

Coal Mining Risk Assessment

This assessment has been written in accordance with guidance contained in The Coal Authority document: Risk based approach to development management, Guidance for developers, Version 4, 2017.

The assessment aims to:

- Provide a desk-based report of information on the coal mining issues which are relevant to the application site.
- Use the available information to identify and assess the risks to the proposed development from coal mining legacy, including the cumulative impact or issues.
- Set 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.
- 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.

Site Location and Description

The site is located 4km west of Heckmondwike, adjacent to Primrose Lane at approximate National Grid Reference 413700, 424100. The site lies at approximately 86 mAOD in the north, rising gently to 103 mAOD in the south. Site location plans are included within Appendix A. The site comprises 7.5Ha of land and is predominantly grassland in the southern and central areas, the far northern part of the site and the northeastern corner comprises woodland, planted when an old colliery was demolished. It is proposed to develop the site for residential use, the proposed development layout and drawings are contained in Appendix B.

Sources of information

- Site Plan (Appendix A)
- Development Plan (Appendix B)
- Consultants Coal Mining Report (Appendix C)
- Mine Abandonment Plans (Appendix D)
- BGS Borehole Records (Appendix E)
- BGS Maps (Appendix F)
- Mine Shaft Overlay Plans - Geology, and Proposed Development (Appendix G)
- Previous MDJA Phase 1 and 2 Reports
- Coal Authority Interactive Viewer

Identification, Assessment and Mitigation of Site-Specific Coal Mining Risk				
Issue	Site Affected (Yes/No/Unlikely)	Hazard	Consequences	Recommended Mitigation Measures
1. Are there any recorded coal mine entries within the site or within 20m of the site boundary?	<p>Yes: Review of the Consultants Coal Mining Report (Appendix C), the Coal Authority (CA) Interactive Viewer and abandonment plans (Appendix D), indicates there are five recorded shafts within the site boundary. Mine shaft overlay plans are shown in Appendix G. Three of the shafts have been recorded to have been capped and enclosed within a fenced compound in the wooded area in the northern section of the site. These are referenced as 419424-004 (105.8m depth), 419424-005 (147.2m depth), 419424-006 (105.8m depth). Two shafts have no records of any kind of treatment works being carried out, these are referenced as 419424-014 (12.8m depth) and 419424-020 (unknown depth).</p> <p>The three deep shafts and the one with an unknown depth in the northern part of the site have an actual or assumed diameter of 2.5m, whereas the shallower shaft in the southern end of the site has an assumed diameter of 2.0m.</p> <p>It should be noted that the location of these shafts may vary from that reported due to inaccuracies in the interpretation of the original source record plans, which are often to an outdated scale and contain little or no surface information from which to correlate the position of mining features accurately.</p>	<ul style="list-style-type: none"> • Catastrophic collapse of mine entry leading to ground instability or voids at the ground surface. • Settlement of the ground surface above/adjacent to the mine entry. • Potential pathway to the surface for mine gas emissions and mine water. 	May result in ground instability at the surface and damage to property, structures, and infrastructure.	<p>Development within the zone of influence of a mine entry should be avoided, where possible. (typically regarded to be within an angle of 45°, drawn from the mine entry position at rockhead, projected to the surface). Based on the current information, the proposed development would be constructed within the zone of influence of one mine entry at the southern end of the site and potentially within the zone of influence of the four mine entries at the northern end of the site.</p> <p>Intrusive investigation would be required to prove the exact location and characteristics of known mine entries. This would include trial trenching in areas of recorded mine entries. The use of geophysical techniques may also prove effective in locating unrecorded mine entries.</p> <p>If intrusive investigation locates the influencing zone of mine entries to be beneath the proposed development, then liaison with the CA is recommended to agree the scope of any mitigation that could be achieved. This may include drilling and grouting of the shaft and capping it, in which case further intrusive works would also be required to prove the depth and / or the nature of any existing backfill to the mine shafts. Additional structural precautions may also be required.</p>
2. Is the proposed development in the likely zone of influence of past deep underground mining?	<p>Unlikely: The Consultants Coal Mining Report has records of past deep underground mining taking place beneath the site within the Top Beeston Coal (0.61m thick) at 46m depth and within the Black Bed Coal (0.67-0.77m thick) at depths between 118m and 145m. To the Northeast and West of the site there are also records of mining within the Better Bed Coal (0.38m thick) at 138m depth. The workings were undertaken between 1894 to 1925.</p> <p>BGS Geological maps (Appendix F) suggest that the 32 Yard Coal (up to 0.3m thick), 22 Yard Coal (up to 0.4m thick) and the Crow Coal (up to 1.2m thick), are all likely to be within the sequence between the Top Beeston and the Black Bed seams.</p>	<ul style="list-style-type: none"> • Ground subsidence. • Ground instability, loss of ground, generation of crown holes. • Transmission of mine gas emissions and mine water. 	May result in ground instability at the surface and damage to property, structures, and infrastructure.	With mining taking place between 1894 and 1925 longwall mining is most likely to have been the technique that was used. Subsidence relating to deep longwall mining is often contemporaneous with the working of the coal seam, with residual settlement occurring soon after. Since mining beneath the site occurred more than 97 years ago and the seams worked are at depths greater than 30m and unlikely to be more than 1.5m in thickness, mitigation is unlikely to be required.

