearing ~350° ⇒ Slatey Seam: workable, with outcrops approximately 40m to the south-east (bearing 18°) and 0.9m to the east (bearing 195°) No shallow workings or mine entries are recorded beneath the development footprint. The presence of these seams confirms the historic coal-bearing geology of the site, but there is no evidence of opencast activity, coal tips, or mine gas incidents within 500m. Any future groundworks should follow standard engineering practice for areas overlying former coal seams.
Geological faults, fissures and breaklines	Faults recorded beneath the site: One fault extends from the northeastern boundary to mid-southwest, affecting the Black Metal Seam; dip side to the left, dip angle ~4.4°. Additional fault: A second fault is present near the tip of the access road, oriented similarly. These faults indicate local structural disruption of the Black Metal Seam. No evidence suggests shallow ground instability at the surface, but standard site recommendations should consider these features during redevelopment planning.
Opencast mines	Based on the Coal Authority records, no opencast coal sites have been identified within 500 metres of the site.
Coal Authority managed tips	None recorded within 500 metres of the enquiry boundary.

Mining Remediation (Coal) Authority Search: Investigative or remedial activity

Feature	Information	
Investigative or remedial activity	Site Investigations	Three site investigations were recorded within 50 m of the Edgehill Park area, located to the north of High House Farm: approximately 32.3 m north-west, 10.6 m north, and 9.6 m north of the enquiry boundary. These investigations, undertaken in association with previous developments near Edgehill Park, (Ref. ID Geoenvironmental Limited Report No. 4046-G-R024 Geoenvironmental Appraisal of land at Phase 4, Edgehill Park, Whitehaven. Dated December 2021) identified multiple coal seams including the Black Metal, Split, Slaty Coal, and Ten Quarters seams. Probable shallow abandoned mine workings were encountered in the north-eastern portion of the Edgehill site, at depths of approximately 18–28 m below ground level within the Slaty Coal seam, and a disused coal shaft was recorded in the south-western part of that site. Gas monitoring from exploratory boreholes indicated only minor concentrations of methane and carbon dioxide confined within the workings, with no evidence of migration to surface soils or buildings. While no intrusive investigations have been carried out directly at High House Farm, the findings from Edgehill Park provide a useful indication of the sub-surface coal mining conditions immediately to the north. Given the southward position of High House Farm relative to Edgehill Park, it is reasonable to anticipate that the deeper workings (e.g., Main Seam at ~74 m depth) are likely consistent across the local area, whereas shallow abandoned workings may be less extensive beneath the High House Farm footprint. Nonetheless, these results highlight the need for site-specific recommendations and targeted mitigation measures to confirm ground conditions and manage any residual coal mining risks associated with the redevelopment of the site.
	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.

Mining Remediation (Coal) Authority Search: Investigative or remedial activity

Feature	Information	
	Mine Gas	No mine gas emissions are recorded within the boundary of the property. The site is located in a low radon potential area, with an estimated 1–3 % of properties above the Action Level. No specific radon mitigation measures are considered necessary for the proposed development, although standard construction precautions should follow Building Regulations where applicable.
	Mine Water Treatment Schemes	None recorded within 500 metres of the enquiry boundary.

Mining Remediation (Coal) Authority Search: Licensing and future mining activity

Feature	Information	
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.

Coal Mining Risk Assessment

Overview

This risk assessment comprises a desk-based review of all available information on coal mining issues that are relevant to the application site deemed to be located within a high-risk area. This includes:

- ⇒ Interpretation of information to identify and assess the risks to the proposed development from coal mining legacy, including the cumulative impact of issues;
- ⇒ Setting out appropriate mitigation measures to address the coal mining legacy issues affecting the site, including any necessary remedial works and/or demonstrate how coal mining issues have influenced the proposed development; and
- ⇒ Demonstrating to the local planning authority that the application site is, or can be made, safe and stable to meet the requirements of national planning policy with regard to development on unstable land.

The Mining Remediation Authority operates a risk-based approach to the assessment of potential instability issues associated with future development of land located within the predefined CA consultation areas. This risk-based approach subdivides the potential risk into “low” and “high” risk categories.

The risk categories can be defined as:

- ⇒ Low-Risk Sites – Deemed to be land where coal mining has taken place, however it was at such depth not to pose a risk to new development, and it therefore contains no known recorded risks and as such no further assessment is required.

If the proposed development is within the Development Low Risk Area, there is no requirement to submit any coal mining information with your planning application and The Mining Remediation Authority will not be consulted by the LPA. The LPA will include Standing Advice as an informative note within the decision notice.

High-Risk Sites – Deemed to be landholdings located within an area known to contain legacy risks that include:

- ⇒ Mine entries (shaft or adit);
- ⇒ Shallow coal workings (recorded and probable);
- ⇒ Workable coal seam outcrops;
- ⇒ Mine gas sites and areas;
- ⇒ Recorded coal-mining-related hazards;
- ⇒ Geological features (fissures and break lines); and
- ⇒ Former surface mining sites (sometimes using historic opencast extraction methods).

