Technical Note

Project:	P17-176 Athersley RLE		
Subject:	Technical Note – Coal Mining Investigation		
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Document Ref:	17176-RLE-19-XX-RP-O-004	**Revision:**	P01

1 Introduction

1.1 Terms of Reference

In August 2019, Harworth Estates commissioned Rodgers Leask Environmental Ltd (RLE) to undertake a targeted investigation into coal mining legacy issues on land off Wakefield Road, Athersley, Barnsley, henceforth referred to as "the Site". The Site is proposed to be re-developed for a residential end use.

1.2 Limitations and confidentiality

All conclusions and recommendations made within this report are based upon and limited to the factual information obtained as part of this investigation. No responsibility can be taken by RLE Ltd for information obtained by third parties and it has been assumed that all third party information provided is true and correct.

No liability can be accepted for conditions not revealed within the exploratory holes or pits undertaken by this investigation. The exploratory points cover only a small proportion of the total site area. RLE Ltd has where necessary undertaken extrapolation between locations and no responsibility can be taken for different conditions which may occur between locations.

RLE Ltd has undertaken the work in accordance with our understanding of current best practice at the time of undertaking the report. Further assessment and revision of the report may be required should new information come to light or legislation/changes to best practice be introduced after the date of issue of the report.

RLE Ltd has prepared the report for the sole use and reliance of the Client. The report may not be used or relied upon by any unauthorised third party without the explicit written agreement of RLE Ltd.

2 Reference Documents

RLE has previously produced the following documents which should be referred to in conjunction with this technical note:

- Phase 1 Desk Study, May 2017, ref: 17176-RLE-17-00-RP-O-001
- Coal Mining Risk Assessment, May 2017, ref: 17176-RLE-17-00-RP-O-002
- Phase 2 Geo-Environmental Report January 2018, ref: 17176-RLE-17-00-RP-O-003

3 Background Information

3.1 Site History and Setting

The northwest of the Site was formerly occupied in part by the East Gawber Hall Colliery between c.1856 and 1922, with the remainder of the colliery being situated off-site to the north and west. This colliery included several shafts, adits and railway sidings located in the north of the Site, and numerous additional buildings including some coke ovens situated off-site to the northwest. Additional collieries were present in the wider surrounding area including Primrose Main and Wharncliffe Carlton to the south.

A former railway embankment (now public footpath) is present along the southern Site boundary.

Since closure of the colliery on Site, land north of the Site was redeveloped as an engineering works. The remainder of the Site appears to have been restored to the present condition of grass pasture. Anecdotal evidence provided to RLE by a local resident indicated that the east of the Site was formerly used as an excavator training ground.

3.2 Coal Mining Geology

The Site is underlain by solid geology of the Pennine Lower Coal Measures formation. No superficial deposits are recorded.

The following coal seams (listed in stratigraphical order) are anticipated to outcrop on Site or exist at shallow depth beneath the Site:

- Two Foot – up to 0.6m thick, expected at outcrop to shallow across the north of the Site only.
- Abdy (Winter) – up to 1.4m thick, expected at outcrop to ~16m depth across the centre and north of the Site only.
- Top Beamshaw – up to 1.8m thick, expected at outcrop to ~28m depth.

- Low Beamshaw – up to 0.6m thick, expected at outcrop to ~36m depth.
- Kent's Thin – up to 0.8m thick, expected between 24m to 52m depth.

Recorded shallow working has occurred within the Abdy seam in a small area in the northwest of the Site, worked from East Gawber Hall Colliery. However unrecorded working may have occurred in any of the above seams. Deeper recorded working has occurred in the Kent's Thick (Mapplewell) and Barnsley Seams, which are considered to present a low risk to the Site due to their depth (c.50m and c. 150m respectively).

The Coal Authority (CA) indicates that 9 No recorded and untreated mine entries are located on or within 20m of the Site. Of these, 6 No are located either on-site or are adits which are located off-site and inferred to exist beneath the site at depth. All mine entries are indicated in the northwest.

The north of the Site has been subjected to significant faulting, which renders the exact sequence of strata and coal seams uncertain.

3.3 Previously Identified Ground Conditions and Geology

Previous investigation works undertaken by RLE in July 2017 included machine excavated trial pits and window sample boreholes. Ground conditions were found to comprise the following:

- Made ground associated with the former colliery was present across the northern Site extents to a maximum depth of 2.5m. Made ground typically comprised gravels of coal, brick, concrete, sandstone, slag and red shale.
- Additional areas of made ground (mostly reworked natural materials) were identified in the east (former excavator training ground) and southwest (former track), to a maximum depth of 1.7m.
- Natural ground conditions comprised stiff to very stiff clays becoming extremely weak to very weak mudstone, siltstone and sandstone at depth. Depths to rockhead varied between 2.0m and 4.0m.
- Shallow coal was identified in numerous positions across the Site relating to the seams identified above.

A small area of visual and olfactory contamination was identified in the northwest of the Site comprising red shale containing pockets of black treacle-like coal tar.

4 Objectives and Scope of Works

The objectives of this targeted assessment are to investigate for the previously identified coal mining legacy issues on the Site. Specifically, the investigation has the following objectives:

- To identify and confirm the location and depth to each of the 5 No named coal seams across the Site, and to investigate for the presence of unrecorded workings in any of the above seams.
- To investigate for recorded shallow working in the Abdy (Winter) seam in the northwest of the Site.
- To investigate the location of 6 No recorded mine entries (4 No adits and 2 No shafts) in the northwest of the Site.
- To evaluate the risk to the proposed development from the above mining legacy issues.

Three additional mine entries to those investigated herein are indicated close to the north western Site boundary. The location of these mine entries has not been investigated in this assessment, however it may be prudent to undertake this in the future to confirm that these do not impact the Site.

5 Site Works

Investigation works were undertaken between 23rd September and 11th October 2019, under the direction and supervision of an RLE engineer. Works were undertaken in accordance with Coal Authority Permit 18771. A total of 104 No rotary open-hole boreholes were drilled under the following rationale:

- 30 No boreholes drilled to up to 38m depth to investigate shallow coal seams across the Site.
- 6 No boreholes drilled to up to 12m depth to investigate for Adit 434408-018
- 9 No boreholes drilled to up to 12m depth to investigate for Adit 434408-017
- 10 No boreholes drilled to up to 32m depth to investigate for Adit 434408-021
- 6 No boreholes drilled to up to 22m depth to investigate for Adit 434408-022
- 23 No boreholes drilled to up to 12m depth to investigate for Shaft 434408-007
- 20 No boreholes drilled to up to 12m depth to investigate for Shaft 434408-023

The boreholes drilled to investigate for the 6 No mine entries above all intercepted shallow coal and have therefore provided additional information to the depth and

condition of the various seams present across the Site. The rationale for the end borehole depths was to confirm competent rock for shafts, or to reach the anticipated worked seams for each of the adits.

All rotary boreholes were drilled utilising a rotary percussive (top hammer) drilling rig and water flush. Boreholes were backfilled with sand and cement.

Ground gasses (carbon dioxide, oxygen, methane, carbon monoxide and hydrogen sulphide) were continuously monitored at the drilling rig. No elevated concentrations of ground gas or mine gas were recorded.

A Borehole Location Plan (17176-RLE-19-XX-DR-O-007) and Mine Entry Investigation Plan (17176-RLE-19-XX-DR-O-008) are included in Appendix A and B respectively. Both drillers factual logs and engineers' interpretative logs are included within Appendix C. Cross sections indicating the interpreted geological model of the Site have been produced, and are included within Appendix D (drawing number 17176-RLE-19-XX-DR-O-009).

6 Ground Conditions and Discussion

6.1 Strata and Coal Seams Identified

The following reference material has been utilised to assist production of a geological model for the Site:

- BGS 1:50,000 Geological Map England and Wales Sheet 87 Barnsley District
- BGS 1:10,000 Geology Series SE30NW (Barnsley)
- Green, A.H. and Holmes T.V., 1870, Vertical Sections Sheet 36, Section of the Measures above the Barnsley Coal in the district of Barnsley and Wakefield
- Lake, R.D. and Hough, E. (Editor), 2006, The Pennine Lower and Middle Coal Measures Formations of the Barnsley District, British Geological Survey Internal Report: IR/06/135.

Geological interpretation has been used to infer the names of coal seams identified, informed by drillers logs, site engineer's observations and the above information sources. Given the complexity of the Site, the interpretation contained herein is merely one possible geological model for the Site, and any additional future investigation work may further refine the model. Plans, logs and cross sections included in Appendix A to D should be referred to in addition to the interpretation undertake herein.

Table 1 (below) summarises the coal seams encountered and the parting between seams, presented in stratigraphical order.

Table 1. Summary of Coal Seams Encountered.					
Seam Name	**Average Thickness [range]**	**Depth to top of seam**	**Typical Description**	**No of BHs into seam**	**Condition**
Probable Maltby (Two Foot) Marine Band	0.2m	4.0 – 4.4m	Black shale.	2	Non-coal, intact. Marine Band fossil marker horizon
Typical parting of 2m – MUDSTONE					
Two Foot	0.5m [0.1-1.0]	3.5 – 7.9m	Dull black shaley COAL. Becoming hard black semi-bright COAL in north.	12	Intact – 12 No boreholes
Typical parting of 8m-10m – MUDSTONE. Becoming a 15m SANDSTONE parting in the north of Site,					
Abdy (Winter)	0.7m [0.2-1.4]	2.0 – 19.1m	Hard black semi-bright COAL. Hard black bright sub-anthracite COAL	73	Intact – 72 No boreholes VOID at 5.4m to 6.8m – 1 No borehole (RBH06A)
Typical parting of 10m to 13m – MUDSTONE. Becoming 4m in east of Site.					
Top Beamshaw	0.8m [0.2-1.3]	5.0 – 32.8m	Hard black semi-bright to bright COAL. Splits into two leaves in the north and east of Site.	30	Intact – 30 No boreholes
Typical parting of 10m-12m – MUDSTONE					
Low Beamshaw	0.75m [0.5-1.0]	4.0 – 35.8m	Hard black semi-bright COAL	13	Intact – 12 No boreholes Possible broken ground at 7.6m to 12.6m – 1No borehole (RBH18A)
Typical parting of 16m-26m – MUDSTONE.					
Kent's Thin	0.6m [0.3-1.0]	26.6m – 35.5m	Soft black dull to semi bright COAL	4	Intact – 3 No boreholes Possible broken ground at 26.6m to 28.3m – 1No borehole (RBH17)

6.2 Structure

Strata on Site dip to the north / northeast at a generally shallow rate. However, the dip was found to be steeper and more variable in the east of the Site. Numerous faults in the north and east of the Site also impact the apparent dip of strata, as indicated on the cross sections included within Appendix D.

The Site is heavily affected by faulting, as indicated on RLE Drawing 17176-RLE-19-XX-DR-O-007 (Appendix B). Three normal faults are inferred to cross the Site, and the depth, thickness and quality of coal seams vary across the fault zones.

Two faults are shown on geological maps to strike approximately east to west through the north of the Site. These have been inferred on Site by plotting the off-set of coal seams on cross sections, and are indicated to downthrow strata to the north and south respectively by up to 6m. The influence of these two faults is best observed in Cross Sections 1, 2 and 3. A third fault (not shown on geological maps) is inferred to strike approximately north to south through the east of the Site, and manifests on Site as a marked topographical gully with a steam. This fault downthrows strata to the south by 6m-8m.

Additionally, probable fractured rock (intermittently encountered as soft strata and poor flush returns at varying depths) was encountered in boreholes in the far north of the Site, which possibly relates to the influence of a fourth off-site fault (inferred to exist along Wakefield Road to the northeast).

Significant faulting on Site is likely to be one contributing factor for the observed general absence of coal workings, despite the presence of numerous seams of shallow coal. In areas of significant shallow working or contemporary longwall workings, faults can act as a focus for subsidence. This is not considered to be a significant issue on this Site.

6.3 Two Foot Coal

The Two Foot seam was encountered across the north of the Site as a generally thin and poor quality seam of black shale and coal. In two boreholes in the north of the Site (RBH11 and RBH03A), a second thin bed of black shale was encountered above this seam, which is interpreted to be the Maltby Marine Band.

The parting between the Two Foot Coal and the underlying Abdy Seam typically comprises between ~8m and ~10m of mudstone. However, in the north of the Site the two seams are separated by a thick sandstone bed (the Abdy Rock), up to ~15m thick.

No evidence was encountered for working of this seam within the 12 No boreholes which intercepted it. Working is also considered unlikely given the generally poor quality of this seam.

6.4 Abdy (Winter) Coal

The Abdy seam was encountered across the centre and north of the Site as a generally good quality bright to sub-anthracite grade coal seam. The thickness and quality of this seam varies considerably either side of the faults identified in the north of the Site.

In the northwest of the Site, this seam was found to comprise hard black bright sub-anthracite quality coal of between 1.0m and 1.4m thick. Here the seam was encountered at shallow depths of between ~2.0m and 6.0m, and dips shallowly to the north.

In the north and east of the Site, this seam generally becomes thinner (0.3m to 1.0m) and poorer quality (soft, and semi-bright to bright).

Limited evidence of working was identified in this seam, with the seam being found intact in 72 No of 73 No borehole which intercepted this seam.