Identification, Assessment and Mitigation of Site-Specific Coal Mining Risk				
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	The 1930 Geological Survey Memoir for Huddersfield and Halifax (the Memoir for Huddersfield and Halifax) also indicates that above the Black Bed Coal, Ironstone is often present up to 0.8m thick, which may have increased the thickness of mined material around this bed.			
3. Is the proposed development in the likely zone of influence of any present underground coal workings?	No: There are no present underground workings recorded at the site.	<ul style="list-style-type: none"> • Ground subsidence. • Ground instability, loss of ground, generation of crown holes. • Transmission of mine gas emissions and mine water. 	N/A	N/A
4. Is the proposed development within the likely zone of influence of underground coal workings at shallow depth (depths of less than 30m)?	Yes: There are no recorded shallow coal workings within the Consultants Coal Mining Report, however, the area is in a development high risk area and there is a high potential for past unrecorded underground workings (see section 5).	<ul style="list-style-type: none"> • Ground subsidence. • Ground instability, loss of ground, generation of crown holes. • Catastrophic collapse of mine entry leading to ground instability or voids at the ground surface. • Settlement of the ground surface above/adjacent to the mine entry. • Mines gas emissions and mine water migration. 	Ground subsidence associated with unrecorded shallow underground mining or unrecorded mine entries may result in ground instability and damage to property, structures and infrastructure. Subsidence may also cause harm to human health, injury or death of owners, maintenance operatives or construction workers using the site.	Unrecorded workings may be present within the Top Lousey, Trub and Beeston Coals. Further site investigation is required to determine the risks posed by these potential works. This is outlined in section 5.
5. Is there a possibility of unrecorded shallow mine workings and/or mine entries?	Unrecorded Shallow Mine Workings: Yes: Whilst the Consultants Coal Mining Report has no records of shallow workings within the site boundary, it states that unrecorded shallow coal mining is likely in the area. BGS Geological Maps indicate the Trub Coal and Top Lousey Coal outcrop within the site boundary. An intact coal seam in the center of the site was identified in a previous Phase 2 ground	<ul style="list-style-type: none"> • Ground subsidence. • Ground instability, loss of ground, generation of crown holes. • Catastrophic collapse of mine entry leading to 	Unrecorded Shallow Mine Workings: Ground subsidence associated with unrecorded shallow underground mining may result in ground instability	Unrecorded Shallow Mine Workings: An intrusive ground investigation is recommended to determine the potential for unrecorded shallow workings at the site. It is recommended that the following are determined from the site investigation: <ul style="list-style-type: none"> • Drilling boreholes in the northern section of the site is recommended to assess if the Cannel (Top Beeston)

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	<p>investigation in 2021 at a depth of 2.0m bgl, with a recorded thickness of 0.8m. Based on observations from BGS records this is believed to represent the Top Lousey Coal. In the Memoir for Huddersfield and Halifax, this seam is reported as seldom of any value, however it has been worked in the area. Due to the shallow dip and upwards slope towards the south of the site, the shaft in the southern end of the site may have targeted this seam. The Trub Coal is shown to be thin (~0.1m thick) and therefore is not considered to have been of any economic value.</p> <p>The Top Beeston may also be present at shallow depth. The group consists of three seams; the Linfit Lousey (known as Cannel locally), Shertcliffe and Whinmoor Coal up to 1.3m, 0.9m and 0.8m thick respectively. These coals are known to have been worked in the region and mine abandonment plans show the Cannel Coal was worked extensively to the west and northwest of the site. Although the CA indicate this was worked at 46m depth beneath the site, mine abandonment plans show this may have been worked at a depth of 36m in conjunction with the southern edge of the site. Due to bedding inclination and topographical changes on site this may also be present at shallow depths much less than 30m, particularly toward the northern edge of the site. A BGS borehole (Appendix E) located 350m Northwest of the site (SE22SW11) records the Cannel Coal at 14.4m depth and the Shertcliffe Coal at 22.15m depth. Although based on the topography in the area this is likely to be 20m to 40m deeper on site, this is made uncertain by mine abandonment plans on site. The Cannel Coal is referred to as a Stone Coal in the log record, which is significant as this term was given to many good quality Coals, and it is recorded to be 0.99m thick in this area.</p>	<p>ground instability or voids at the ground surface.</p> <ul style="list-style-type: none"> • Settlement of the ground surface above/adjacent to the mine entry. • Mines gas emissions and mine water migration. 	<p>and damage to property, structures and infrastructure. Subsidence may also cause harm to human health, injury or death of owners, maintenance operatives or construction workers using the site.</p>	<p>seam is present or if there is evidence of it being worked at a shallow depth. If this seam is not encountered and no evidence of mine workings are found, this reduces the risk for the entire site for this seam due to the southward dip and increased topography towards the south.</p> <ul style="list-style-type: none"> • Identifying potential shallow workings in the Top Lousey Coal, Trub Coal and any other shallow seams: Trial trenching to extrapolate and identify the position of the coal outcrop previously identified would be useful to narrow down the potential area for mining of this seam. Rotary boreholes in the central and southern area of the site are recommended to assess the risk from shallow workings. A rotary borehole should be positioned along the strike from the mine entry identified at the southern edge of the site to identify if any coal seams have been worked around this mine entry. <p>If previously unidentified suspected mine entries are identified during the site investigation, more rotary boreholes may be required to eliminate the possibility of workings around these features.</p> <p>If evidence for shallow coal mine workings is encountered within influencing distance of the proposed development and sufficient competent rock is not present above the workings, then stabilisation may be required to facilitate secure development. This would usually be achieved by drilling and pressure grouting beneath the proposed footprint of the new build and in some cases external areas.</p>
	<p>Unrecorded Mine Entries: Yes: Due to the possibility of there being unrecorded shallow coal mine workings at the site, unrecorded coal mine entries may also be present.</p>		<p>Unrecorded Mine Entries: Ground subsidence associated with unrecorded mine entries may result in ground</p>	<p>Unrecorded Mine Entries: The use of geophysical techniques may prove effective in locating unrecorded mine entries.</p>