Summary of Coal Mining Risk Assessment

Coal Mining Risk Assessment	Yes/No	Risk Rating	Comment / Mitigation
Recorded Coal Workings at Shallow Depth (<30 m)	No	Low	No shallow coal workings are recorded beneath the site. The nearest probable shallow workings identified at Edgehill Park to the north were at ~18–28 m depth, but given the southward location of High House Farm, shallow workings beneath the site are unlikely. Standard foundations can be used.
Recorded Coal Workings at Greater Depth (>30 m)	Yes	Low	Historic Main Seam workings are recorded at ~74 m depth beneath the site. These are moderate-depth workings with no evidence of movement; risk to proposed dwellings and associated access is minimal.
Unrecorded Coal Workings / Extraction of Coal Outcrop	No	Low	No unrecorded shallow workings or historic coal extraction is recorded beneath the site. Edgehill Park investigations suggest limited shallow abandoned workings nearby, but residual risk beneath High House Farm is minimal.
Unrecorded Underground Coal Mining at Shallow Depth (<30 m)	No	Low	No spine roadways or other unrecorded features are noted beneath the site. Residual risk to foundations is negligible.
Recorded Mine Entries (Shafts / Adits)	No	Low	No mine entries are recorded within the site boundary. Four shafts exist nearby but lie outside the development footprint; one shaft has been remediated. Standard construction practice is sufficient.
Unrecorded Mine Entries	No	Low	Coal Authority records indicate no likely unrecorded shafts or adits beneath the site. Residual risk is negligible.
Coal Mining Geology (Fissures / Fractures)	Yes	Low	Two minor faults intersect the site affecting the Black Metal Seam at depth. No evidence of surface instability exists; standard geotechnical assessment recommended.
Recorded Mine Gas Emissions	No	Low	No mine gas incidents are recorded on or within 500 m of the site. Gas monitoring at Edgehill Park identified only minor methane and CO ₂ confined to workings; no migration is expected.
Recorded Coal Mining Surface Hazard	No	Low	No subsidence, remedial works, or surface hazards are recorded at the site or immediate vicinity.
Surface Mining (Opencast Workings)	No	Low	No opencast coal extraction is recorded within 500 m of the site; historical mapping confirms no nearby extraction.

Recommendations and Development

Conclusions

Depth and Historical Mining Activity – High House Farm is underlain by the Main Seam at approximately 74 m depth. No shallow coal workings or mine entries are recorded within the site boundary. The depth of the seam, combined with the absence of active or recent workings, substantially reduces the likelihood of ground movement affecting the proposed redevelopment of four dwellings in addition to the existing farmhouse.

Probable Shallow Workings – No unrecorded shallow workings or spine roadways are indicated beneath the site. The presence of the existing farmhouse, which has remained stable since pre-1888, provides some evidence of ground stability; however, this cannot be solely relied upon for the assessment of future development. Standard site recommendations are recommended to confirm the shallow ground conditions.

Mine Entries – No shafts or adits are located within the site or the proposed development footprint. Four recorded shafts exist nearby, but all lie outside the development area and one has been remediated. Standard engineering practice is considered sufficient to manage any residual risk associated with distant historic features.

Opencast Mining – No historic opencast coal workings are recorded within 500 m of the site. Historical mapping confirms that no surface extraction has occurred in the vicinity, and the risk to the proposed development from opencast mining is therefore negligible.

Geology and Ground Conditions – The site is underlain by competent Pennine Middle Coal Measures bedrock comprising mudstone, siltstone, and sandstone. Two minor faults intersect the Black Metal Seam at depth, with no evidence of surface instability. Standard geotechnical assessment is recommended prior to construction to confirm local ground conditions. No superficial deposits are recorded within the development area.

Subsidence, Mine Gas, and Remedial Works – No recorded subsidence claims, Coal Authority notices, mine gas incidents, or remedial works are associated with the site. The site is located within a low radon potential area, and standard statutory protections under the Coal Mining Subsidence Act 1991 remain in place.

Suitability of Proposed Development – Although specific foundation details for the proposed dwellings are not yet available, the underlying geology and the absence of shallow coal workings, mine entries, or surface hazards indicate that standard shallow foundations are appropriate. Site-specific recommendations are recommended to confirm ground conditions prior to construction.

Overall Assessment – Considering the depth of historic seams, absence of mine entries beneath the site, lack of opencast activity, presence of the long-standing farmhouse, and competent bedrock conditions, the residual risk to the proposed development from historic coal mining is assessed as Low. Standard construction practices are sufficient to manage any minimal residual risk, and no specific coal mining remedial works are anticipated.

Ciria Mine Gas Risk Assessment

A qualitative mine gas risk assessment has been undertaken in accordance with CIRIA C758 guidance to evaluate potential gas hazards at High House Farm, Greenbank, Whitehaven, Cumbria. The assessment considers site-specific geology, historic coal mining in the Whitehaven Coalfield, and the proposed redevelopment of four dwellings alongside the existing farmhouse.

The site is underlain by the Pennine Middle Coal Measures Formation, comprising mudstone, siltstone, and sandstone, with no superficial deposits recorded. Historical mining in the local Whitehaven area includes the Main Seam at approximately 74 m depth. No recorded shallow workings, spine roadways, or mine entries are present within the site boundary. Four shafts are recorded nearby, of which one has been remediated, and no mine gas incidents or subsidence have been reported within 500 m of the site. Minor abandoned mine plans intersect the wider enquiry boundary, but there are no recorded features beneath the footprint of the proposed dwellings or existing farmhouse.

Potential gas sources considered include methane from the Main Seam and minor carbon dioxide from natural organic decomposition. Other hazardous gases, such as carbon monoxide or hydrogen sulphide, are considered unlikely. The primary potential pathways for gas migration would be through soils, foundation penetrations, or the building envelope.

Although specific foundation details for the proposed dwellings are not currently available, the depth of the coal seam, absence of recorded shallow workings, long period since historic mining, and the demonstrated stability of the existing farmhouse collectively reduce the likelihood of gas accumulation. Standard construction measures, including shallow foundations constructed in accordance with building regulations, are expected to minimise any potential pathways for gas entry.

Conclusion – Considering the site geology, historic mining context, and the proposed development, the qualitative risk of mine gas affecting High House Farm and the new dwellings is assessed as Low. Standard construction practices are considered sufficient to manage this minimal residual risk, and no additional gas protection or monitoring is required.