One borehole (RBH06A) in the northwest of the Site (where this seam is thickest and highest quality) encountered a VOID at the depth where this seam was anticipated at between 5.4m and 6.8m. This void was encountered roughly in the vicinity of recorded workings in this seam, shown on Coal Authority Abandonment Plan 7431. Additional boreholes drilled close to RBH06A identified solid coal only, however it is likely that further areas of workings exist in the northwest area of the Site. Further investigation of this area of shallow working was prevented by the presence of an overhead power line, underground sewer and known coal tar contamination.

6.5 Top Beamshaw Coal

The Top Beamshaw seam was encountered across the south, centre and north of the Site as a generally good quality seam of hard black semi-bright to bright coal.

In the north and east of the Site, this seam is observed to split into two leaves separated by a mudstone parting of between 0.2m to 1.0m. In this area, the upper leaf comprises soft dull coal and the lower leaf comprises hard black semi-bright coal.

No evidence was encountered for working of this seam in the 30 No boreholes that intercepted it. Working is also considered unlikely given the notable split in this seam across much of the Site.

6.6 Low Beamshaw Coal

The Low Beamshaw seam was encountered across the south and centre of the Site as a reasonable quality seam of hard black semi-bright coal.

Limited evidence of working was identified in this seam, with the seam being found intact in 12 No of 13 No borehole which intercepted this seam.

One borehole (RBH18A) encountered possible broken ground where this seam is anticipated at between 7.6m and 12.6m. It is possible that additional areas of shallow working exist in this seam where it is expected at shallow depth.

6.7 Kent's Thin

The Kent's Thin seam was encountered in the south of the Site as a generally thin poor quality seam of soft dull coal.

Evidence of possible working in this seam was encountered as broken ground between 26.6m and 28.3m in RBH17. Given the poor quality and thin nature of this seam it is unlikely that any workings are extensive. Additionally, at a maximum recorded thickness of 1m and a minimum shallowest depth of 26.6m, it is considered that any workings in this seam would have sufficient rockhead cover to mitigate the risk of void migration.

6.8 Mine Entry Investigation

Of the 9 No recorded mine entries on or within 20m of the site, 6 No (2 No shafts and 4 No adits) have been investigated during this investigation. Table 2 below provides details of the works undertaken to attempt to identify each mining feature. The Mine Entry Investigation Plan (drawing number 17176-RLE-19-XX-DR-O-008) included within Appendix B also provides detail on the investigation works undertaken.

Table 2. Summary of findings relating to shafts and adits.

Mine entry reference:	Investigation Undertaken	Coordinates	Detail / Observations
Adit 434408-017 **ADIT NOT IDENTIFIED**	6 No BHs to 12m bgl along line of adit	434695, 408822 (CA Coordinates)	Boreholes drilled along and perpendicular to the line of the adit encountered intact coal only (Abdy and Top Beamshaw Seams, likely seams which were worked). Further investigation required. Unable to drill close to the adit mouth for environmental reasons, due to the presence of known coal tar contamination (free product) within made ground in this area.
Adit 434408-018 **POSSIBLE ADIT OR WORKINGS IDENTIFIED** **SEE DRAWING 008 FOR DETAIL**	9 No BHs to 12m bgl along line of adit	434629, 408802 (CA Coordinates)	Boreholes drilled along and perpendicular to the line of the adit (close to the supposed position of the adit mouth) identified a linear area of voids and backfilled ground at shallow depth. However, the line of these workings trends to the northeast, which is perpendicular to the anticipated line of the adit. Additionally, no coal has been identified at the level of these workings, indicating this may be an adit or possible unrecorded shallow workings for another mineral such as clay or ironstone. Additional investigation may be able to constrain this feature more accurately.

Table 2. Summary of findings relating to shafts and adits.			
Mine entry reference:	**Investigation Undertaken**	**Coordinates**	**Detail / Observations**
Adit 434408-021 **ADIT NOT IDENTIFIED**	10 No BHs to 32m bgl along line of adit	434662, 408874 (CA Coordinates)	Boreholes drilled along and perpendicular to the line of the adit identified solid coal only (Abdy and Top Beamshaw seams), and no evidence of a possible adit or workings. This adit is shown on CA Abandonment Record 7431 associated with shallow workings in the Abdy seam at ~5m depth. This adit is anticipated to be present further south of the expected location for the following reasons: • No workings were identified in the Abdy seam along the supposed line of this adit, • The depth to this seam ranged from 9.5m to 11.5m here, (workings and adit expected where the seam is shallower at ~5m depth) • Workings (void) were only identified further south in RBH06A, hence this adit is likely to be closely associated with this. Further investigation is recommended, however this was not possible during this investigation due to the presence of buried and overhead services and known land contamination.
Adit 434408-022 **ADIT NOT IDENTIFIED**	6 No BHs to 22m bgl along line of adit	434666, 408847 (CA Coordinates)	Boreholes drilled along and perpendicular to the line of the adit identified solid coal only (Abdy and Top Beamshaw seams), and no evidence of a possible adit or workings. This adit is shown on CA Abandonment Record 7431 associated with shallow workings in the Abdy seam at ~5m depth. This adit is anticipated to be present further south of the expected location for the reasons stated above. Further investigation is recommended, however this was not possible during this investigation due to the presence of buried and overhead services and known land contamination.

Table 2. Summary of findings relating to shafts and adits.			
Mine entry reference:	**Investigation Undertaken**	**Coordinates**	**Detail / Observations**
Shaft 434408-007 **POSSIBLE SHAFT IDENTIFIED** **SEE DRAWING 008 FOR DETAIL**	23 No BHs to 12m bgl at 1m centres around shaft coordinates	434707, 408848 Estimated shaft centre	Boreholes drilled on 1m centres in a grid around the anticipated shaft location identified a possible shaft 5m south of the coordinates provided by the Coal Authority. The depth to rockhead was found at 4m surrounding the shaft – soft backfill was encountered to at least 10.5m (base not encountered) in 4 No adjacent BHs, which is interpreted to be a possible shaft of ~3m diameter. This shaft was not probed to full depth as it is expected to be c. 145m deep, descending to the Barnsley Seam which was worked at depth beneath the Site. This shaft will require treatment prior to development.
Shaft 434408-023 **SHAFT NOT IDENTIFIED**	20 No BHs to 20m bgl at 1m centres around shaft coordinates	434693, 408837 (CA Coordinates)	Boreholes drilled on 1m centres in a grid around the anticipated shaft location did not encounter a possible shaft, and identified intact coal only (Abdy Seam). This adit is shown on CA Abandonment Record 7431 associated with shallow workings in the Abdy seam, and is indicated to be ~4.6m deep. Further investigation is recommended, however this was not possible during this investigation due to the presence of buried and overhead services and known land contamination.

7 Summary and Conclusions

In summary a typical sequence of Coal Measures strata was identified through this investigation, generally comprising made ground or topsoil overlying clay onto bedrock (mudstone and sandstone) and coal seams. Due to the limitations of open-hole drilling, more detailed strata descriptions were not possible.

A number of shallow coal seams were encountered across the Site, some of which were of workable thickness and quality. However, limited evidence for shallow working was encountered on Site. This is likely due in part to the influence of faulting in the north of the Site, the somewhat variable thickness and quality of coal and the presence of more attractive coal seams to work in the local area (i.e. the Barnsley Seam, and the Abdy seam to the north where the influence of faulting is greatly reduced).

However, this investigation has identified that a number of coal mining legacy issues remain on Site which will require either further investigation or remediation prior to development.

Table 3 below lists the coal mining legacy issues which have been identified on Site, their likely risk rating and any further works or remediation considered necessary.

Table 3. Summary of coal mining legacy issues.

Coal Mining Issue	Risk Assessment	Remediation / further works
Shallow working in Two Foot Seam	**LOW**	None considered necessary. No evidence of recorded or unrecorded working was encountered. Working is considered unlikely as this coal seam was generally found to be thin and poor quality.
Shallow working in the Abdy Seam	**HIGH (hatched area in NW)**	Drill and grout areas of shallow working in this seam, in vicinity of RBH06A – approximate extent of working indicated as hatched area on RLE Drawing 17176-RLE-19-XX-DR-O-007.
	LOW / MODERATE (rest of Site)	Seam found intact across the rest of the north and east of Site. Extensive working is considered unlikely due to significant faulting. However, given the high quality of the coal and known working in this area, additional site investigation or a trial drill and grout exercise may be prudent where this seam is present at shallow depth in the north and east of Site.
Possible unrecorded shallow working near Adit 434408-018	**HIGH (hatched area in NW)**	Further investigation is recommended, drilling and grouting is likely to be required in hatched area shown on RLE Drawing 17176-RLE-19-XX-DR-007. Voids and backfilled ground were identified at shallow depth close to Adit 434408-018, at depths between the Abdy and Top Beamshaw seams – no coal was encountered at this depth hence this may either be the adit or unrecorded working for another mineral such as fireclay or ironstone.
Shallow working in the Top Beamshaw Seam	**LOW**	Seam found intact in all boreholes which intercepted it. Extensive working is considered unlikely due to significant faulting in the north and east of Site, and the presence of a split within this seam which separates and reduces the quality of this coal. However, some areas of good quality workable coal were identified at shallow depth, hence small-scale unrecorded working (bell pits) cannot entirely be discounted.
Shallow working in the Low	**HIGH (hatched area in SW)**	Drill and grout areas of possible shallow working in this seam, identified in RBH18A – approximate extent of working indicated as hatched area on RLE Drawing 17176-RLE-19-XX-DR-O-007. Further drilling investigation may further constrain this area.

Table 3. Summary of coal mining legacy issues.		
Coal Mining Issue	**Risk Assessment**	**Remediation / further works**
Beamshaw Seam	**LOW / MODERATE (rest of Site)**	Seam found intact across the rest of the Site. Additional site investigation or a trial drill and grout exercise may be prudent where this seam is present at shallow depth across the south and centre of the Site.
Shallow working in the Kent's Thin Seams	**LOW**	Possible unrecorded workings were identified in a single borehole (RBH17) in the west of the Site. However, this seam has a maximum thickness of 1m and was found at a shallowest depth of 26.6m. Therefore any workings in this seam are considered likely to present a low risk to the Site.
Mine Entries (recorded)	**HIGH**	Of the 9 No mine entries on or within 20m of the Site, 6 No have been investigated and 2 No have been possibly identified. Full treatment of shafts and adits is recommended by drilling, grouting and capping. Mine entry remediation should be designed and undertaken by a competent contractor and should be approved be the Coal Authority. Additional investigation is recommended into the mine entries that are recorded on site and have not been located. The location of recorded mine entries provided by the Coal Authority are approximate at best, and therefore investigation may also be required into the location of the 3 No nearby off-site mine entries.
Mine Entries (unrecorded)	**MODERATE**	Given the presence of 5 No seams of shallow workable coal across the Site, the possibility of small-scale unrecorded working (i.e. bell pits) cannot be entirely discounted. Whilst bell pits are difficult to investigate for, vigilance should be maintained for any evidence of unrecorded mine entries and associated shallow working during all future works on Site.
Mine gas emissions	**LOW**	No mine gas was encountered during drilling works, and no significant areas of workings were encountered (which could give rise to gas). Nevertheless, basic ground gas protection measures are recommended as per the conclusions of the RLE Phase 2 Geo-Environmental Report.
Coal Mining Geology (fissures)	**LOW**	The north and east of Site is heavily affected by faulting, however the risk of ground instability or fissures relating to these is considered low. Additional drilling (rotary coring) may be prudent to confirm ground conditions in some areas in the north of the Site, where soft ground (probable fractured rock) was encountered close to faults.
Recorded coal mining surface hazard	**NEGLIGIBLE**	No hazard recorded or identified on Site, no action required.

Table 3. Summary of coal mining legacy issues.		
Coal Mining Issue	**Risk Assessment**	**Remediation / further works**
Surface mining (opencast)	**NEGLIGIBLE**	No hazard recorded or identified on Site, no action required.

8 Recommendations

Based on the above table of risks, the following further works or remediation is recommended. Proposed remediation works are also indicated on RLE Drawing 17176-RLE-19-XX-DR-O-010 (Mining Remedial Works Plan) included within Appendix E.

- Treatment of shallow mine workings will be required where identified in the Abdy Seam, Low Beamshaw Seam and an unidentified seam/mineral near Adit 434408-018. These are indicated as hatched areas on RLE Drawing 17176-RLE-19-XX-DR-O-007. Further investigation works and/or a trial drill and grout exercise should be undertaken close to areas of identified working to more accurately constrain the area which requires treatment.
- It is considered that widescale drilling and grouting outside of the above areas is not required as no evidence of working of the coal has been identified in a significant number of boreholes outside of the above areas. The absence of working is likely to be due to the significant faulting. Nevertheless, there is less than ten times rock cover present across much of the Site and further boreholes and inspection post-strip would add further confidence of the absence of working.
- Further investigation should be undertaken into mine entries 434408-017, 434408-021, 434408-022, and 434408-023. These are recorded in the northwest of the Site, however these were unable to be identified during the present investigation due to site constraints.
- Treatment of all mine entries will be required prior to development, typically comprising drilling, grouting and capping onto suitable rockhead.
- Diversion or isolation of the overhead power line and underground sewer, and removal/remediation of coal tar contamination will be required to facilitate the above works in the northwest of the Site. Currently these present a health and safety or environmental constraint to drilling in this area.
- Vigilance should be maintained during all future site works for the presence of possible bell pits or small scale near surface working, which could give rise to localised difficult ground conditions. Due to the size of the Site and the typical small scale of these features, investigation is typically difficult but could comprise an extensive trial pit or topsoil strip exercise under the supervision of a suitably qualified Engineer.