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			instability and damage to property, structures and infrastructure. Subsidence may also cause harm to human health, injury or death of owners, maintenance operatives or construction workers using the site.	It is recommended that during any development of the site, that a careful watch is maintained for any features that could be mine entries. Should any unrecorded mine entries or anomalous ground conditions be encountered then specialist advice should be sought regarding further investigation and remedial works.
6. Is there a record of mine gas emissions within the site boundaries?	Unlikely: The CA has no records of mine gas within 500m of the site boundary. There are also no recorded faults, fissures or voids that could act as a pathway for mine gas. However due to the potential for shallow unrecorded mine workings, mine gas emissions may be possible.	<ul style="list-style-type: none"> Mixtures of noxious or explosive gases reaching the ground surface via superficial deposits, faulted/broken strata, porous strata or poorly filled mine entries and entering buildings, structures, confined spaces etc., when an explosive or asphyxiating hazard may be generated. 	Explosive or asphyxiating hazards due to the presence of gas may result in damage to property and infrastructure or may cause harm to human health, injury or death of construction workers and site personnel.	Although there are no records of mine gas on the site, due to the presence of possible unrecorded shallow coal mine workings and deeper recorded coal mine workings beneath the site, there is a risk that mine gas could impact on the development. If any potential mine workings are identified during the site investigation, these areas should be monitored for gas. As the development is to include occupied, "air sealed" buildings, the risk of accumulation of gases is relatively high if present. The designer should give due consideration to the potential requirement for additional gas protection measures to be incorporated into any new building or extension. Specific agreement with the Local Authority Contaminated Land Officer may be required in order to ensure that appropriate gas protection arrangements are installed, as required.
7. Is the proposed development in an area for which The Coal Authority is determining or has granted a licence to remove coal by underground methods?	No: The CA has no recorded coal mining licenses within 200m of the site boundary.	<ul style="list-style-type: none"> Ground subsidence. Ground instability, loss of ground, generation of crown holes. 	N/A	N/A
8. Are there known faults or other lines of weakness due to coal mining at the site?	No: The CA has no recorded faults, fissures or breaklines within the site boundary. Geological maps also show no faulting is present on site.	<ul style="list-style-type: none"> Ground subsidence. Mixtures of noxious or explosive gases and mine waters reaching the ground surface via 	N/A	N/A

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		faulted/broken strata and entering buildings, structures, confined spaces etc., when an explosive or asphyxiating hazard may be generated. <ul style="list-style-type: none"> • Stepped rockhead profiles where there has been subsidence across faults, potentially impacting differential settlement of proposed structures. 		
9. Is there a record of coal mining surface hazards within the site boundary? Has the site been subject to remedial works by, or on behalf of, the Coal Authority under its surface hazard call out procedures?	Yes: : The Consultants Coal Mining Report has records of six remedial works carried out within the site boundary. These are defined as being close to where the CA has investigated and where necessary remediated mine entries and/or shallow coal mine workings following specific reported hazards. These have been queried with the CA in a previous MD Joyce Phase I Report and two of which refer to records of dilapidated fencing around the capped shafts.	<ul style="list-style-type: none"> • Indication of past and potential future subsidence issues on site. 	Potential ground subsidence may result in ground instability and damage to property, structures and infrastructure. Subsidence may also cause harm to human health, injury or death of owners, maintenance operatives or construction workers using the site.	Although two of the remediated sites only refer to dilapidated fencing and do not pose a risk to development on site, it is recommended the CA Surface Hazards Incident Report is obtained to assess the information available in regard to the other hazards present on site. This can be incorporated into the intrusive investigation phase of work.

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10. Is the proposed development within the boundary of a surface mining/opencast site from which coal has been removed by surface mining/opencast methods?	No: The CA has no records of surface mining/ opencast sites within 500m of the site boundary. Although First Edition geological maps show a sandstone quarry immediately to the north of the site which may have encountered coal seams.	<ul style="list-style-type: none"> • Ground subsidence and restrictions on proposed development associated with settlement of proposed structures. • Potential ground instability and migration pathway of mine gases and mine water from disturbance of backfilled material. • Migration pathway of mine gas and mine water if the base of the excavation is connected to underground mine workings. • Mixtures of noxious or explosive gases generated by decomposition/oxidation of any organic materials/coal deposited in the former excavations representing a ground gas hazard to proposed development. 	N/A	N/A
11. Is the proposed development within 200m of a surface mining/opencast site from which coal is being removed?	No: There are no surface mining/ opencast sites within 200m of the site boundary.	<ul style="list-style-type: none"> • Development constraints associated with environment/noise/dust 	N/A	N/A

Assessment of Cumulative Impact of Coal Mining Issues:

This Risk Assessment has identified the principle risks to the proposed development to be the presence of recorded mine entries, unrecorded mine entries and unrecorded shallow mine workings. There are also residual risks associated with the migration of ground gas from possible shallow unrecorded coal mine workings.

Five mine entries are present within the site boundary, the proposed development is within the zone of influence of the mine entry in the south, and potentially four in the north. Construction within the zone of influence should be avoided altogether where possible. Where this is not possible liaison with the CA is recommended to agree the scope of any mitigation that could be achieved. This may include drilling and grouting of the shafts and capping them. Additional structural precautions may also be required.