Recommendations	Based on the desk-based review of coal mining records, geological data, and the proposed development at High House Farm, the following recommendations are made to manage residual risks associated with historic coal mining: ⇒ Foundations – Design and construct shallow foundations (strip or raft) on a well-prepared, compacted sub-base in accordance with standard engineering practice for areas overlying historic coal mining activity. Given the depth of the Main Seam and absence of shallow workings, standard shallow foundations are considered appropriate. ⇒ Below-Ground Services and Drainage – Install services and drainage to minimise interaction with any residual coal mining features. Ensure penetrations are properly sealed to reduce potential pathways for gas or voids. ⇒ Building Envelope – Construct walls, floors, and other structural elements following conventional good practice to provide resilience against any minor localised settlement or potential gas ingress. ⇒ Trigger and Treatment Protocol – Adopt a protocol during construction to manage any unexpected ground conditions or previously unidentified coal mining features, should they be encountered. ⇒ Site Verification – Standard geotechnical assessment of the shallow sub-base prior to construction is recommended to confirm local ground conditions. ⇒ On this basis, the Coal Authority and Local Planning Authority can be satisfied that all relevant coal mining hazards have been adequately considered. The proposed development can proceed safely without the need for intrusive site investigation or additional remedial works, subject to adherence to standard engineering and construction practices.
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Trigger and Treatment Protocol

Trigger Event	Response Action	Responsibility
Cavities, voids, or unexpected soft ground encountered during excavation	Stop work in the affected area. Assess by the supervising engineer and, if required, remediate via localised excavation and replacement with compacted sub-base or low-mobility grout. Likelihood considered very low due to absence of recorded shallow workings beneath the site.	Site Manager / Supervising Engineer
Rock or subsoil materially weaker or fractured than anticipated	Engineer inspection to confirm foundation suitability. Modify foundation design locally if necessary to ensure stability.	Supervising Engineer
Unconsolidated fill, debris, or unexpected spoil	Excavate and replace with engineered or well-compacted granular fill.	Contractor under instruction of Supervising Engineer
Evidence of historic coal mine features (timbers, coal fragments, open fissures)	Halt works, assess significance, notify Coal Authority or Local Planning Authority if required. Remediate via local excavation or grouting. Adjust foundation if necessary. Likelihood very low at High House Farm.	Supervising Engineer / Contractor
Mine gas indicators (odour, unusual soil staining)	Ventilate area and suspend works if necessary. Install temporary protection or mitigation if a credible hazard is identified. Risk assessed as very low at High House Farm.	Contractor under instruction of Supervising Engineer

Record Keeping:

All trigger events and remedial measures must be documented in the site file, including photographs and descriptions of actions taken. A summary report can be provided to the Local Planning Authority or Coal Authority if requested.

Implementation:

The protocol will be briefed to the construction team before commencement of groundworks and monitored throughout the excavation and foundation phase. The Supervising Engineer is responsible for ensuring compliance and recording all actions taken.

Appendices

Appendix 1: Site Plan

Appendix 2: Images

Appendix 3: Coal Authority Mining Report

Appendix 4: Coal Authority Summary of findings

Appendix 5: BGS Borehole Records

Appendix 6: Document Production Record

If you require clarification of the information contained herein, please do not hesitate to contact us via 01244 661170.

Yours Sincerely,

Charlie Radiven BSc Hons MIENVSc MIMMM

Geo-Environmental Director 07842 416623

charlotteradiven@arbtech.co.uk

Appendix 1: Site plans



NOTES AND AMENDMENTS
This drawing is copyright ©. Figured dimensions are to be followed in preference to scaled dimensions and particulars are to be taken from the actual work where possible. Any discrepancy must be reported to the architect immediately and before proceeding.

REVISIONS			
Rev	Description	Drawn	Date



ASHWOOD
DESIGN ASSOCIATES LTD

Unit Gb, Clifford Court
Cooper Way
Carlisle
CA3 0JG

t 01228 510616
e admin@ashwooddesign.co.uk
w www.ashwooddesign.co.uk

Purpose:
Preliminary

Client:
Mr Strobe

Project:
High House Farm

Title:
Proposed Site Plan

Scale:	Sheet Size:	Drawn:	Date:
1/200	A1	HRH	07-25
Project No:	Drawing No:	Revision:	
2357	010	-	