- A small number of rotary cored boreholes could provide further information on ground conditions in the north of the Site, where soft ground and loss of flush were encountered in some boreholes at varying depth. This is most likely attributable to faulting, however coring would be able to confirm this.
- A significant amount of shallow coal remains on Site, and consideration should be given to extraction of minerals prior to development and sterilisation of the resource. However, such extraction by opencast methods could create more challenges for development (i.e. need for piled foundations), may not be socially or environmentally acceptable and may not be economically viable given the current reduced role of coal in the UK energy mix.

Approval of the above conclusions and recommendations should be sought from regulators and the Coal Authority.

Appendix A: Borehole Location Plan

Drawing No: 17176-RLE-19-XX-DR-O-007

A3

SEE DRAWING 17176-RLE-19-XX-DR-O-008 FOR DETAILS OF INVESTIGATION INTO MINE ENTRIES IN THESE AREAS

434408-010 (150m deep)

434408-001

434408-021

434408-006 (144.7m deep)

434408-022

434408-007 (144.5m deep)

434408-023 (4.6m deep)

434408-017

434408-018

RBH01A

RBH01B

RBH02A

RBH02B

RBH03A

RBH3B

RBH04

RBH05

RBH06A

RBH06B

RBH06C

RBH07

RBH08A&B

RBH08C

RBH09

RBH10

RBH11

RBH12A

RBH12B

RBH13

RBH14A

RBH14C

RBH15

RBH16

RBH17

RBH18A

RBH18B

RBH19

RBH20

RBH21

PH1/1

PH1/2

PH1/3

PH2/1

PH2/2

PH3/1

PH3/2

PH4/1

TWO FOOT SEAM (0.1 - 1.0M)

ABDY SEAM (0.2 - 1.4M)

TOP BEAMSHAW SEAM (0.2 - 1.3M)

LOW BEAMSHAW SEAM (0.5 - 1.0M)

DIP OF STRATA

GENERAL NOTES

NO DIMENSIONS TO BE SCALED OFF THIS DRAWING.

THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECT'S AND ENGINEER'S DRAWINGS.

ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.

ALL LEVELS ARE IN METRES UNLESS NOTED OTHERWISE.

ANY DISCREPANCIES NOTED ON SITE ARE TO BE REPORTED TO THE ENGINEER IMMEDIATELY.

KEY

- SITE BOUNDARY
- COAL SEAM (NAMED) WITH THICKNESS
- FAULT (INFERRED) WITH TICK ON DOWNTROWN SIDE
- APPROXIMATE LOCATION OF MINESHAFT ON OR WITHIN 20M OF THE SITE (POSITION PROVIDED BY COAL AUTHORITY) NOT IDENTIFIED BY ROTARY DRILLING
- LOCATION OF MINESHAFT IDENTIFIED ON SITE BY ROTARY DRILLING
- APPROXIMATE LOCATION OF ADIT ON OR WITHIN 20M OF THE SITE (POSITION PROVIDED BY COAL AUTHORITY) NOT IDENTIFIED BY ROTARY DRILLING
- LOCATION OF POSSIBLE ADIT IDENTIFIED ON SITE BY ROTARY DRILLING
- ESTIMATED EXTENT OF IDENTIFIED POSSIBLE SHALLOW WORKINGS REQUIRING TREATMENT
- RBH02 — LOCATION AND REFERENCE OF ROTARY OPEN-HOLE BOREHOLE TO INVESTIGATE FOR SHALLOW WORKINGS
- APPROXIMATE AREA OF KNOWN COAL TAR CONTAMINATION - NO DRILLING FOR ENVIRONMENTAL REASONS
- APPROXIMATE LINE OF RECORDED ADIT, AND LOCATION OF ROTARY BOREHOLES TO INVESTIGATE THEIR LOCATION

Rev	Date	Amendments	By	Chk

Client

HARWORTH ESTATES

Project

ATHERSLEY

Drawing Title

ROTARY BOREHOLE INVESTIGATION PLAN

Status

INFORMATION

Scale	Drawn	Checked	Date
NTS	AT	IPB	05/11/19

Drawing No. Rev.

17176-RLE-19-XX-DR-0-007-P01

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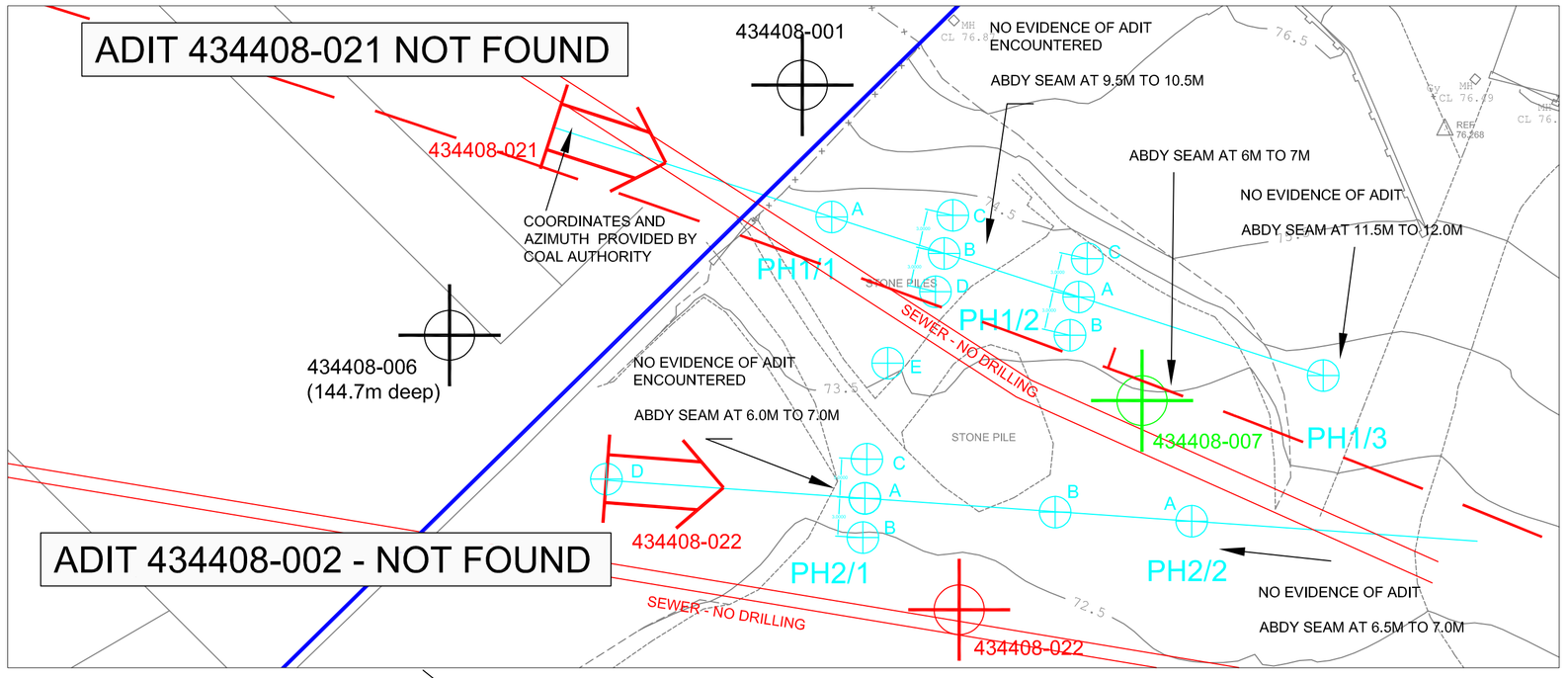
St James House ● Mansfield Road ● Derby ● DE1 3TQ ● Tel: 01332 285000 ● Fax: 01332 291728 ● www.rodgersleask.co.uk

Appendix B: Mine Entry Investigation Plan

Drawing No: 17176-RLE-19-XX-DR-O-008

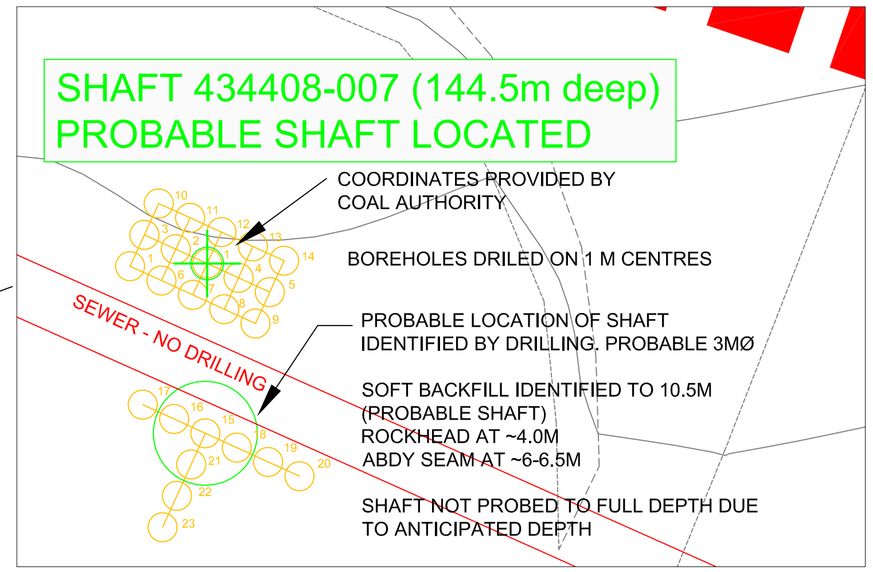
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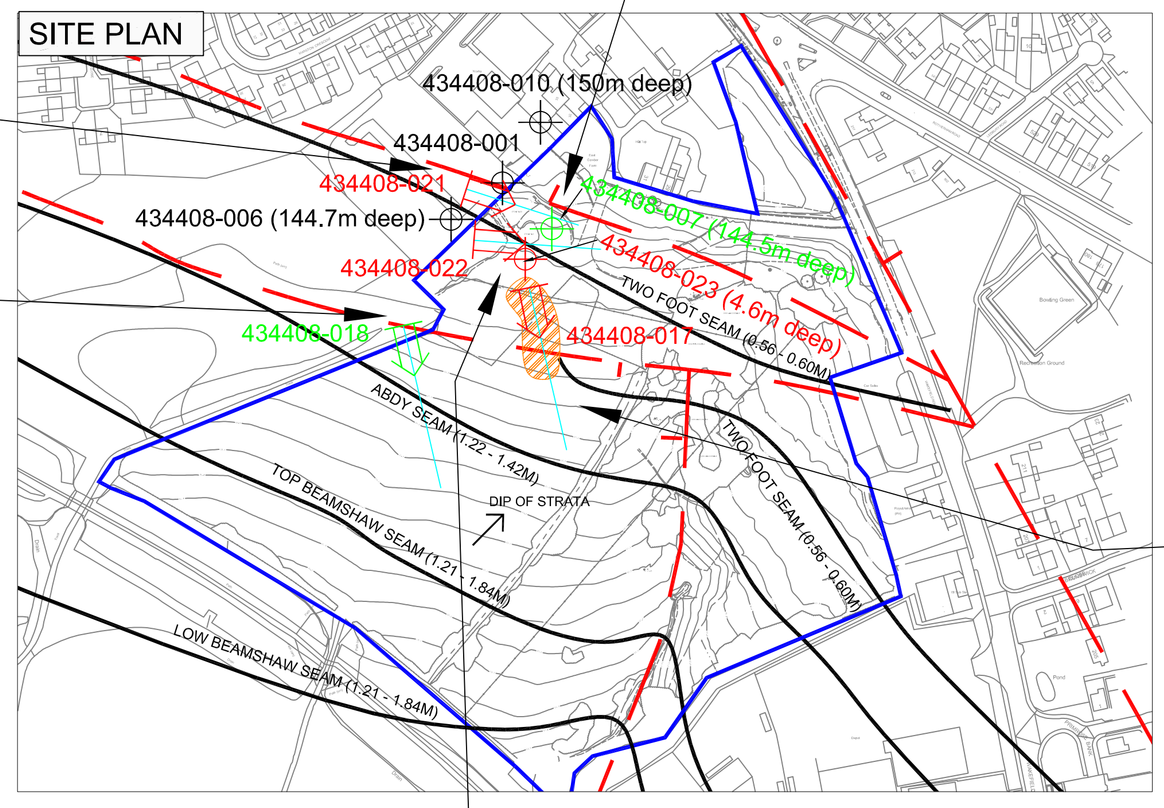