BGS Maps indicate that the Top Lousey and Trub Coal outcrops at the site. Trial trenching in a previous investigation in 2021 also confirms shallow coal is present on site. A 12.8m deep shaft recorded at the southern edge of site may have targeted the Top Lousey coal and records suggest it has been mined in the area. The Trub Coal is also known to have been mined in the region. BGS Borehole SE22SW11 indicates the Cannel Coal is 0.99m thick and is present at 14.4m depth, 350m to the Northeast of the site. The Consultants Coal Mining Report that this is recorded to have been worked beneath the site at 46m depth, however the mine abandonment plan for the Primrose Hill Colliery indicates this seam is 36m below surface along strike from the southern edge of the site, where the topography does not change significantly between the two locations. Due to the southward dip and reducing level of the topography to the south, it is expected the Cannel Coal will be shallower towards the northern section of the site.

A geophysical survey followed by targeted trial trenching is recommended to locate the position of the known mine entries and to calculate their zone of influence. It is recommended that rotary boreholes are drilled in the northern end of the site to identify if the Cannel Coal is present at shallow depth. Rotary boreholes should also be drilled in the southern and central areas of the site to identify any other shallow mine workings. A borehole is recommended on the southern edge of the site, positioned around 10m-20m along strike from Mine Entry 419424-014 (12.8m depth) to identify if this seam has been worked around this shaft. If the Cannel Coal is present at shallow depths, additional rotary boreholes may be required to delineate the risk of possible shallow mine workings within the seam across the site.

Due to the presence of recorded and possible unrecorded shallow coal mine workings and deeper recorded coal mine workings beneath the site, there is a risk that mine gas could impact the proposed development. It would be prudent allow for the monitoring of hazardous gases during any future intrusive site investigation works to determine the requirement for any ground gas protection measures. It is likely that these works would be required as part of any future Phase II site investigations that are undertaken at the site. Specific agreement with the Local Authority Contaminated Land Officer may be required in order to ensure that the ground gas regime at the site has been characterised.

Prior to carrying out any works which may intersect, disturb or enter any coal seams, coal mine workings or mine entries (within the ownership of the Coal Authority), the written permission of the Coal Authority shall be obtained (<http://coal.decc.gov.uk/en/coal/cms/services/permits/permits.aspx>). The legal implications of acceptance of The Coal Authority permit conditions should be considered fully before accepting them.

N/A = Not Applicable

Prepared By:

A handwritten signature in black ink that reads 'J M Price'.

Jonathan Price
Engineering Geologist

Reviewed and Approved By:

A handwritten signature in black ink that reads 'M. Peachey'.

Mark Peachey
Technical Director

APPENDICES

APPENDIX 1

Site Plan





Jones Homes (Yorkshire) Offices

Primrose Lane, Liversedge
(Subject Site)



APPENDIX 2
Proposed Development

- LEGEND:**
- SF10 - 1800mm HIGH TIMBER SCREEN FENCE
 - SF1 - BRICK WALL & TIMBER SCREEN FENCE
 - 300mm HIGH POST & RAIL FENCE
 - EXISTING HEDGE TO BE RETAINED
 - EXISTING HEDGE REMOVED FOR NEW FOOTPATHS
 - PROPOSED HEDGE
 - PROPOSED TREE
 - EXISTING TREES TO BE RETAINED
 - EXISTING TREES TO BE REMOVED
 - EXTENT OF NATURAL ENVIRONMENT AREA
 - V VISITOR PARKING



C	29/04/22	SM	CLIENT AMENDMENTS, INCREASED VERGE WIDTH BY 1M, AMENDMENTS TO VISITOR PARKING LOCATIONS, ROAD REPOSITIONED TO CREATE SPACE BETWEEN 3RD PARTY OWNERS LAND AND FOOTPATH
B	20/04/22	SM	CLIENT AMENDMENTS, PLOTS 46-49 HANDED, PLOT 36 SWAPPED TO BAN, UPDATES TO VISITOR PARKING SPACES
A	07/03/22	PG	CLIENT AMENDMENTS TO PLOTS 1, 3, 4, 5, 6, 22, 23, 40 & 44 TO 55

**PRIMROSE LANE
PROPOSED SITE LAYOUT**

client: JONES HOMES

client ref: [blank]

date: 22/02/22

scale: 1:500@A1

drawn: PG

checked: ED

drawing no: 3416-1-001

revision: C

niemen architects

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Schedule of Accommodation							
To be read in conjunction with drawing no. 3416-1-001 - Latest revision							
Housetype	No. of Beds	Type	No. of Units	Percentage	Sq. Ft.	Total Sq. Ft.	
AP	APARTMENT	2 Bedrooms	Apartment	12	17.91	650	7800.00
BC	BAYCLIFFE	3 Bedrooms	Semi-detached/Detached	8	11.94	941	7528.00
BA	BANBURY	4 Bedrooms	Detached	14	20.90	1354	18956.00
BE	BENTLEY	4 Bedrooms	Detached	11	16.42	1619	17809.00
BY	BAYSWATER	4 Bedrooms	Detached	1	1.49	1449	1449.00
BB	BARBRIDGE	4 Bedrooms	Detached	13	19.40	1668	21684.00
LT	LATCHFORD	5 Bedrooms	Detached	8	11.94	1810	14480.00
Totals				67	100.00		89706.00