Appendix 2: Mapping Images

Drawings/Images

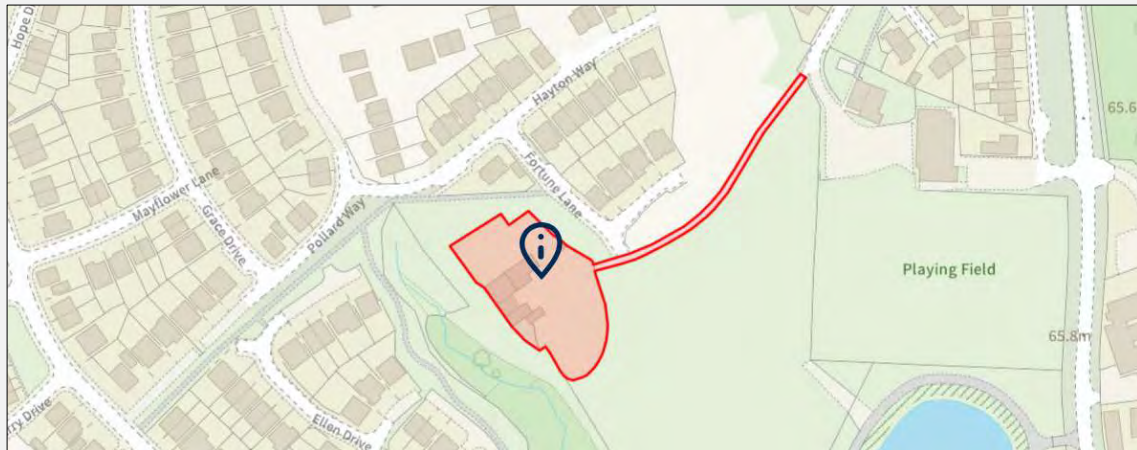


Plate 1: Location of the site

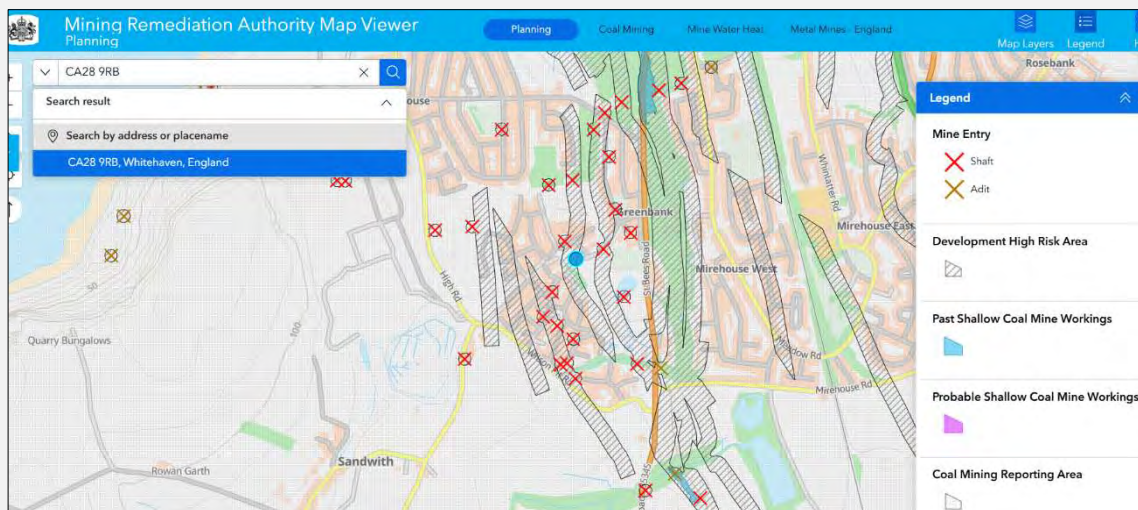


Plate 2a: Mining Remediation Authority Map 'Planning' (approximate location centre at blue circle)

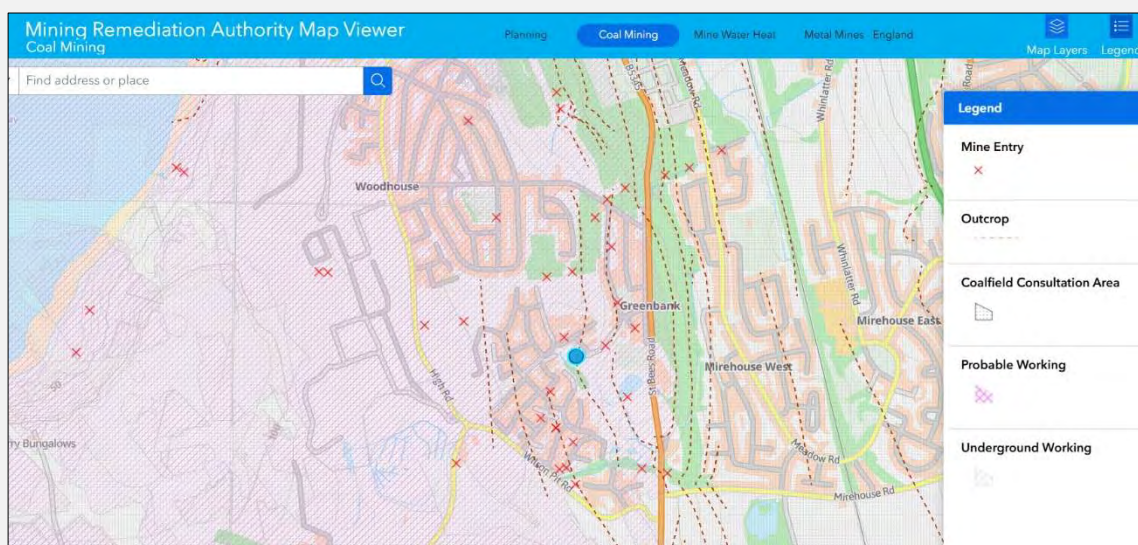


Plate 2b: Mining Remediation Authority Map 'Coal mining' (approximate location of site is most northern blue circle)



Plate 3: Lidar Imagery [Groundsure insights](#)

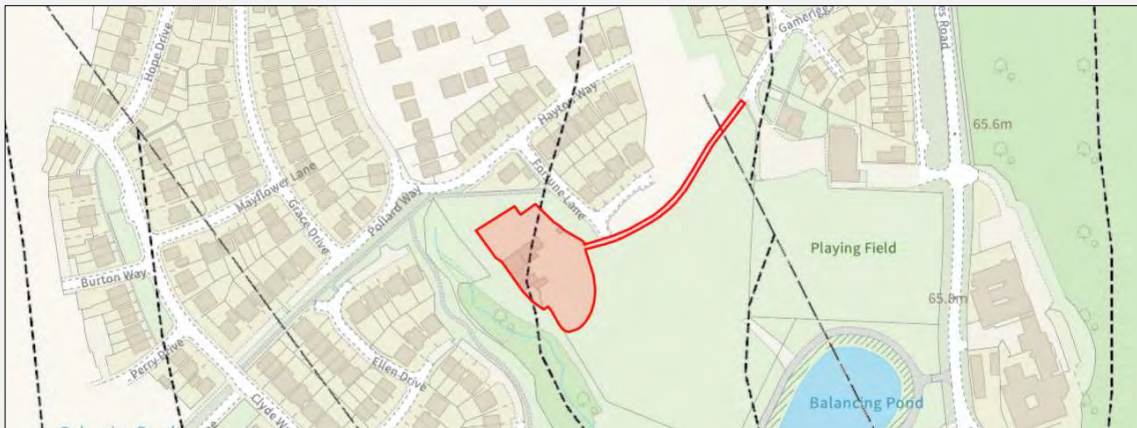


Plate 4: BGS 50k Linear Features and BGS 50k Artificial Ground [Groundsure insights](#)