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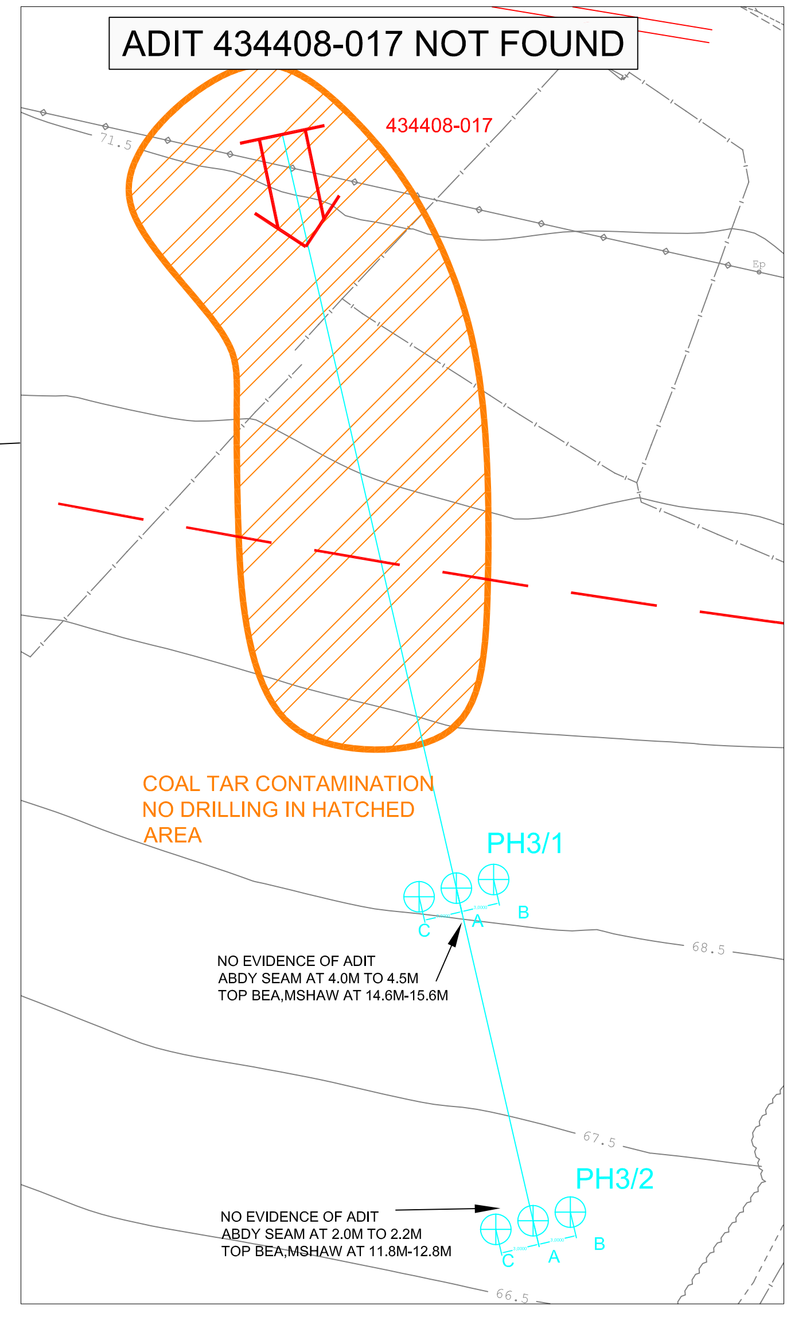
SHAFT 434408-007 (144.5m deep) PROBABLE SHAFT LOCATED



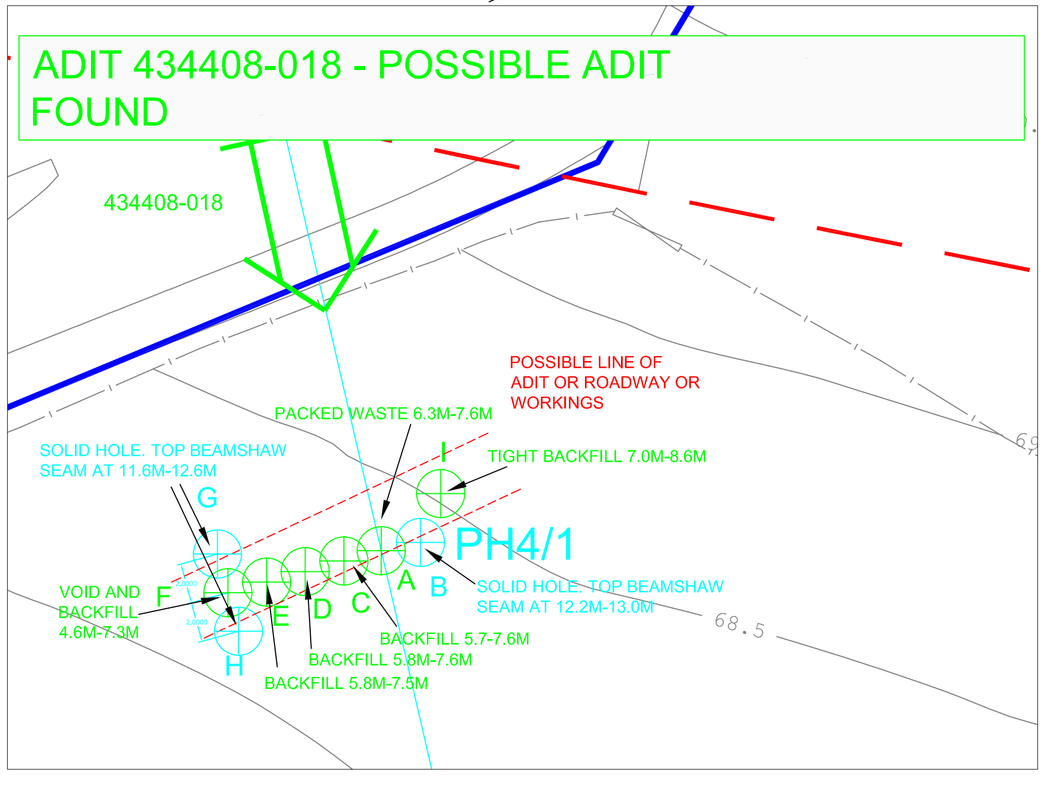
SITE PLAN



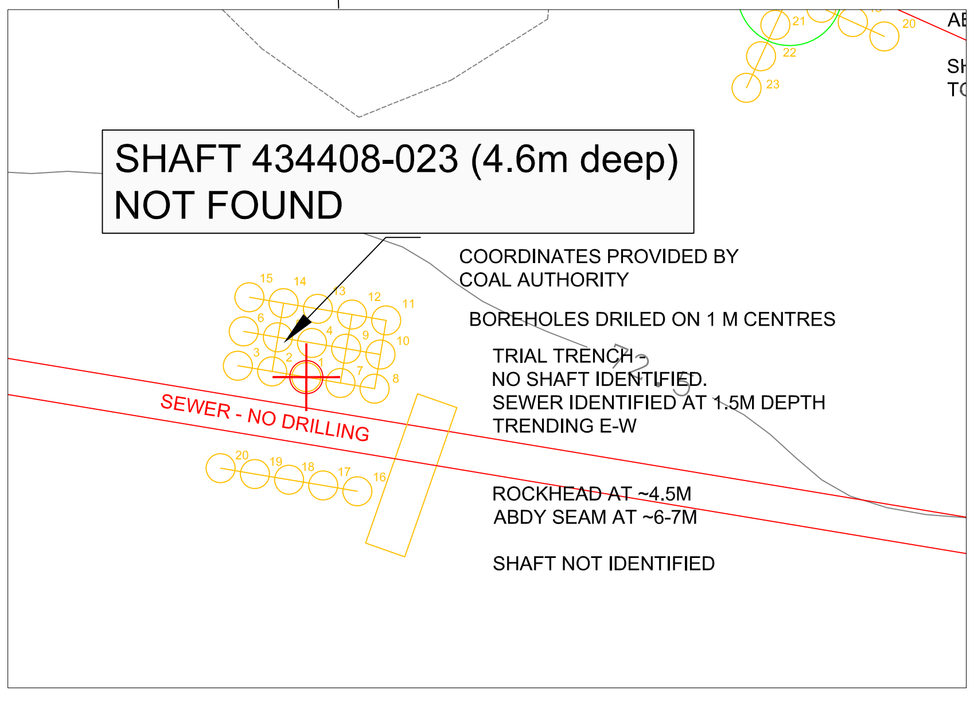
ADIT 434408-017 NOT FOUND



ADIT 434408-018 - POSSIBLE ADIT FOUND



SHAFT 434408-023 (4.6m deep) NOT FOUND



GENERAL NOTES

NO DIMENSIONS TO BE SCALED OFF THIS DRAWING.

THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECT'S AND ENGINEER'S DRAWINGS.

ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.

ALL LEVELS ARE IN METRES UNLESS NOTED OTHERWISE.

ANY DISCREPANCIES NOTED ON SITE ARE TO BE REPORTED TO THE ENGINEER IMMEDIATELY.

KEY

- SITE BOUNDARY
- COAL SEAM (NAMED) WITH THICKNESS
- FAULT (INFERRED) WITH TICK ON DOWNTROWN SIDE
- APPROXIMATE LOCATION OF MINESHAFT WITHIN 20M OF THE SITE (POSITION PROVIDED BY COAL AUTHORITY) **NOT INVESTIGATED**
- APPROXIMATE LOCATION OF SHAFT ON SITE (POSITION PROVIDED BY COAL AUTHORITY) **NOT IDENTIFIED BY ROTARY DRILLIN**G
- LOCATION OF MINESHAFT **IDENTIFIED** ON SITE BY ROTARY DRILLING
- LOCATION OF POSSIBLE ADIT **IDENTIFIED** ON SITE BY ROTARY DRILLING
- APPROXIMATE LOCATION OF ADIT ON SITE **NOT IDENTIFIED BY ROTARY DRILLING**
- ROTARY PROBEHOLE DRILLED TO INVESTIGATE SHAFT LOCATIONS
- ROTARY PROBEHOLE DRILLED TO INVESTIGATE ADIT LOCATIONS - **ADIT NOT IDENTIFIED**
- ROTARY PROBEHOLE DRILLED TO INVESTIGATE ADIT LOCATIONS - **POSSIBLE ADIT IDENTIFIED**
- APPROXIMATE LINE OF ADIT BASED ON COAL AUTHORITY RECORDS
- APPROXIMATE AREA OF KNOWN COAL TAR CONTAMINATION - NO DRILLING FOR ENVIRONMENTAL REASONS

Rev	Date	Amendments	By	Chk

Client

HARWORTH ESTATES

Project

WAKEFIELD ROAD
ATHERSLEY

Drawing Title

MIINE ENTRY
INVESTIGATION PLAN

Status

INFORMATION

Scale	Drawn	Checked	Date
A1@A1@ NTS	AT	IPB	08/11/19

Drawing No. — Rev.

17176-RLE-19-XX-DR-0-008 — P01

Scale Bar: 1:250 0 2 4 6 8 10 12 14 16 18

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Appendix C: Logs

Drillers Logs

Engineers Interpretative Logs

Borehole Log

Borehole No. **RBH01A**

Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434808E - 408936N	Hole Type RO
Location:	Barnsley		Level:	77.69	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)	Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results						
						OVERBURDEN - Made ground and natural clay.			
				74.19	3.50	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				73.19	4.50	Hard, black, fractured, semi-bright COAL - Intact, full flush returns. [Probable Two Foot Seam].			
				72.19	5.50	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				68.59	9.10	SOFT NO RETURNS, possible fractured rock or faulted strata. Probable MUDSTONE/SANDSTONE. [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 14.0m 2. Intact coal only. Soft strata and loss of flush (possible fractured rock) at 9.1m to 10.1m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH01A**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434808E - 408936N	Hole Type RO
Location:	Barnsley		Level:	77.69	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				67.59		10.10	SOFT NO RETURNS, possible fractured rock or faulted strata. Probable MUDSTONE/SANDSTONE. [Pennine Middle Coal Measures Formation]. SOLID NO RETURNS. Probable MUDSTONE/ SANDSTONE. [Pennine Middle Coal Measures Formation].			
					11					
					12					
					13					
				63.69	14	14.00	End of Borehole at 14.000m			
					15					
					16					
					17					
					18					
					19					
					20					

Remarks

1. Rotary open-hole borehole terminated at 14.0m 2. Intact coal only. Soft strata and loss of flush (possible fractured rock) at 9.1m to 10.1m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH01B**

Sheet 1 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434803E - 408933N	Hole Type RO
Location:	Barnsley		Level:	77.69	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)	Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results						
				74.69	3.00	OVERBURDEN - Made ground and natural clay.			
				74.19	3.50	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				73.19	4.50	Hard, black, fractured, semi-bright COAL - Intact, full flush returns. [Probable Two Foot Seam].			
				67.69	10.00	SANDSTONE with grey MUDSTONE bands - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 38.0m 2. Intact coal only. Soft strata and poor flush (possible fractured rock) at 19.9m to 20.6m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH01B**

Sheet 2 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434803E - 408933N	Hole Type RO
Location:	Barnsley		Level:	77.69	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)	Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results						
				67.49	10.20	SAND, poor flush returns. Probable soft, unconsolidated or fractured SANDSTONE [Pennine Middle Coal Measures Formation]. Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				59.59	18.10	Hard black semi-bright COAL - intact, full flush returns. [Probable Abdy (Winter) Seam].			
				59.09	18.60	Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 38.0m 2. Intact coal only. Soft strata and poor flush (possible fractured rock) at 19.9m to 20.6m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH01B**

Sheet 3 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434803E - 408933N	Hole Type RO
Location:	Barnsley		Level:	77.69	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
					21		Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
					22					
					23					
					24					
					25					
					26					
					27					
					28					
					29					
					30					

Remarks

1. Rotary open-hole borehole terminated at 38.0m 2. Intact coal only. Soft strata and poor flush (possible fractured rock) at 19.9m to 20.6m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH01B**

Sheet 4 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434803E - 408933N	Hole Type RO
Location:	Barnsley		Level:	77.69	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)	Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results						
						Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
				46.09	31.60	Soft black dull COAL - intact, full flush returns. [Probable Top Beamshaw Seam].			
				45.79	31.90	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				44.89	32.80	Hard black semi-bright COAL - intact, full flush returns. [Probable Top Beamshaw Seam].			
				44.59	33.10	Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
				39.69	38.00	End of Borehole at 38.000m			