PLANNING

subject to structural review
subject to accurate measured survey

DO NOT SCALE - ALL DIMENSIONS & LEVELS TO BE CHECKED ON SITE - THIS DRAWING IS COPYRIGHT

APPENDIX C
Consultants Coal Mining Report



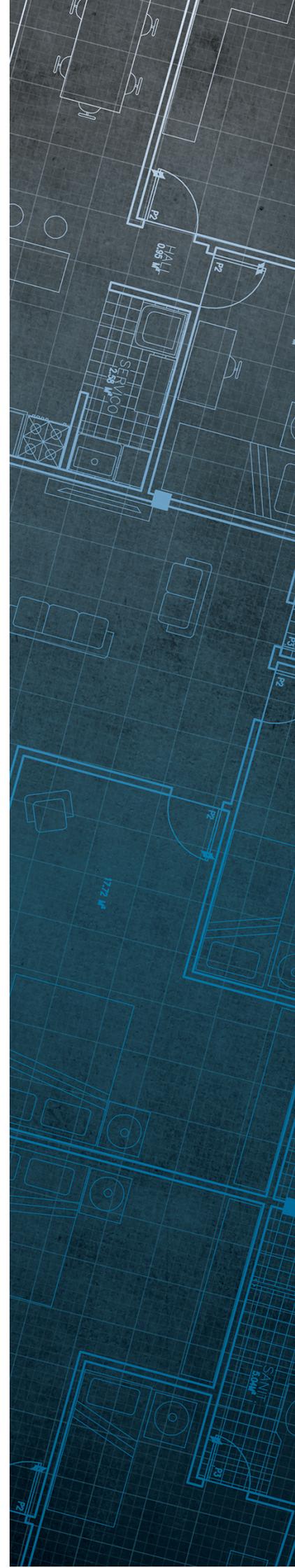
The Coal
Authority

Consultants Coal Mining Report

Primrose Lane
Hightown
Liversedge
Kirklees
WF15 6PA

Date of enquiry: 1 July 2022
Date enquiry received: 1 July 2022
Issue date: 1 July 2022

Our reference: 51003223788001
Your reference: LD10469



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

Jonathan Price

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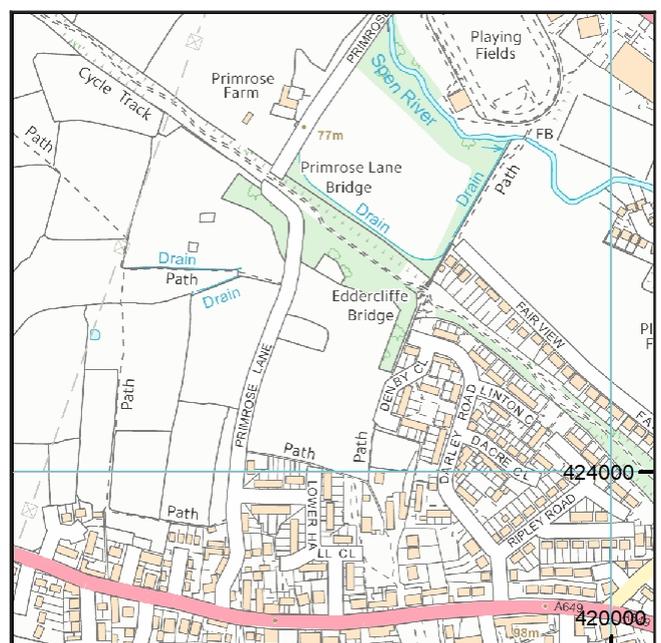
www.groundstability.com

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 /thecoalauthority

 /thecoalauthority



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
unnamed	TOP BEESTON	Coal	6NNO	46	Beneath Property	3.2	North-East	61	1904
unnamed	BLACK BED	Coal	6NG1	118	Beneath Property	3.2	South	67	1894
unnamed	BETTER BED	Coal	6NI1	138	North-East	2.0	East	38	1925
unnamed	BETTER BED	Coal	6NJ1	138	West	2.0	East	38	1925
unnamed	BLACK BED	Coal	6ZHR	145	Beneath Property	2.9	South-East	77	1897

Probable unrecorded shallow workings

Yes.

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	419424-004	419695 424219	is capped and is within a fenced compound	Coal	
Shaft	419424-005	419704 424223	is capped and is within a fenced compound	Coal	
Shaft	419424-006	419714 424208	is capped and is within a fenced compound	Coal	
Shaft	419424-014	419679 424022		Coal	
Shaft	419424-018	419572 424275		Coal	
Shaft	419424-019	419580 424275		Coal	
Shaft	419424-020	419699 424197		Coal	

Abandoned mine plan catalogue numbers

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

6086	M31	M49
FGB699	8708	6087
9069	PO0	12674

Our records show we have more plans than those shown above which could affect the enquiry boundary.

Please contact us on 0345 762 6848 to determine the exact abandoned mine plans you require based on your needs.

Outcrops

Seam name	Mineral	Seam workable	Distance to outcrop (m)	Direction to outcrop	Bearing of outcrop
LOW SILKSTONE	Coal	Yes	Within	N/A	266
LOW SILKSTONE	Coal	Yes	Within	N/A	297

Geological faults, fissures and breaklines

No faults, fissures or breaklines recorded.

Opencast mines

None recorded within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

Section 2 – Investigative or remedial activity

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

Site investigations

None recorded within 50 metres of the enquiry boundary.

Remediated sites

Distance to site remediation (m)	Direction
Within	N/A

See Section 4 for further information.

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.

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.

Remediated sites

The site is within an area of previous interest. It is close to where the Coal Authority has investigated and where necessary remediated mine entries and/or shallow coal mine workings following specific reported hazards.

The site requires further investigation and may influence your risk assessment. We recommend that you order the Coal Authority **Surface Hazards Incident Report**, which will include more information about the hazard.

For further information on specific site or ground investigations in relation to any issues raised in Section 4, please call us on 0345 762 6848 or email us at groundstability@coal.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 **call us on 0345 762 6848** or **email us at groundstability@coal.gov.uk**.