Plate 5: BGS 50k Superficial Deposits - No Superficial ground recorded on site. Devensian Till - Diamicton either side [Groundsure insights](#)



Plate 6: BGS 50k Bedrock - Pennine Middle Coal Measures Formation-Mudstone, Siltstone and Sandstone [Groundsure insights](#)



Plate 7: BGS borehole records surrounding the site [Groundsure insights](#)

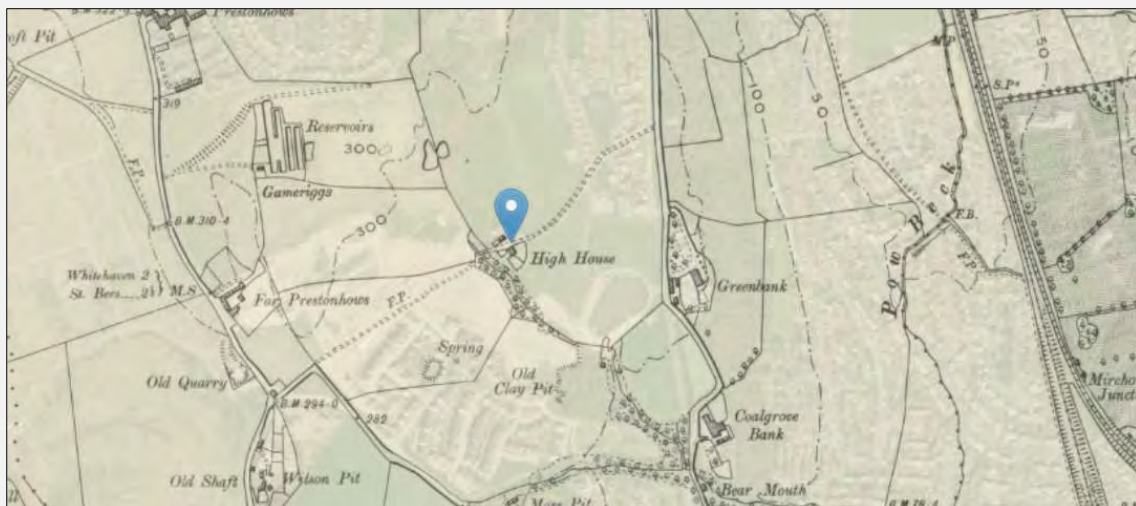


Plate 8: Georeferenced Maps viewer - Map images - National Library of Scotland OS Six Inch 1888-1915

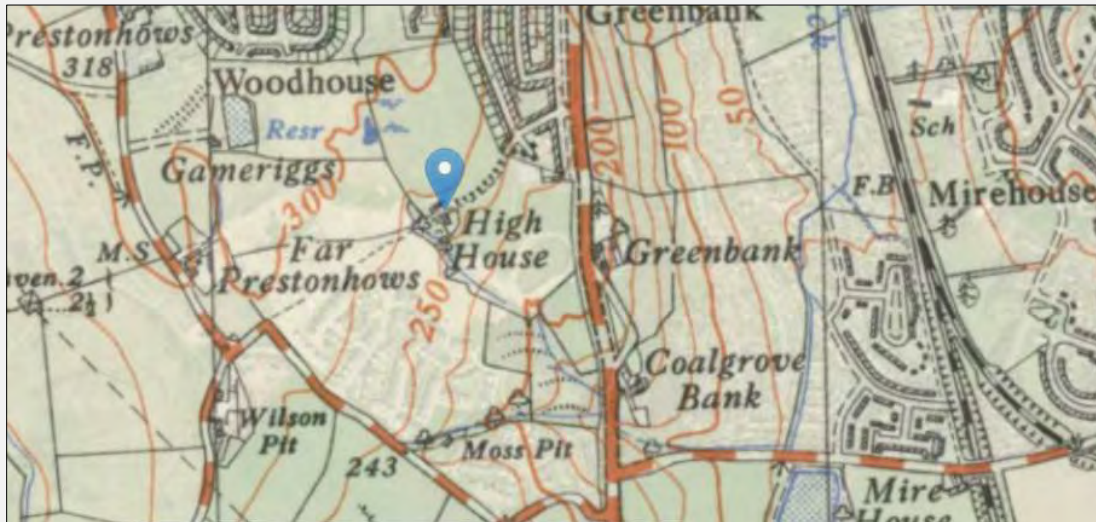


Plate 9: [Georeferenced Maps viewer - Map images - National Library of Scotland](#) OS 1:25,000 1937-1961

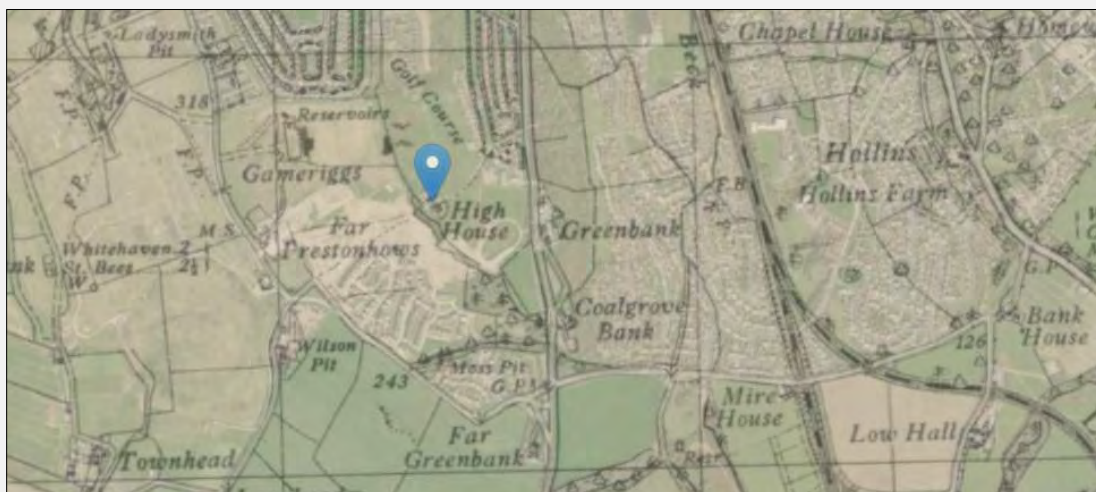


Plate 10: [Georeferenced Maps viewer - Map images - National Library of Scotland](#) OS 1:25,000 1945-1965