31 32 33 34 35 36 37 38 39 40

Remarks

1. Rotary open-hole borehole terminated at 38.0m 2. Intact coal only. Soft strata and poor flush (possible fractured rock) at 19.9m to 20.6m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH02A**

Sheet 1 of 3

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434819E - 408883N	Hole Type RO
Location:	Barnsley		Level:	75.41	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay with coal traces.			
				71.41		4.00	SANDSTONE with Grey MUDSTONE bands - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 23.0m 2. Intact coal only. Soft strata and loss of flush (possible fractured rock) at 10.6m to 12.6m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH02A**

Sheet 2 of 3

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434819E - 408883N	Hole Type RO
Location:	Barnsley		Level:	75.41	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				64.81		10.60	SANDSTONE with Grey MUDSTONE bands - [Pennine Middle Coal Measures Formation].			
					11		SOFT NO RETURNS, possible fractured rock or faulted strata. Probable MUDSTONE/SANDSTONE. [Pennine Middle Coal Measures Formation].			
					12					
				62.81		12.60	SOLID NO RETURNS. Probable MUDSTONE/ SANDSTONE. [Pennine Middle Coal Measures Formation].			
					13					
					14					
					15					
					16					
					17					
					18					
					19					
					20					

Remarks

1. Rotary open-hole borehole terminated at 23.0m 2. Intact coal only. Soft strata and loss of flush (possible fractured rock) at 10.6m to 12.6m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH02A**

Sheet 3 of 3

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434819E - 408883N	Hole Type RO
Location:	Barnsley		Level:	75.41	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							SOLID NO RETURNS. Probable MUDSTONE/ SANDSTONE. [Pennine Middle Coal Measures Formation].			
					21					
					22					
				52.41	23	23.00	End of Borehole at 23.000m			
					24					
					25					
					26					
					27					
					28					
					29					
					30					

Remarks

1. Rotary open-hole borehole terminated at 23.0m 2. Intact coal only. Soft strata and loss of flush (possible fractured rock) at 10.6m to 12.6m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH02B**

Sheet 1 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434821E - 408878N	Hole Type RO
Location:	Barnsley		Level:	75.41	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				71.41		4.00	SANDSTONE with Grey MUDSTONE bands - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 38.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH02B**

Sheet 2 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434821E - 408878N	Hole Type RO
Location:	Barnsley		Level:	75.41	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							SANDSTONE with Grey MUDSTONE bands - [Pennine Middle Coal Measures Formation].			
					11					
					12					
					13					
					14					
					15					
					16					
					17					
					18					
				56.31	19	19.10	Hard black semi-bright COAL - intact, full flush returns. [Probable Abdy (Winter) Seam].			
				55.81		19.60	Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
					20					

Remarks

1. Rotary open-hole borehole terminated at 38.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH02B**

Sheet 3 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434821E - 408878N	Hole Type RO
Location:	Barnsley		Level:	75.41	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
					21		Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
					22					
					23					
					24					
					25					
					26					
					27					
					28					
					29					
					30					

Remarks

1. Rotary open-hole borehole terminated at 38.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH02B**

Sheet 4 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434821E - 408878N	Hole Type RO
Location:	Barnsley		Level:	75.41	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				45.31		30.10	Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation]. Hard black semi-bright COAL - intact, full flush returns. [Probable Top Beamshaw Seam].			
				44.61		30.80	Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
					31					
					32					
					33					
					34					
					35					
					36					
					37					
				37.41	38	38.00	End of Borehole at 38.000m			
					39					
					40					

Remarks

1. Rotary open-hole borehole terminated at 38.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

			Borehole No. **RBH03A** Sheet 1 of 2
Project Name: Athersley, Barnsley	Project No. P17-176	Co-ords: 434843E - 408876N	Hole Type RO
Location: Barnsley		Level: 76.96	Scale 1:50
Client: Harworth Estates		Dates:	Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				73.96	3	3.00	SANDSTONE - [Pennine Middle Coal Measures Formation].			
				72.96	4	4.00	Soft black dull COAL - intact, full flush returns. [**Unknown Seam**].			
				72.56		4.40	Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
				70.96	6	6.00	Hard, fractured, semi-bright COAL - Intact, full flush returns. [Probable Two Foot Seam].			
				70.46		6.50	SOFT NO RETURNS, possible fractured rock or faulted strata. Probable MUDSTONE/SANDSTONE. [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 16.6m 2. Intact coal only. Soft strata and loss of flush (possible fractured rock) at 6.5m to 13.6m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH03A**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434843E - 408876N	Hole Type RO
Location:	Barnsley		Level:	76.96	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
					11		SOFT NO RETURNS, possible fractured rock or faulted strata. Probable MUDSTONE/SANDSTONE. [Pennine Middle Coal Measures Formation].			
					12					
					13					
				63.66		13.30	SOLID NO RETURNS. Probable MUDSTONE/ SANDSTONE. [Pennine Middle Coal Measures Formation].			
					14					
					15					
					16					
				60.36		16.60	End of Borehole at 16.600m			
					17					
					18					
					19					
					20					

Remarks

1. Rotary open-hole borehole terminated at 16.6m 2. Intact coal only. Soft strata and loss of flush (possible fractured rock) at 6.5m to 13.6m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

			Borehole No. **RBH03B** Sheet 1 of 2
Project Name: Athersley, Barnsley	Project No. P17-176	Co-ords: 434846E - 408873N	Hole Type RO
Location: Barnsley		Level: 76.96	Scale 1:50
Client: Harworth Estates		Dates:	Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				73.96	3	3.00	SANDSTONE with Grey MUDSTONE bands - [Pennine Middle Coal Measures Formation].			
				70.96	6	6.00	Hard, fractured, semi-bright COAL - Intact, full flush returns. [Probable Two Foot Seam].			
				69.96	7	7.00	Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
				67.36		9.60	SAND, poor flush returns. Probable soft, unconsolidated or fractured SANDSTONE [Pennine Middle Coal Measures			
				67.16	10	9.80				

Remarks

1. Rotary open-hole borehole terminated at 17.0m 2. Intact coal only. Soft strata and loss of flush (possible fractured rock) at 9.6m to 9.8m, and 12.1m to12.6m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH03B**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434846E - 408873N	Hole Type RO
Location:	Barnsley		Level:	76.96	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							SAND, poor flush returns. Probable soft, unconsolidated or fractured SANDSTONE [Pennine Middle Coal Measures Formation].			
					11		SANDSTONE with Grey MUDSTONE bands - [Pennine Middle Coal Measures Formation].			
				64.86	12	12.10	SOFT NO RETURNS, possible fractured rock or faulted strata. Probable MUDSTONE/SANDSTONE. [Pennine Middle Coal Measures Formation].			
				64.36		12.60	SOLID NO RETURNS. Probable MUDSTONE/ SANDSTONE. [Pennine Middle Coal Measures Formation].			
					13					
					14					
					15					
					16					
				59.96	17	17.00	End of Borehole at 17.000m			
					18					
					19					
					20					

Remarks

1. Rotary open-hole borehole terminated at 17.0m 2. Intact coal only. Soft strata and loss of flush (possible fractured rock) at 9.6m to 9.8m, and 12.1m to12.6m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH04**

Sheet 1 of 3

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434715E - 408871N	Hole Type RO
Location:	Barnsley		Level:	76.18	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				74.18	2	2.00	CLAY - with weathered fragments of SANDSTONE [Pennine Middle Coal Measures Formation].			
				70.58		5.60	SANDSTONE - [Pennine Middle Coal Measures Formation].			
				69.98	6	6.20	Black shale and hard black dull and COAL - intact, full flush returns. [Two Foot Seam].			
				69.78		6.40	Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 25.5m 2. Intact coal only. Soft strata and poor returns (possible fractured rock) at 15.4m to 25.5m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH04**

Sheet 2 of 3

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434715E - 408871N	Hole Type RO
Location:	Barnsley		Level:	76.18	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
				61.88		14.30	Soft black semi-bright COAL - intact, poor flush returns. [Abdy (Winter) Seam].			
				60.78		15.40	Grey MUDSTONE with SANDSTONE bands, poor returns - [Pennine Middle Coal Measures Formation].			

11 12 13 14 15 16 17 18 19 20

Remarks

1. Rotary open-hole borehole terminated at 25.5m 2. Intact coal only. Soft strata and poor returns (possible fractured rock) at 15.4m to 25.5m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH04**

Sheet 3 of 3

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434715E - 408871N	Hole Type RO
Location:	Barnsley		Level:	76.18	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
					21		Grey MUDSTONE with SANDSTONE bands, poor returns - [Pennine Middle Coal Measures Formation].			
					22					
					23					
					24					
					25					
				50.68		25.50	End of Borehole at 25.500m			
					26					
					27					
					28					
					29					
					30					

Remarks

1. Rotary open-hole borehole terminated at 25.5m 2. Intact coal only. Soft strata and poor returns (possible fractured rock) at 15.4m to 25.5m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

			Borehole No. **RBH05** Sheet 1 of 4
Project Name: Athersley, Barnsley	Project No. P17-176	Co-ords: 434738E - 408849N	Hole Type RO
Location: Barnsley		Level: 74.14	Scale 1:50
Client: Harworth Estates		Dates:	Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				70.14	4	4.00	SANDSTONE - [Pennine Middle Coal Measures Formation].			
				69.74		4.40	Black shale and hard black dull and COAL - intact, full flush returns. [Two Foot Seam].			
				69.44		4.70	Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 32.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

			Borehole No. **RBH05** Sheet 2 of 4
Project Name: Athersley, Barnsley	Project No. P17-176	Co-ords: 434738E - 408849N	Hole Type RO
Location: Barnsley		Level: 74.14	Scale 1:50
Client: Harworth Estates		Dates:	Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
				60.84		13.30	Soft black semi-bright COAL - intact, poor flush returns. [Abdy (Winter) Seam].			
				59.84		14.30	Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 32.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH05**

Sheet 3 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434738E - 408849N	Hole Type RO
Location:	Barnsley		Level:	74.14	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
					21					
					22					
					23					
				50.14	24	24.00	Hard black semi-bright COAL - intact, full flush returns. [Top Beamshaw Seam].			
				49.14	25	25.00	Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
					26					
					27					
					28					
					29					
					30					

Remarks

1. Rotary open-hole borehole terminated at 32.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

			Borehole No. **RBH05** Sheet 4 of 4
Project Name: Athersley, Barnsley	Project No. P17-176	Co-ords: 434738E - 408849N	Hole Type RO
Location: Barnsley		Level: 74.14	Scale 1:50
Client: Harworth Estates		Dates:	Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
					31					
				42.14	32	32.00	End of Borehole at 32.000m			
					33					
					34					
					35					
					36					
					37					
					38					
					39					
					40					

Remarks

1. Rotary open-hole borehole terminated at 32.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

			Borehole No.	**RBH06A**
			Sheet 1 of 1	
Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords: 434684E - 408835N	Hole Type RO
Location:	Barnsley		Level: 72.01	Scale 1:50
Client:	Harworth Estates		Dates:	Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				67.01	5	5.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				66.61		5.40	**VOID** - Loss of flush, rods pushed without rotation or hammer. [Probable workings, Abdy (Winter) Seam].			
				65.21	7	6.80	SOLID NO RETURNS. Probable MUDSTONE/ SANDSTONE. [Pennine Middle Coal Measures Formation].			
				64.21	8	7.80	End of Borehole at 7.800m			

Remarks

1. Rotary open-hole borehole terminated at 7.8m 2. VOID (Abdy seam) at 5.4m to 6.8m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

			Borehole No. **RBH06B** Sheet 1 of 1
Project Name: Athersley, Barnsley	Project No. P17-176	Co-ords: 434669E - 408835N	Hole Type RO
Location: Barnsley		Level: 72.01	Scale 1:50
Client: Harworth Estates		Dates:	Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				66.61		5.40	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				66.21		5.80	Hard black bright sub-anthracite COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				65.21		6.80	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				64.21		7.80	End of Borehole at 7.800m			

Remarks

1. Rotary open-hole borehole terminated at 7.8m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

			Borehole No. **RBH06C** Sheet 1 of 1
Project Name: Athersley, Barnsley	Project No. P17-176	Co-ords: 434695E - 408822N	Hole Type RO
Location: Barnsley		Level: 72.01	Scale 1:50
Client: Harworth Estates		Dates:	Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				67.01		5.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				65.41		6.60	Hard black bright sub-anthracite COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				64.41		7.60	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				63.41		8.60	End of Borehole at 8.600m			

Remarks

1. Rotary open-hole borehole terminated at 8.6m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH07**

Sheet 1 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434744E - 408793N	Hole Type RO
Location:	Barnsley		Level:	70.67	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				66.27		4.40				
				66.07		4.60	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
							Hard black bright sub-anthracite COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				64.97		5.70	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 38.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH07**

Sheet 2 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434744E - 408793N	Hole Type RO
Location:	Barnsley		Level:	70.67	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
					11		Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					12					
					13					
					14					
					15					
				54.97		15.70	Hard black bright COAL - intact, full flush returns. [Top Beamshaw Seam].			
					16					
				54.07		16.60	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					17					
					18					
					19					
					20					

Remarks

1. Rotary open-hole borehole terminated at 38.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH07**

Sheet 3 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434744E - 408793N	Hole Type RO
Location:	Barnsley		Level:	70.67	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)	Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results						
						Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				43.27	27.40	Hard black semi-bright COAL - intact, full flush returns. [Low Beamshaw Seam].			
				42.37	28.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 38.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH07**