Past underground coal mining

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

Probable unrecorded shallow workings

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

Spine roadways at shallow depth

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

Mine entries

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

Abandoned mine plan catalogue numbers

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

Outcrops

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

Geological faults, fissures and breaklines

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

Opencast mines

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

Coal Authority managed tips

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

Site investigations

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

Remediated sites

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

Coal mining subsidence

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

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

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

Mine gas

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

Mine water treatment schemes

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

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

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

Future underground mining

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

Coal mining licensing

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

Court orders

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

Section 46 notices

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

Withdrawal of support notices

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

Payment to owners of former copyhold land

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

APPENDIX D
Mine Abandonment Plans



232 SW 51

REPRODUCED FROM THE ORIGINAL PLAN BY THE SANCTION OF THE CONTROLLER OF PLANNING, ENGINEERING & SURVEYING, COUNTY HALL, WAKEFIELD.

SE 1923

4500

5000

5500

23 24 25 26 27 28 29 Acres



2848
2.88

3546
2.49

4445
18.39

6147
1.81

The Princess Mary Playing Fields

4541
1.74

6039
2.76

Primrose Hill Farm

6841
82

3636
1.96

117

7535
5.70

4632
2.76

Primrose Lane Bridge

5828
5.05

132

8329
1.90

8931
44

2628
3.90

3423
3.65

4321
3.55

131

6628
88

8325
20

8625
85

9126
69

0027
1.31
9925
01

10

159
51
52
133
7218
3.69

232 SW 52

Eddercliffe Bridge

8817
1.32

9218
52

9216
37

53

161

12

5013
2.98

142
4110
2.64

168

4702
03

6607
2.31

2808
1.67

3300
1.81

3800
30

4200
26

4500
94

5000
63

5500
95

5900
2.93

6401
35

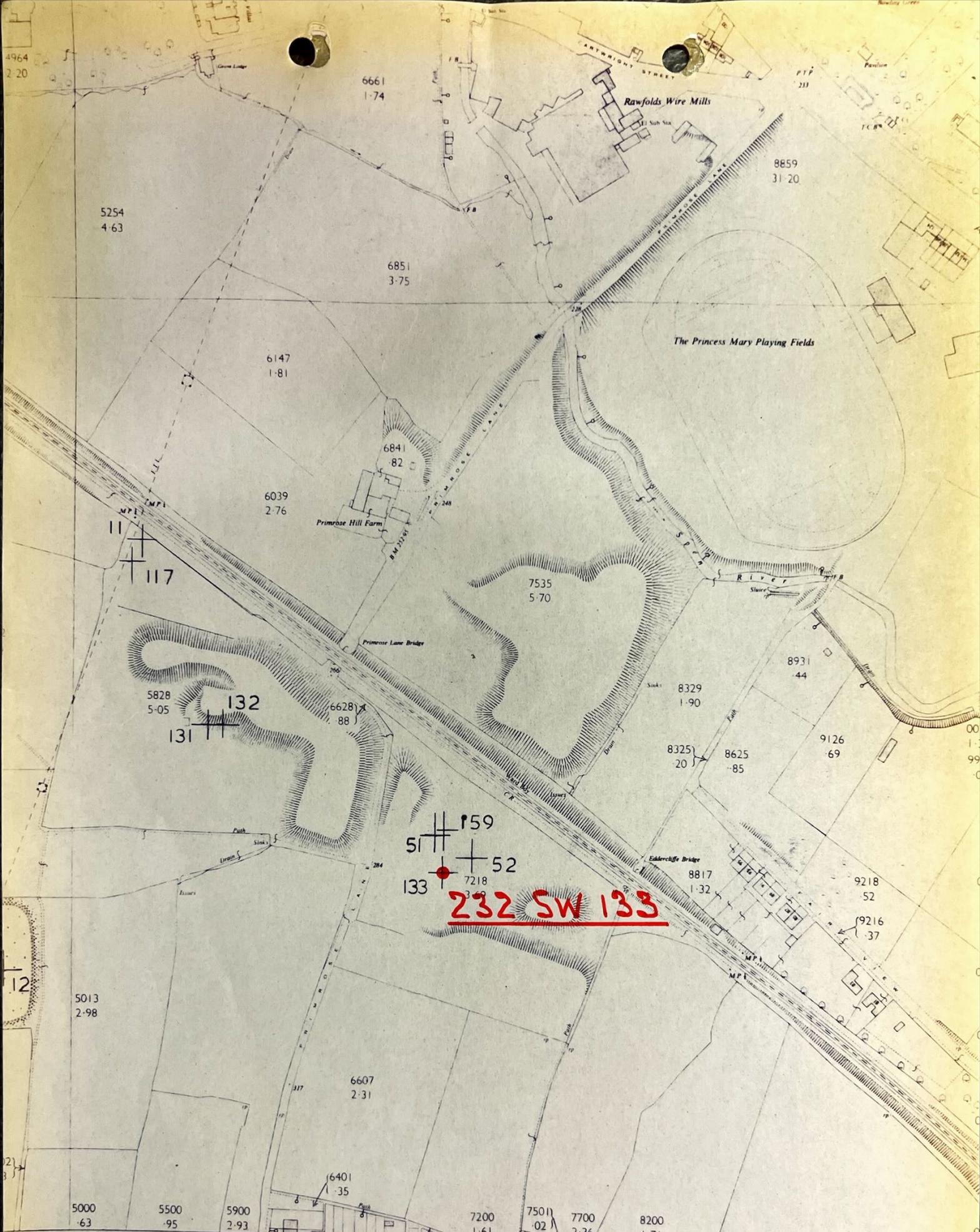
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7501
02