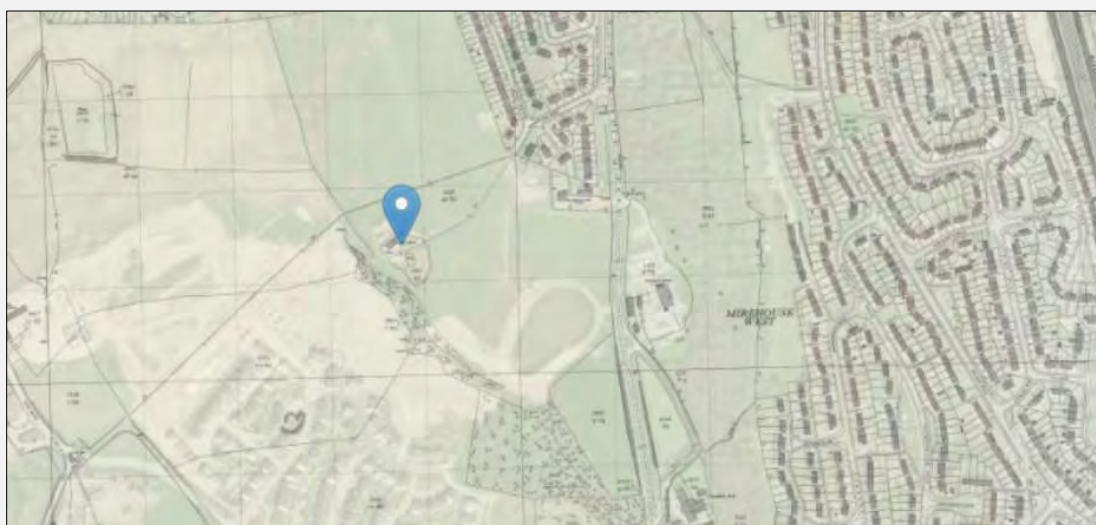


Plate 11: [Georeferenced Maps viewer - Map images - National Library of Scotland](#) OS 1:2,500 1944 – 1974

Appendix 3: Coal Authority Mining Report



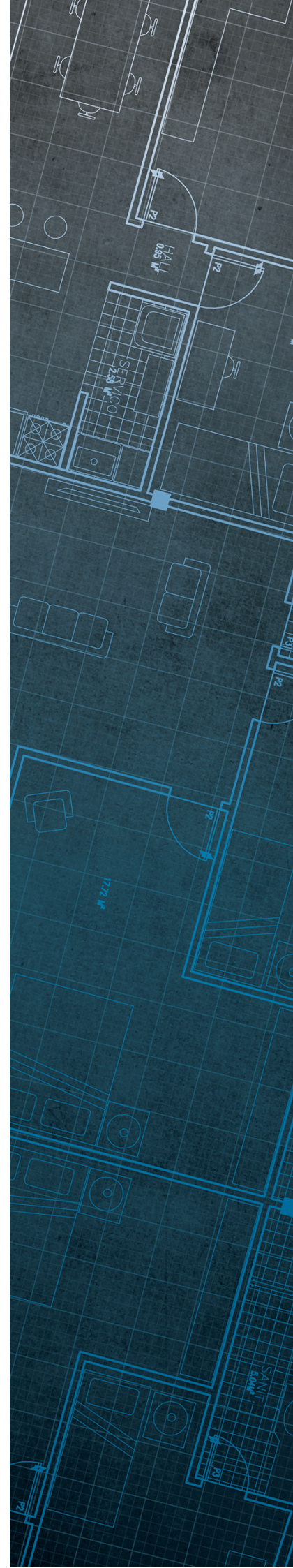
The Coal
Authority

Consultants Coal Mining Report

High House Farm, Greenbank,
Whitehaven, Cumbria, Ca28 9rb
Cumbria

Date of enquiry: 3 February 2026
Date enquiry received: 3 February 2026
Issue date: 3 February 2026

Our reference: 51003550891001
Your reference: GS-R83-FFA-P2B-EFU



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

GROUNDSURE LIMITED

Enquiry address

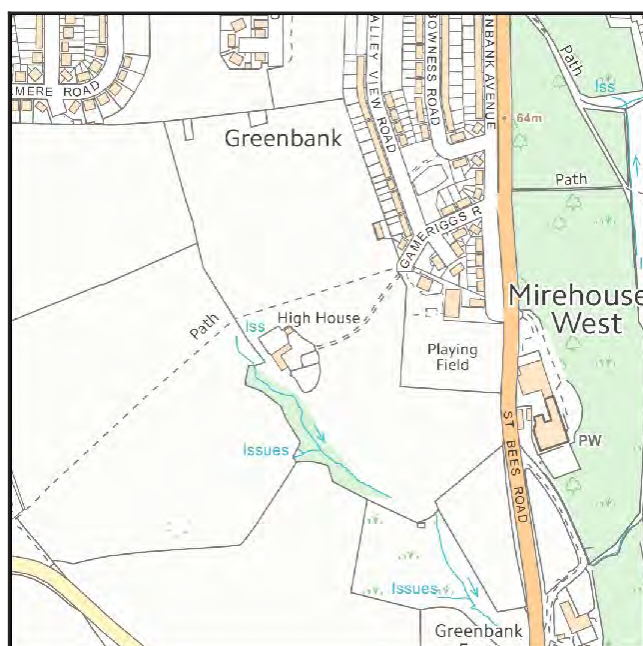
High House Farm, Greenbank, Whitehaven,
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Approximate position of property