Sheet 4 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434744E - 408793N	Hole Type RO
Location:	Barnsley		Level:	70.67	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					31					
					32					
					33					
					34					
					35					
					36					
					37					
				32.67	38	38.00	End of Borehole at 38.000m			
					39					
					40					

Remarks

1. Rotary open-hole borehole terminated at 38.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH08A**

Sheet 1 of 1

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434656E - 408806N	Hole Type RO
Location:	Barnsley		Level:	70.57	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				65.57	5	5.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				63.07	7.5	7.50	End of Borehole at 7.500m			

Remarks

1. Rotary open-hole borehole terminated at 7.5m 2. No coal encountered (Abdy seam probably cased off) 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

			Borehole No. **RBH08B** Sheet 1 of 4
Project Name: Athersley, Barnsley	Project No. P17-176	Co-ords: 434656E - 408806N	Hole Type RO
Location: Barnsley		Level: 70.57	Scale 1:50
Client: Harworth Estates		Dates:	Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				66.57	4	4.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				66.17		4.40	Hard black bright sub-anthracite COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				65.17	5	5.40	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					6					
					7					
					8					
					9					
					10					

Remarks

1. Rotary open-hole borehole terminated at 35.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH08B**

Sheet 2 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434656E - 408806N	Hole Type RO
Location:	Barnsley		Level:	70.57	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)	Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results						
						Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				54.97	15.60	Hard black bright COAL - intact, full flush returns. [Top Beamshaw Seam].			
				53.97	16.60	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 35.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH08B**

Sheet 3 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434656E - 408806N	Hole Type RO
Location:	Barnsley		Level:	70.57	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
					21		Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					22					
					23					
					24					
					25					
					26					
				43.87		26.70	Hard black semi-bright COAL - intact, full flush returns. [Low Beamshaw Seam].			
					27					
				43.37		27.20	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					28					
					29					
					30					

Remarks

1. Rotary open-hole borehole terminated at 35.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH08B**

Sheet 4 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434656E - 408806N	Hole Type RO
Location:	Barnsley		Level:	70.57	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
					31		Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					32					
					33					
					34					
				35.57	35	35.00	End of Borehole at 35.000m			
					36					
					37					
					38					
					39					
					40					

Remarks

1. Rotary open-hole borehole terminated at 35.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

			Borehole No. **RBH08C** Sheet 1 of 1
Project Name: Athersley, Barnsley	Project No. P17-176	Co-ords: 434683E - 408800N	Hole Type RO
Location: Barnsley		Level: 70.57	Scale 1:50
Client: Harworth Estates		Dates:	Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				66.27		4.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				65.97		4.60	Hard black bright sub-anthracite COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				64.77		5.80	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				62.97		7.60	End of Borehole at 7.600m			

1 2 3 4 5 6 7 8 9 10

Remarks

1. Rotary open-hole borehole terminated at 7.6m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

			Borehole No. **RBH09** Sheet 1 of 3
Project Name: Athersley, Barnsley	Project No. P17-176	Co-ords: 434714E - 408795N	Hole Type RO
Location: Barnsley		Level: 70.19	Scale 1:50
Client: Harworth Estates		Dates:	Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				65.79		4.40				
				65.59		4.60	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
							COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				64.49		5.70	Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 29.3m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH09**

Sheet 2 of 3

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434714E - 408795N	Hole Type RO
Location:	Barnsley		Level:	70.19	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
					11		Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
					12					
					13					
					14					
					15					
				54.59	16	15.60	Hard black bright COAL - intact, full flush returns. [Top Beamshaw Seam].			
				53.59	17	16.60	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					18					
					19					
					20					

Remarks

1. Rotary open-hole borehole terminated at 29.3m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH09**

Sheet 3 of 3

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434714E - 408795N	Hole Type RO
Location:	Barnsley		Level:	70.19	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					21					
					22					
					23					
					24					
					25					
					26					
					27					
				42.59		27.60	Hard black semi-bright COAL - intact, full flush returns. [Low Beamshaw Seam].			
					28					
				41.89		28.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					29					
				40.89		29.30	End of Borehole at 29.300m			
					30					

Remarks

1. Rotary open-hole borehole terminated at 29.3m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

			Borehole No.	**RBH10**
			Sheet 1 of 4	
Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords: 434782E - 408830N	Hole Type RO
Location:	Barnsley		Level: 72.83	Scale 1:50
Client:	Harworth Estates		Dates:	Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				68.83	4	4.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				66.53	6	6.30	Black shale and hard black dull and COAL - intact, full flush returns. [Two Foot Seam].			
				66.03	7	6.80	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 37.3m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH10**

Sheet 2 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434782E - 408830N	Hole Type RO
Location:	Barnsley		Level:	72.83	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
					11		Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					12					
					13					
					14					
				58.13		14.70	Soft black semi-bright COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				57.83	15	15.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					16					
					17					
					18					
					19					
					20					

Remarks

1. Rotary open-hole borehole terminated at 37.3m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH10**

Sheet 3 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434782E - 408830N	Hole Type RO
Location:	Barnsley		Level:	72.83	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				48.13		24.70	Hard black bright COAL - intact, full flush returns. [Top Beamshaw Seam].			
				47.53		25.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 37.3m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH10**

Sheet 4 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434782E - 408830N	Hole Type RO
Location:	Barnsley		Level:	72.83	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
					31		Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					32					
					33					
					34					
					35					
				37.03	36	35.80	Hard black semi-bright COAL - intact, full flush returns. [Low Beamshaw Seam].			
				36.53		36.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					37					
				35.53		37.30	End of Borehole at 37.300m			
					38					
					39					
					40					

Remarks

1. Rotary open-hole borehole terminated at 37.3m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH11**

Sheet 1 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434824E - 408824N	Hole Type RO
Location:	Barnsley		Level:	73.08	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay with coal traces.			
				70.08	3	3.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				68.68	4	4.40	Soft black dull COAL - intact, full flush returns. [**Unknown Seam**].			
				68.48		4.60	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					5					
					6					
					7					
				65.18	8	7.90	Black shale and hard black dull and COAL - intact, full flush returns. [Two Foot Seam].			
				64.68		8.40	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					9					
					10					

Remarks

1. Rotary open-hole borehole terminated at 38.0m 2. Intact coal only. Soft strata and poor returns (probable fractured rock) at 19.9m to 20.6m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH11**

Sheet 2 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434824E - 408824N	Hole Type RO
Location:	Barnsley		Level:	73.08	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
					11		Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					12					
					13					
					14					
					15					
					16					
				56.98		16.10	Soft black semi-bright COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				56.48		16.60	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					17					
					18					
					19					
				53.18	20	19.90				

Remarks

1. Rotary open-hole borehole terminated at 38.0m 2. Intact coal only. Soft strata and poor returns (probable fractured rock) at 19.9m to 20.6m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH11**

Sheet 3 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434824E - 408824N	Hole Type RO
Location:	Barnsley		Level:	73.08	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)	Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results						
						Grey MUDSTONE, fractured - SOFT, POOR RETURNS, [Pennine Middle Coal Measures Formation].			
				52.48	20.60	Grey MUDSTONE - SOLID, POOR RETURNS [Pennine Middle Coal Measures Formation].			
				45.98	27.10	Soft black dull COAL - intact, full flush returns. [Top Beamshaw Seam].			
				45.48	27.60	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				45.28	27.80	Hard black bright COAL - intact, full flush returns. [Top Beamshaw Seam].			
				44.88	28.20	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 38.0m 2. Intact coal only. Soft strata and poor returns (probable fractured rock) at 19.9m to 20.6m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH11**

Sheet 4 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434824E - 408824N	Hole Type RO
Location:	Barnsley		Level:	73.08	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					31					
					32					
					33					
					34					
					35					
					36					
					37					
				35.08	38	38.00	End of Borehole at 38.000m			
					39					
					40					

Remarks

1. Rotary open-hole borehole terminated at 38.0m 2. Intact coal only. Soft strata and poor returns (probable fractured rock) at 19.9m to 20.6m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

			Borehole No. **RBH12A** Sheet 1 of 3
Project Name: Athersley, Barnsley	Project No. P17-176	Co-ords: 434866E - 408797N	Hole Type RO
Location: Barnsley		Level: 75.18	Scale 1:50
Client: Harworth Estates		Dates:	Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay with coal traces.			
				71.68		3.50	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				71.18		4.00	Hard, fractured, semi-bright COAL - Intact, full flush returns. [Probable Two Foot Seam].			
				70.68		4.50	Grey MUDSTONE, fractured - SOFT, POOR RETURNS [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 28.0m 2. Intact coal only. Soft strata and poor returns (possible fractured rock) at 4.5m to 19.0m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH12A**

Sheet 2 of 3

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434866E - 408797N	Hole Type RO
Location:	Barnsley		Level:	75.18	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE, fractured - SOFT, POOR RETURNS [Pennine Middle Coal Measures Formation].			
					11					
					12					
					13					
					14					
					15					
					16					
					17					
					18					
				56.18	19	19.00	Hard black semi-bright COAL - intact, poor flush returns. [Abdy (Winter) Seam].			
				55.18	20	20.00				

Remarks

1. Rotary open-hole borehole terminated at 28.0m 2. Intact coal only. Soft strata and poor returns (possible fractured rock) at 4.5m to 19.0m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH12A**

Sheet 3 of 3

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434866E - 408797N	Hole Type RO
Location:	Barnsley		Level:	75.18	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							SOLID, NO RETURNS. Probable fractured MUDSTONE/ SANDSTONE [Pennine Middle Coal Measures Formation].			
					21					
					22					
					23					
					24					
					25					
					26					
					27					
				47.18	28	28.00	End of Borehole at 28.000m			
					29					
					30					

Remarks

1. Rotary open-hole borehole terminated at 28.0m 2. Intact coal only. Soft strata and poor returns (possible fractured rock) at 4.5m to 19.0m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH12B**

Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434858E - 408795N	Hole Type RO
Location:	Barnsley		Level:	74.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				71.50		3.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				68.70		5.80	Grey MUDSTONE, fractured - SOFT, POOR RETURNS [Pennine Middle Coal Measures Formation].			
				66.90		7.60	SOLID, NO RETURNS. Probable MUDSTONE/ SANDSTONE [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 14.0m 2. Intact coal only. Soft strata and loss of flush (possible fractured rock) at 5.8m to 7.6m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH12B**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434858E - 408795N	Hole Type RO
Location:	Barnsley		Level:	74.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
					11		SOLID, NO RETURNS. Probable MUDSTONE/ SANDSTONE [Pennine Middle Coal Measures Formation].			
					12					
					13					
				60.50	14	14.00	End of Borehole at 14.000m			
					15					
					16					
					17					
					18					
					19					
					20					

Remarks

1. Rotary open-hole borehole terminated at 14.0m 2. Intact coal only. Soft strata and loss of flush (possible fractured rock) at 5.8m to 7.6m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH13**

Sheet 1 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434830E - 408762N	Hole Type RO
Location:	Barnsley		Level:	71.07	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)	Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results						
						OVERBURDEN - Made ground and natural clay with coal traces.			
				68.07	3.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				66.97	4.10	Black shale and hard black dull and COAL - intact, full flush returns. [Two Foot Seam].			
				66.47	4.60	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 38.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH13**

Sheet 2 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434830E - 408762N	Hole Type RO
Location:	Barnsley		Level:	71.07	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				59.07	12	12.00	Hard black semi-bright COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				58.07	13	13.00	Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 38.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH13**

Sheet 3 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434830E - 408762N	Hole Type RO
Location:	Barnsley		Level:	71.07	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
					21					
					22					
					23					
					24					
					25					
					26					
					27					
					28					
				42.67		28.40	Soft black dull COAL - intact, full flush returns. [Top Beamshaw Seam].			
				42.47		28.60	Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
					29					
				41.47		29.60	Hard black bright COAL - intact, full flush returns. [Top Beamshaw Seam].			
					30					

Remarks

1. Rotary open-hole borehole terminated at 38.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

			Borehole No. **RBH13** Sheet 4 of 4
Project Name: Athersley, Barnsley	Project No. P17-176	Co-ords: 434830E - 408762N	Hole Type RO
Location: Barnsley		Level: 71.07	Scale 1:50
Client: Harworth Estates		Dates:	Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				40.97		30.10	Hard black bright COAL - intact, full flush returns. [Top Beamshaw Seam]. Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
					31					
					32					
					33					
					34					
					35					
					36					
					37					
				33.07	38	38.00	End of Borehole at 38.000m			
					39					
					40					

Remarks

1. Rotary open-hole borehole terminated at 38.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH14A**

Sheet 1 of 3

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434647E - 408725N	Hole Type RO
Location:	Barnsley		Level:	65.02	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				62.02	3	3.00	SANDSTONE with Grey MUDSTONE bands - [Pennine Middle Coal Measures Formation].			
				58.22	7	6.80	Hard black bright COAL - intact, full flush returns. [Top Beamshaw Seam].			
				57.22	8	7.80	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 20.3m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH14A**

Sheet 2 of 3

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434647E - 408725N	Hole Type RO
Location:	Barnsley		Level:	65.02	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
					11		Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					12					
					13					
					14					
					15					
					16					
					17					
					18					
				46.72		18.30	Hard black semi-bright COAL - intact, full flush returns. [Low Beamshaw Seam].			
					19					
				45.72		19.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					20					

Remarks

1. Rotary open-hole borehole terminated at 20.3m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH14A**

Sheet 3 of 3

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434647E - 408725N	Hole Type RO
Location:	Barnsley		Level:	65.02	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				44.72		20.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
							End of Borehole at 20.300m			
					21					
					22					
					23					
					24					
					25					
					26					
					27					
					28					
					29					
					30					