7700
2.36

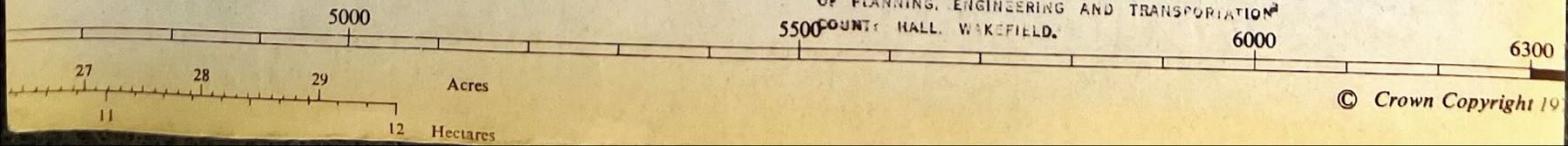
8200
1.76

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2



SE 1923

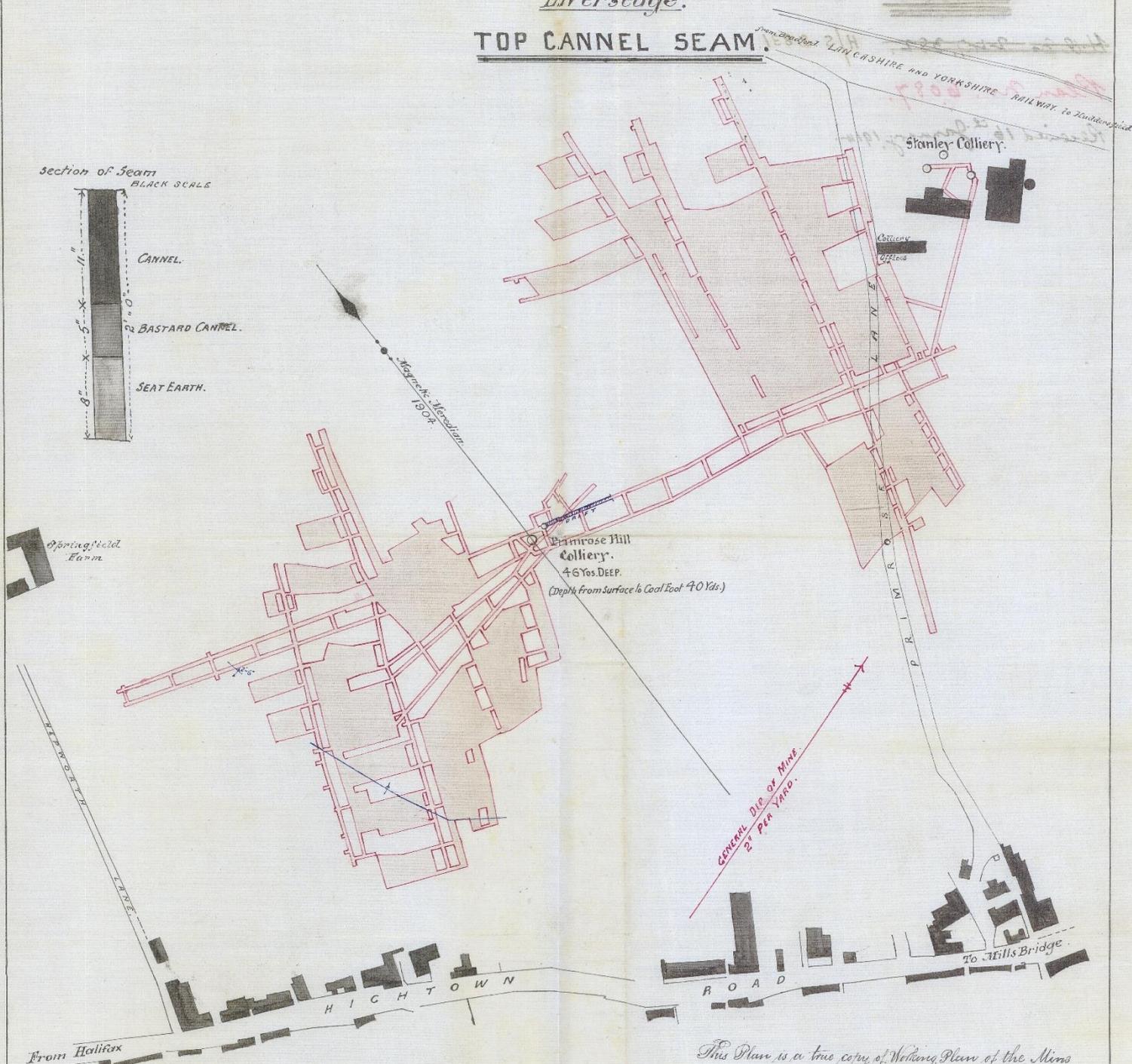
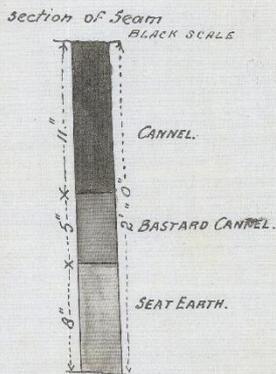
REPRODUCED FROM THE ORDNANCE SURVEY MAP WITH 199
 THE SANCTION OF THE CONTROLLER OF H.M. STATIONERY
 OFFICE. CROWN COPYRIGHT RESERVED. DIRECTORATE
 OF PLANNING, ENGINEERING AND TRANSPORTATION
 COUNTY HALL, WAKEFIELD.



STANLEY COAL Co. LTD.

— PLAN OF ABANDONED MINE —
PRIMROSE HILL COLLIERY,
Liversedge.

TOP CANNEL SEAM.



Scale 2 Chains to an Inch.

This Plan is a true copy of Working Plan of the Mine as completed up to December 1904. I hereby certify, after thorough examination and enquiry that to the best of my knowledge and belief it is an accurate plan of the Mine.