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Section 1 – Mining activity and geology

Past underground mining

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
WHITEHAVEN	MAIN	Coal	00C4	74	Beneath Property	4.4	West	200	1933

Probable unrecorded shallow workings

None.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

Entry type	Reference	Grid reference	Treatment description	Mineral	Conveyancing details
Shaft	297515-005	297503 515810	Treatment details unknown.*	Coal	
Shaft	297515-006	297554 515731	Treatment details unknown.*	Coal	
Shaft	297515-007	297461 515676	Treatment details unknown.*	Coal	
Shaft	297515-008	297330 515702	This mine entry was treated by drilling and grouting to full depth in February 2024. It was then capped at rockhead with a 4.4m x 4.4m reinforced concrete cap in April 2024.	Coal	

*For your information, before the coal industry was nationalised in 1947, there was no requirement for a mine operator to record mine entry treatment details when a mine was abandoned. Therefore, it is not unusual for us to have no treatment details for many of the 176,000 recorded mine entries on our database. Despite this lack of information, please be assured that the fact we have no treatment recorded does not necessarily mean that the mine entries were left untreated when abandoned.

Abandoned mine plan catalogue numbers

The following abandoned mine plan catalogue numbers intersect with some, or all, of the enquiry boundary:

NW1393	NW1384	NW1381
PO0	NW1390	NW1387
NW1395		

For assistance in identifying the specific abandoned mine plans relevant to your requirements, **please contact us at InformationManagers@MiningRemediation.gov.uk**.

Outcrops

Seam name	Mineral	Seam workable	Distance to outcrop (m)	Direction to outcrop	Bearing of outcrop
BLACK METAL	Coal	Yes	Within	N/A	350
SLATEY	Coal	Yes	40.0	South-East	18
SLATEY	Coal	Yes	0.9	East	195

Geological faults, fissures and breaklines

Please refer to the 'Summary of findings' map (on separate sheet) for details of any geological faults, fissures or breaklines either within or intersecting the enquiry boundary.

Faults under or close to the property 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

Distance to site investigation (m)	Direction
32.3	North-West
10.6	North
9.6	North

See Section 4 for further information.

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

The following potential risks have been identified and as part of your risk assessment should be investigated further.

Future development

If development proposals are being considered, technical advice relating to both the investigation of coal and former coal mines and their treatment should be obtained before beginning work on site. All proposals should apply specialist engineering practice required for former mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or coal mines without first obtaining the permission of the Coal Authority.

MINE GAS: Please note, if there are no recorded instances of mine gas within 500m of the enquiry boundary, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded. Developers should be aware that the investigation of coal seams, mine workings or mine entries may have the potential to generate and/or displace underground gases. Associated risks both to the development site and any neighbouring land or properties should be fully considered when undertaking any ground works. The need for effective measures to prevent gases migrating onto any land or into any properties, either during investigation or remediation work, or after development must also be assessed and properly addressed. In these instances, the Coal Authority recommends that a more detailed Gas Risk Assessment is undertaken by a competent assessor.

Development advice

The site is within an area of historical coal mining activity. Should you require advice and/or support on understanding the mining legacy, its risks to your development or what next steps you need to take, please contact us.

Site investigations

The site is within an area of previous interest. It is close to where the Coal Authority has received information relating to past site investigations.

The site requires further investigation and may influence how you approach your risk assessment.

For further information on specific site or ground investigations in relation to any issues raised in Section 4, please email us at reports@miningremediation.gov.uk.

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 **email us at reports@miningremediation.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. Please note, if there are no recorded instances of mine gas reported, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded.

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

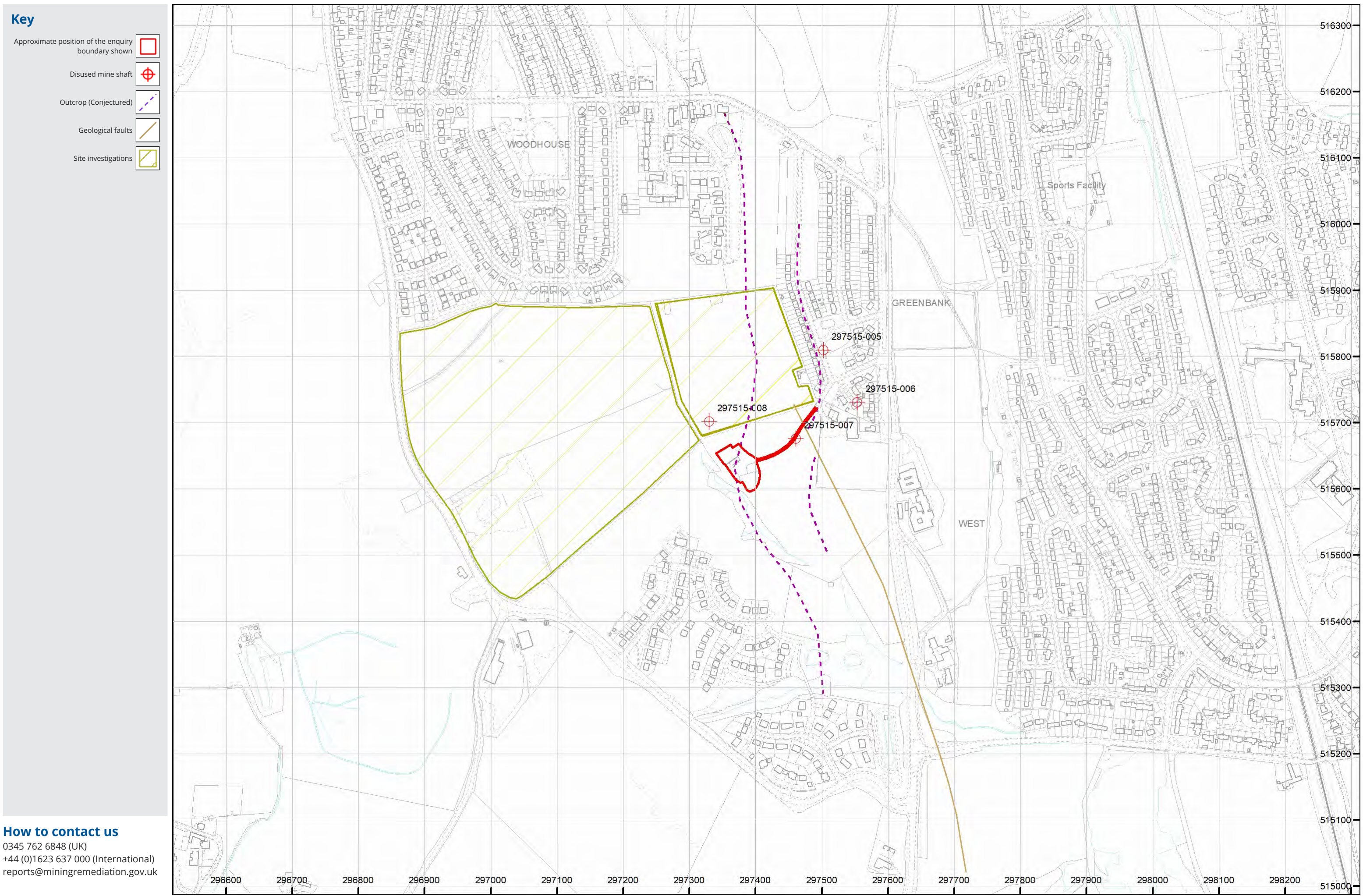
Published notices of entitlement to withdraw support and the date of the notice. Details of any revocation notice withdrawing the entitlement to withdraw support given under Section 41 of the Coal Industry Act 1994.