Remarks

1. Rotary open-hole borehole terminated at 20.3m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH14B**

Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434681E - 408689N	Hole Type RO
Location:	Barnsley		Level:	64.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				61.50	3	3.00	SANDSTONE with Grey MUDSTONE bands - [Pennine Middle Coal Measures Formation].			
				59.50	5	5.00	Hard black bright COAL - intact, full flush returns. [Top Beamshaw Seam].			
				58.50	6	6.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 19.8m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

			Borehole No. **RBH14B** Sheet 2 of 2
Project Name: Athersley, Barnsley	Project No. P17-176	Co-ords: 434681E - 408689N	Hole Type RO
Location: Barnsley		Level: 64.50	Scale 1:50
Client: Harworth Estates		Dates:	Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
					11		Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					12					
					13					
					14					
					15					
					16					
					17					
				46.70		17.80	Hard black semi-bright COAL - intact, full flush returns. [Low Beamshaw Seam].			
				45.70	18	18.80	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					19					
				44.70		19.80	End of Borehole at 19.800m			
					20					

Remarks

1. Rotary open-hole borehole terminated at 19.8m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

			Borehole No. **RBH15** Sheet 1 of 4
Project Name: Athersley, Barnsley	Project No. P17-176	Co-ords: 434856E - 408702N	Hole Type RO
Location: Barnsley		Level: 69.48	Scale 1:50
Client: Harworth Estates		Dates:	Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				66.48	3	3.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				65.48	4	4.00				
				65.38		4.10	Black shale and hard black dull and COAL - intact, full flush returns. [Two Foot Seam].			
							Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				62.38	7	7.10	Hard black semi-bright COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				61.88		7.60	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 32.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH15**

Sheet 2 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434856E - 408702N	Hole Type RO
Location:	Barnsley		Level:	69.48	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					11					
					12					
					13					
					14					
					15					
					16					
					17					
					18					
				50.78		18.70	Soft black dull COAL - intact, full flush returns. [Top Beamshaw Seam].			
				50.48	19	19.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				50.08		19.40	Hard black bright COAL - intact, full flush returns. [Top Beamshaw Seam].			
				49.58	20	19.90				

Remarks

1. Rotary open-hole borehole terminated at 32.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH15**

Sheet 3 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434856E - 408702N	Hole Type RO
Location:	Barnsley		Level:	69.48	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
					21					
					22					
					23					
					24					
					25					
					26					
					27					
				41.78		27.70	Hard black semi-bright COAL - intact, full flush returns. [Low Beamshaw Seam].			
					28					
				41.28		28.20	Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
					29					
					30					

Remarks

1. Rotary open-hole borehole terminated at 32.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

			Borehole No. **RBH15** Sheet 4 of 4
Project Name: Athersley, Barnsley	Project No. P17-176	Co-ords: 434856E - 408702N	Hole Type RO
Location: Barnsley		Level: 69.48	Scale 1:50
Client: Harworth Estates		Dates:	Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
					31					
				37.48	32	32.00	End of Borehole at 32.000m			
					33					
					34					
					35					
					36					
					37					
					38					
					39					
					40					

Remarks

1. Rotary open-hole borehole terminated at 32.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH16**

Sheet 1 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434596E - 408744N	Hole Type RO
Location:	Barnsley		Level:	65.12	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				61.62		3.50	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				59.32		5.80	Hard black bright COAL - intact, full flush returns. [Top Beamshaw Seam].			
				58.52		6.60	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 38.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

			Borehole No. **RBH16** Sheet 2 of 4
Project Name: Athersley, Barnsley	Project No. P17-176	Co-ords: 434596E - 408744N	Hole Type RO
Location: Barnsley		Level: 65.12	Scale 1:50
Client: Harworth Estates		Dates:	Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					11					
					12					
					13					
					14					
					15					
					16					
				48.72		16.40	Hard black semi-bright COAL - intact, full flush returns. [Low Beamshaw Seam].			
				48.22	17	16.90	Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
					18					
					19					
					20					

Remarks

1. Rotary open-hole borehole terminated at 38.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH16**

Sheet 3 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434596E - 408744N	Hole Type RO
Location:	Barnsley		Level:	65.12	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
					21		Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
					22					
					23					
					24					
					25					
					26					
					27					
					28					
					29					
					30					

Remarks

1. Rotary open-hole borehole terminated at 38.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH16**

Sheet 4 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434596E - 408744N	Hole Type RO
Location:	Barnsley		Level:	65.12	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
					31					
					32					
					33					
					34					
					35					
				29.62		35.50	Soft black dull COAL - soft, poor flush returns. [Kent's Thin Seam].			
					36					
				28.62		36.50	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					37					
				27.12	38	38.00	End of Borehole at 38.000m			
					39					
					40					

Remarks

1. Rotary open-hole borehole terminated at 38.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH17**

Sheet 1 of 3

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434521E - 408716N	Hole Type RO
Location:	Barnsley		Level:	61.85	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)	Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results						
						OVERBURDEN - Made ground and natural clay.			
				58.85	3.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				52.55	9.30	Hard black semi-bright COAL - intact, full flush returns. [Low Beamshaw Seam].			

Remarks

1. Rotary open-hole borehole terminated at 29.3m 2. Possible broken ground at 26.6 to 28.3m (Kent's Thin Seam) 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH17**

Sheet 2 of 3

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434521E - 408716N	Hole Type RO
Location:	Barnsley		Level:	61.85	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				51.55		10.30	Hard black semi-bright COAL - intact, full flush returns. [Low Beamshaw Seam].			
							Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
					11					
					12					
					13					
					14					
					15					
					16					
					17					
					18					
					19					
					20					

Remarks

1. Rotary open-hole borehole terminated at 29.3m 2. Possible broken ground at 26.6 to 28.3m (Kent's Thin Seam) 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

			Borehole No. **RBH17** Sheet 3 of 3
Project Name: Athersley, Barnsley	Project No. P17-176	Co-ords: 434521E - 408716N	Hole Type RO
Location: Barnsley		Level: 61.85	Scale 1:50
Client: Harworth Estates		Dates:	Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
					21					
					22					
					23					
					24					
					25					
					26					
				35.25		26.60	**BROKEN GROUND** - soft, no returns [Probable Kent's Thin Seam].			
					27					
					28					
				33.55		28.30	SOLID, NO RETURNS. Probable MUDSTONE/ SANDSTONE [Pennine Middle Coal Measures Formation].			
					29					
				32.55		29.30	End of Borehole at 29.300m			
					30					

Remarks

1. Rotary open-hole borehole terminated at 29.3m 2. Possible broken ground at 26.6 to 28.3m (Kent's Thin Seam) 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH18A**

Sheet 1 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434624E - 408652N	Hole Type RO
Location:	Barnsley		Level:	60.22	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				57.92		2.30	SANDSTONE - weathered [Pennine Middle Coal Measures Formation].			
				53.22		7.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				52.62		7.60	** Probable BROKEN GROUND** - soft, no returns [Low Beamshaw Seam].			

Remarks

1. Rotary open-hole borehole terminated at 31.6m 2. Possible broken ground at 7.6m to 12.6m (Low Beamshaw Seam). Soft drilling at 29.8m to 30.1m (probable Kent's Thin Seam) 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH18A**

Sheet 2 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434624E - 408652N	Hole Type RO
Location:	Barnsley		Level:	60.22	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							** Probable BROKEN GROUND** - soft, no returns [Low Beamshaw Seam].			
				47.62		12.60	Grey MUDSTONE - poor returns [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 31.6m 2. Possible broken ground at 7.6m to 12.6m (Low Beamshaw Seam). Soft drilling at 29.8m to 30.1m (probable Kent's Thin Seam) 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH18A**

Sheet 3 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434624E - 408652N	Hole Type RO
Location:	Barnsley		Level:	60.22	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
					21		Grey MUDSTONE - poor returns [Pennine Middle Coal Measures Formation].			
					22					
					23					
					24					
					25					
					26					
					27					
					28					
					29					
				30.42	30	29.80	Soft, loss of flush, no returns. [Possible Kent's Thin Seam].			

Remarks

1. Rotary open-hole borehole terminated at 31.6m 2. Possible broken ground at 7.6m to 12.6m (Low Beamshaw Seam). Soft drilling at 29.8m to 30.1m (probable Kent's Thin Seam) 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH18A**

Sheet 4 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434624E - 408652N	Hole Type RO
Location:	Barnsley		Level:	60.22	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)	Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results						
				30.12	30.10	Soft, loss of flush, no returns. [Possible Kent's Thin Seam]. SOLID, NO RETURNS. Probable MUDSTONE/ SANDSTONE [Pennine Middle Coal Measures Formation].			
				28.62	31.60	End of Borehole at 31.600m			

Remarks

1. Rotary open-hole borehole terminated at 31.6m 2. Possible broken ground at 7.6m to 12.6m (Low Beamshaw Seam). Soft drilling at 29.8m to 30.1m (probable Kent's Thin Seam) 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH18B**

Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434625E - 408656N	Hole Type RO
Location:	Barnsley		Level:	60.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				58.20		2.30	SANDSTONE - [Pennine Middle Coal Measures Formation].			
				56.20		4.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 10.6m 2. No coal encountered 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH18B**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434625E - 408656N	Hole Type RO
Location:	Barnsley		Level:	60.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				49.90		10.60	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
							End of Borehole at 10.600m			

11 12 13 14 15 16 17 18 19 20

Remarks

1. Rotary open-hole borehole terminated at 10.6m 2. No coal encountered 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

			Borehole No. **RBH19** Sheet 1 of 4
Project Name: Athersley, Barnsley	Project No. P17-176	Co-ords: 434820E - 408675N	Hole Type RO
Location: Barnsley		Level: 67.01	Scale 1:50
Client: Harworth Estates		Dates:	Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				64.01	1 2 3 4 5 6 7 8 9 10	3.00	OVERBURDEN - Made ground and natural clay with coal traces. [Possible Abdy (Winter) Seam]. Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 32.0m 2. Intact coal only. Soft strata and poor returns (possible fractured rock) at 20.5m to 22.6m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH19**

Sheet 2 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434820E - 408675N	Hole Type RO
Location:	Barnsley		Level:	67.01	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					11					
					12					
					13					
				53.61		13.40	Soft black dull COAL - intact, full flush returns. [Top Beamshaw Seam].			
				53.11	14	13.90	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				52.21		14.80	Hard black bright COAL - intact, full flush returns. [Top Beamshaw Seam].			
				51.71	15	15.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					16					
					17					
					18					
					19					
					20					

Remarks

1. Rotary open-hole borehole terminated at 32.0m 2. Intact coal only. Soft strata and poor returns (possible fractured rock) at 20.5m to 22.6m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH19**

Sheet 3 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434820E - 408675N	Hole Type RO
Location:	Barnsley		Level:	67.01	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				46.51		20.50	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					21		Grey MUDSTONE, fractured - SOFT, POOR RETURNS [Pennine Middle Coal Measures Formation].			
					22					
				44.41		22.60	Grey MUDSTONE - SOLID, FULL RETURNS [Pennine Middle Coal Measures Formation].			
				44.01	23	23.00	Hard black semi-bright COAL - intact, full flush returns. [Low Beamshaw Seam].			
				43.01	24	24.00	Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
					25					
					26					
					27					
					28					
					29					
					30					

Remarks

1. Rotary open-hole borehole terminated at 32.0m 2. Intact coal only. Soft strata and poor returns (possible fractured rock) at 20.5m to 22.6m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH19**

Sheet 4 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434820E - 408675N	Hole Type RO
Location:	Barnsley		Level:	67.01	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
				35.01	31 32 33 34 35 36 37 38 39 40	32.00	End of Borehole at 32.000m			

Remarks

1. Rotary open-hole borehole terminated at 32.0m 2. Intact coal only. Soft strata and poor returns (possible fractured rock) at 20.5m to 22.6m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH20**

Sheet 1 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434736E - 408665N	Hole Type RO
Location:	Barnsley		Level:	62.22	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				59.22	3	3.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 31.6m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH20**

Sheet 2 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434736E - 408665N	Hole Type RO
Location:	Barnsley		Level:	62.22	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				50.92	11	11.30	Hard black bright COAL - intact, full flush returns. [Top Beamshaw Seam].			
				49.92	12	12.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					13					
					14					
					15					
					16					
				45.82		16.40	Hard black semi-bright COAL - intact, full flush returns. [Low Beamshaw Seam].			
					17					
				44.82		17.40	Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
					18					
					19					
					20					

Remarks

1. Rotary open-hole borehole terminated at 31.6m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH20**

Sheet 3 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434736E - 408665N	Hole Type RO
Location:	Barnsley		Level:	62.22	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
					21		Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
					22					
					23					
					24					
					25					
					26					
					27					
					28					
					29					
					30					

Remarks

1. Rotary open-hole borehole terminated at 31.6m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH20**

Sheet 4 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434736E - 408665N	Hole Type RO
Location:	Barnsley		Level:	62.22	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
				30.62	31	31.60	End of Borehole at 31.600m			
					32					
					33					
					34					
					35					
					36					
					37					
					38					
					39					
					40					

Remarks

1. Rotary open-hole borehole terminated at 31.6m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

			Borehole No. **RBH21** Sheet 1 of 4
Project Name: Athersley, Barnsley	Project No. P17-176	Co-ords: 434689E - 408604N	Hole Type RO
Location: Barnsley		Level: 59.00	Scale 1:50
Client: Harworth Estates		Dates:	Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				56.00	3	3.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				55.00	4	4.00	Hard black semi-bright COAL - intact, full flush returns. [Low Beamshaw Seam].			
				54.50		4.50	Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 34.6m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH21**