Saml. J. Wormald.
 Certified Mine Surveyor.

PLAN

LOWMOOR BLACK BEDDED L & IRONSTONE WORKINGS

STANLEY COLLIERIES

LIVERSEDGE

in the Parish of BIRSTAL

1877

Reference
To Ventilation

- Air Shaft
- Overthrow
- Regulating Stopping
- do
- Trap Door

CLECKHEATON

Reference.

JULY 27 1877

12674/3



APPENDIX E
BGS Borehole Records

SE 22 SW/11

HOLST & CO. LTD.
SITE INVESTIGATION DEPT.
5-7 NEW YORK ROAD
LEEDS 2

2000 2442

Contract No. 16554/B333

Borehole No. 1

Location Cleckheaton

Ground Level 213.8

Client Messrs. J.G.L. Poulson

Date 19.11.1964

BOREHOLE LOG

STRATA	Legend	Depth below Ground Level	Thickness of Strata	Type of Sample	c. lb./sq. ft.	Ø deg.	m.c. %	y lb./cu. ft.	N
Topsoil		1'0"	0.3m	0.91m					
Stiff Brown Sandy mottled Clay		9'0"	2.74m	3'0"	4900		16	130	
				8'0"					
Firm Greyish Brown Stony Clay with Shale fragments		10'0"	3.05m	0	3500		24	119	
				12'0"					
Wet Sand and Gray clay		14'0"	4.27m	2'0"					
Sand & Sandstone fragments		17'0"	5.18m	3'0"					
Stiff Grey Shaley Clay		18'6"	5.64m	1'6"					
Shaley Coal		20'0"	6.10m	1'6"					
Dark Grey Shaley Sandstone with roots		24'0"	7.32m	4'0"					
Silty Mudstone with occasional Siltstone and Ironstone Bands		44'0"	13.41m	20'0"					
				0.99m					
Cannel Coal		47'3"	14.4m	3'3"					
Grey Mudstone		64'0"	19.5m	16'9"					
				0.61					
Dark Shale		66'0"	20.12m	2'0"					
Coal		67'0"	20.42m	1'0"					
Grey Sandstone		67'6"	20.57m	6"					

Water struck at 12'-0" 3.66m Maximum Observed Water Level 11'0" 3.35m

- Undisturbed Sample □
- Disturbed Sample ○
- Water Sample Δ
- Penetration Test I
- c = Cohesion
- Ø = Angle of Internal Friction
- m.c. = Moisture Content
- y = Dry Density
- N = Standard Penetration Value

Water levels may be subject to seasonal or tidal variation and should not be taken as constant.

APPENDIX F
BGS and OS Maps

APPENDIX G
Mine Shaft Overlay Plans



DO NOT SCALE FROM THIS DRAWING

Legend

- Site Boundary
- ✕ Unfenced Mine Shafts
- ✕ Fenced Mine Shafts
- Conjectured Coal Seam Outcrops
- Coal Measures
- Sandstone

Notes

TR = Trub Coal
 TL = Top Lousey Coal

This drawings is for illustrative purposes only. Actual coal seam positions may differ and other coal / ironstone seams are present.
 BGS Geology 50k: Contains British Geological Survey materials © NERC [2022].
 BING imagery reproduced under license. Aerial imagery shown for context purposes only.

REVISION	DETAILS	DATE	DRN	CHKD	APP'D

CLIENT
JONES HOMES (YORKSHIRE) LIMITED

PROJECT
PRIMROSE LANE, LIVERSEEDGE

DRAWING TITLE
GEOLOGICAL SITE FEATURES PLAN

DRG No.	LD10469-001	REV
DRG SIZE	SCALE	DATE
A3	1:1,500	12/07/2022
DRAWN BY	CHECKED BY	APPROVED BY
JP	MP	MP

LEEDS | TEL 0113 831 5533
 WWW.WARDELL-ARMSTRONG.COM

<input type="checkbox"/> BIRMINGHAM	<input type="checkbox"/> LONDON
<input type="checkbox"/> BOLTON	<input type="checkbox"/> MANCHESTER
<input type="checkbox"/> CARLISLE	<input type="checkbox"/> NEWCASTLE UPON TYNE
<input type="checkbox"/> EDINBURGH	<input type="checkbox"/> CARDIFF
<input type="checkbox"/> GLASGOW	<input type="checkbox"/> STOKE ON TRENT



DO NOT SCALE FROM THIS DRAWING

Legend

- Site Boundary
- ✗ Unfenced Mine Shafts
- ✗ Fenced Mine Shafts



Notes

This drawings is for illustrative purposes only.
 Third party data (Niemen) used for site layout proposal (ref.3416-1-001) and overlaid using georeferencing techniques.
 BING imagery reproduced under license. Aerial imagery shown for context purposes only.

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REVISION	DETAILS	DATE	DRN	CHKD	APP'D
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CLIENT
JONES HOMES (YORKSHIRE) LIMITED

PROJECT
PRIMROSE LANE, LIVERSEGE

DRAWING TITLE
GEOLOGICAL SITE FEATURES PLAN

DRG No.	LD10469-002	REV
DRG SIZE	SCALE	DATE
A3	1:1,500	12/07/2022
DRAWN BY	CHECKED BY	APPROVED BY
JP	MP	MP

LEEDS | TEL 0113 831 5533
 WWW.WARDELL-ARMSTRONG.COM

<input type="checkbox"/> BIRMINGHAM	<input type="checkbox"/> LONDON
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<input type="checkbox"/> CARLISLE	<input type="checkbox"/> NEWCASTLE UPON TYNE
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