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.

Appendix 4: Coal Authority Summary of findings

The map highlights any specific surface or subsurface features within or near to the boundary of the site.



Appendix 5: BGS Borehole Record



RECORD OF WELL		For Institute use only Licence No. <u>NX 91/105D</u>	
At <u>GREEN BANK</u>		<u>NX 91 NE/86</u> <u>NN</u>	
Town or Village <u>WHITE HAVEN</u>		<u>28/13 D</u>	
County <u>CUMBRIA</u>		<u>28/13 D</u>	
EXACT SITE OF WELL	Six-inch National Grid sheet and reference <u>NX 976158</u> <u>NX91NE/86</u>		
	For <u>COPELAND B C</u>		
	State whether owner, tenant, builder, contractor, consultant, etc.: <u>OWNER</u>		
	Address (if different from above) <u>TOWN HALL</u> <u>WHITE HAVEN</u>		
NECESSARY AS *DELETE	Level of ground surface above sea level (O.D.) ft (.....m)		
	If well top is not at ground level state how far above* ft (.....m) below:		
	SHAFT ft (.....m); diameter ft (.....m);		
	HEADINGS (please attach details—dimensions and directions)		
TEST CONDITIONS	BORE <u>95</u> ft (.....m); diameter: at top <u>4 1/2</u> in (.....mm); at bottom in (..... <u>86</u> mm)		
	Full details of permanent lining tubes (position, length, inner and outer diameters, plain slotted etc.): <u>NONE</u>		
	Water struck at depths of ft (.....m) below well top		
	Rest level of water <u>40</u> ft (.....m) above* well top. Suction at ft (.....m) below		
NORMAL CONDITIONS	Yield on hours* test pumping at galls per (..... l/s) with depression to ft (.....m) below well top. Recovery to rest level in mins* hours		
	Capacity of pump g.p.h. (..... l/s)		
	Date of measurements		
	DESCRIPTION OF PERMANENT PUMPING EQUIPMENT:		
LOG OF STRATA OVERLEAF	Make and/or type Motive power		
	Capacity galls (..... m ³) per hour. Suction at ft (..... m) below well top. Amount pumped galls (..... m ³) per day. Estimated consumption galls (..... m ³) per week		
	Well made by Date of sinking		
	ADDITIONAL NOTES ANALYSIS (please attach copy if available)		
<u>BORE TO LOCATE OLD MINE</u> <u>WORKINGS</u>		Received from Date Observation well Recorder ER log Site marked on 1" map 6" map—Grid Sheet (use symbol) Copy to Date	



28/13p NX91/105D

For Institute use only

GEOLOGICAL
CLASSIFICATION

NATURE OF STRATA

If measurements start below ground surface, state how far.

THICKNESS

DEPTH

Feet

Inches

Metres

Feet

Inches

Metres

Borehole No 4 Greenbank

Devensian
Glacial till

Carboniferous
Westphalian 8

Soil

Yellow clay and Grey clay

Stiff brown clay with stones

Grey clay with stones

Grey sandstone (solid) shale partings

Black Shale

Grey Sandstone

Dark shale with thin sandstone beds

Grey sandstone

Dark shale

Grey sandstone jointy

Dark shale

Grey sandstone

Dark shale

Grey sandstone with shale partings

Void

Dark shale

Grey Sandstone with voids 42% core

Dark Shale

Grey Sandstone jointy

Dark Shale with thin sandstone beds

Thin beds of sandstone & dark shale

Mudstone

Total Depth 95 feet

We had 3 voids between 70 feet and 75 feet
of about 9 inches - 12 inches each.

pp.

J.G.O

SMART

13/4/82

Appendix 6: Document Production Record

Document number	Editor	Position	Issue number	Date
Arbtech LQCMRACA289RBR1V0 45532043	C.A.Radiven BSc Hons MIENVSc MIMMM	Geo-Environmental Director	01	10/02/26

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