Sheet 2 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434689E - 408604N	Hole Type RO
Location:	Barnsley		Level:	59.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
					11		Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
					12					
					13					
					14					
					15					
					16					
					17					
					18					
					19					
					20					

Remarks

1. Rotary open-hole borehole terminated at 34.6m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH21**

Sheet 3 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434689E - 408604N	Hole Type RO
Location:	Barnsley		Level:	59.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
					21		Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
					22					
					23					
					24					
					25					
					26					
					27					
					28					
					29					
					30					

Remarks

1. Rotary open-hole borehole terminated at 34.6m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **RBH21**

Sheet 4 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434689E - 408604N	Hole Type RO
Location:	Barnsley		Level:	59.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				28.50		30.50	Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
				28.00	31	31.00	Soft black dull COAL - soft, full flush returns. [Kent's Thin Seam].			
							Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
					32					
					33					
					34					
				24.40		34.60	End of Borehole at 34.600m			
					35					
					36					
					37					
					38					
					39					
					40					

Remarks

1. Rotary open-hole borehole terminated at 34.6m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

			Borehole No. **PH1/1A** Sheet 1 of 2
Project Name: Athersley, Barnsley	Project No. P17-176	Co-ords: 434683E - 408867N	Hole Type RO
Location: Barnsley		Level: 74.00	Scale 1:50
Client: Harworth Estates		Dates:	Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
					1					
					2					
					3					
				70.00	4	4.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					5					
					6					
					7					
					8					
				65.00	9	9.00	Soft black semi-bright COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				64.00	10	10.00				

Remarks

1. Rotary open-hole borehole terminated at 13.m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

			Borehole No. **PH1/1A** Sheet 2 of 2
Project Name: Athersley, Barnsley	Project No. P17-176	Co-ords: 434683E - 408867N	Hole Type RO
Location: Barnsley		Level: 74.00	Scale 1:50
Client: Harworth Estates		Dates:	Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					11					
					12					
					13					
				60.50		13.50	End of Borehole at 13.500m			
					14					
					15					
					16					
					17					
					18					
					19					
					20					

Remarks

1. Rotary open-hole borehole terminated at 13.m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

			Borehole No. **PH1/1B** Sheet 1 of 2
Project Name: Athersley, Barnsley	Project No. P17-176	Co-ords: 434692E - 408864N	Hole Type RO
Location: Barnsley		Level: 74.00	Scale 1:50
Client: Harworth Estates		Dates:	Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				69.70		4.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				64.50		9.50	Soft black semi-bright COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				64.00		10.00				

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Remarks

1. Rotary open-hole borehole terminated at 13.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH1/1B**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434692E - 408864N	Hole Type RO
Location:	Barnsley		Level:	74.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
					11		Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					12					
					13					
				60.50		13.50	End of Borehole at 13.500m			
					14					
					15					
					16					
					17					
					18					
					19					
					20					

Remarks

1. Rotary open-hole borehole terminated at 13.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

			Borehole No. **PH1/1C** Sheet 1 of 2
Project Name: Athersley, Barnsley	Project No. P17-176	Co-ords: 434693E - 408867N	Hole Type RO
Location: Barnsley		Level: 74.50	Scale 1:50
Client: Harworth Estates		Dates:	Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
					1		OVERBURDEN - Made ground and natural clay.			
					2					
					3					
					4					
				70.20		4.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					5					
					6					
				68.20		6.30	Soft black semi-bright COAL - intact, full flush returns. [**Unkown Seam**].			
				67.70		6.80	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					7					
					8					
					9					
				65.00		9.50	Soft black semi-bright COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				64.50	10	10.00				

Remarks

1. Rotary open-hole borehole terminated at 10.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH1/1C**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434693E - 408867N	Hole Type RO
Location:	Barnsley		Level:	74.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				64.00		10.50	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
							End of Borehole at 10.500m			

Remarks

1. Rotary open-hole borehole terminated at 10.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

			Borehole No. **PH1/1D** Sheet 1 of 2
Project Name: Athersley, Barnsley	Project No. P17-176	Co-ords: 434691E - 408861N	Hole Type RO
Location: Barnsley		Level: 74.00	Scale 1:50
Client: Harworth Estates		Dates:	Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				69.70		4.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				64.50		9.50	Soft black semi-bright COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				64.00		10.00				

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Remarks

1. Rotary open-hole borehole terminated at 13.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH1/1D**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434691E - 408861N	Hole Type RO
Location:	Barnsley		Level:	74.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					11					
					12					
					13					
				60.50		13.50	End of Borehole at 13.500m			
					14					
					15					
					16					
					17					
					18					
					19					
					20					

Remarks

1. Rotary open-hole borehole terminated at 13.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH1/1E**

Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434688E - 408856N	Hole Type RO
Location:	Barnsley		Level:	73.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				69.20		4.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				66.50		7.00	Soft black semi-bright COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				66.20		7.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 10.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH1/1E**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434688E - 408856N	Hole Type RO
Location:	Barnsley		Level:	73.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				63.00		10.50	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
							End of Borehole at 10.500m			

Remarks

1. Rotary open-hole borehole terminated at 10.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH1/2A**

Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434702E - 408861N	Hole Type RO
Location:	Barnsley		Level:	74.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				69.00	5	5.00	Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 16.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH1/2A**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434702E - 408861N	Hole Type RO
Location:	Barnsley		Level:	74.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
				62.00	12	12.00	Soft black semi-bright COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				61.50		12.50	Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
				57.50		16.50	End of Borehole at 16.500m			

Remarks

1. Rotary open-hole borehole terminated at 16.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH1/2B**

Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434701E - 408858N	Hole Type RO
Location:	Barnsley		Level:	73.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				69.50	4	4.00	CLAY - with weathered fragments of MUDSTONE [Pennine Middle Coal Measures Formation].			
				68.20	5	5.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				64.00	9	9.50	Soft black semi-bright COAL - intact, full flush returns. [Abdy (Winter) Seam].			

Remarks

1. Rotary open-hole borehole terminated at 16.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH1/2B**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434701E - 408858N	Hole Type RO
Location:	Barnsley		Level:	73.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				63.00		10.50	Soft black semi-bright COAL - intact, full flush returns. [Abdy (Winter) Seam].			
					11		Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
					12					
					13					
					14					
					15					
					16					
				57.00		16.50	End of Borehole at 16.500m			
					17					
					18					
					19					
					20					

Remarks

1. Rotary open-hole borehole terminated at 16.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH1/2C**

Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434703E - 408864N	Hole Type RO
Location:	Barnsley		Level:	74.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				70.40		4.10	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 16.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH1/2C**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434703E - 408864N	Hole Type RO
Location:	Barnsley		Level:	74.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				63.20	11	11.30	Soft black semi-bright COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				62.20	12	12.30	Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
					13					
					14					
					15					
					16					
				58.00		16.50	End of Borehole at 16.500m			
					17					
					18					
					19					
					20					

Remarks

1. Rotary open-hole borehole terminated at 16.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

			Borehole No.	**PH1/3**
			Sheet 1 of 4	
Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords: 434721E - 408855N	Hole Type RO
Location:	Barnsley		Level: 74.50	Scale 1:50
Client:	Harworth Estates		Dates:	Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				70.50	4	4.00	Black shale and hard black dull and COAL - intact, full flush returns. [Two Foot Seam].			
				70.40		4.10	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 32.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

			Borehole No. **PH1/3** Sheet 2 of 4
Project Name: Athersley, Barnsley	Project No. P17-176	Co-ords: 434721E - 408855N	Hole Type RO
Location: Barnsley		Level: 74.50	Scale 1:50
Client: Harworth Estates		Dates:	Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					11					
				63.00		11.50	Soft black semi-bright COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				62.70		11.80	Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
					12					
					13					
					14					
					15					
					16					
					17					
					18					
					19					
					20					

Remarks

1. Rotary open-hole borehole terminated at 32.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH1/3**

Sheet 3 of 4

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434721E - 408855N	Hole Type RO
Location:	Barnsley		Level:	74.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
					21		Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
					22					
					23					
					24					
				50.20		24.30	Hard black bright COAL - intact, full flush returns. [Top Beamshaw Seam].			
					25					
				49.00		25.50	Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
					26					
					27					
					28					
					29					
					30					

Remarks

1. Rotary open-hole borehole terminated at 32.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

			Borehole No. **PH1/3** Sheet 4 of 4
Project Name: Athersley, Barnsley	Project No. P17-176	Co-ords: 434721E - 408855N	Hole Type RO
Location: Barnsley		Level: 74.50	Scale 1:50
Client: Harworth Estates		Dates:	Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE with SANDSTONE bands - [Pennine Middle Coal Measures Formation].			
					31					
				42.50	32	32.00	End of Borehole at 32.000m			
					33					
					34					
					35					
					36					
					37					
					38					
					39					
					40					

Remarks

1. Rotary open-hole borehole terminated at 32.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH2/1A**

Sheet 1 of 3

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434686E - 408846N	Hole Type RO
Location:	Barnsley		Level:	73.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				67.00	6	6.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				66.20		6.80	Soft black semi-bright COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				65.90	7	7.10	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 22.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH2/1A**

Sheet 2 of 3

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434686E - 408846N	Hole Type RO
Location:	Barnsley		Level:	73.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					11					
					12					
					13					
					14					
					15					
					16					
					17					
				55.00	18	18.00	Hard black bright COAL - intact, full flush returns. [Top Beamshaw Seam].			
					19					
				53.70		19.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					20					

Remarks

1. Rotary open-hole borehole terminated at 22.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH2/1A**

Sheet 3 of 3

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434686E - 408846N	Hole Type RO
Location:	Barnsley		Level:	73.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					21					
					22					
				50.50		22.50	End of Borehole at 22.500m			
					23					
					24					
					25					
					26					
					27					
					28					
					29					
					30					

Remarks

1. Rotary open-hole borehole terminated at 22.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH2/1B**

Sheet 1 of 3

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434686E - 408843N	Hole Type RO
Location:	Barnsley		Level:	72.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				66.50	6	6.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				66.30		6.20	Hard black bright sub-anthracite COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				65.30	7	7.20	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 22.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH2/1B**

Sheet 2 of 3

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434686E - 408843N	Hole Type RO
Location:	Barnsley		Level:	72.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
					11		Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					12					
					13					
					14					
					15					
					16					
					17					
				54.50	18	18.00	Hard black bright COAL - intact, full flush returns. [Top Beamshaw Seam].			
					19					
				53.20		19.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					20					

Remarks

1. Rotary open-hole borehole terminated at 22.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH2/1B**

Sheet 3 of 3

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434686E - 408843N	Hole Type RO
Location:	Barnsley		Level:	72.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					21					
					22					
				50.00		22.50	End of Borehole at 22.500m			
					23					
					24					
					25					
					26					
					27					
					28					
					29					
					30					

Remarks

1. Rotary open-hole borehole terminated at 22.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH2/1C**

Sheet 1 of 3

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434686E - 408849N	Hole Type RO
Location:	Barnsley		Level:	73.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				67.50	6	6.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				67.00		6.50	Soft black semi-bright COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				66.50	7	7.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 22.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH2/1C**

Sheet 2 of 3

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434686E - 408849N	Hole Type RO
Location:	Barnsley		Level:	73.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					11					
					12					
					13					
					14					
					15					
					16					
					17					
				55.40	18	18.10	Hard black bright COAL - intact, full flush returns. [Top Beamshaw Seam].			
				54.30	19	19.20	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					20					

Remarks

1. Rotary open-hole borehole terminated at 22.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH2/1C**

Sheet 3 of 3

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434686E - 408849N	Hole Type RO
Location:	Barnsley		Level:	73.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					21					
					22					
				51.00		22.50	End of Borehole at 22.500m			
					23					
					24					
					25					
					26					
					27					
					28					
					29					
					30					

Remarks

1. Rotary open-hole borehole terminated at 22.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH2/1D**

Sheet 1 of 3

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434666E - 408847N	Hole Type RO
Location:	Barnsley		Level:	73.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				67.00	6	6.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				66.00	7	7.00	SOFT, POOR RETURNS. Probable COAL. [Abdy (Winter) Seam]**			
				65.70		7.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 22.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

			Borehole No.	**PH2/1D**
			Sheet 2 of 3	
Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords: 434666E - 408847N	Hole Type RO
Location:	Barnsley		Level: 73.00	Scale 1:50
Client:	Harworth Estates		Dates:	Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					11					
					12					
					13					
					14					
					15					
					16					
					17					
				55.00	18	18.00	Hard black bright COAL - intact, full flush returns. [Top Beamshaw Seam].			
				54.00	19	19.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					20					

Remarks

1. Rotary open-hole borehole terminated at 22.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH2/1D**

Sheet 3 of 3

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434666E - 408847N	Hole Type RO
Location:	Barnsley		Level:	73.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					21					
					22					
				50.50		22.50	End of Borehole at 22.500m			
					23					
					24					
					25					
					26					
					27					
					28					
					29					
					30					

Remarks

1. Rotary open-hole borehole terminated at 22.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH2/2A**

Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434711E - 408844N	Hole Type RO
Location:	Barnsley		Level:	73.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				68.70		4.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				66.50		6.50	Soft black semi-bright COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				66.00		7.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			

1 2 3 4 5 6 7 8 9 10

Remarks

1. Rotary open-hole borehole terminated at 19.8m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH2/2A**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434711E - 408844N	Hole Type RO
Location:	Barnsley		Level:	73.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					11					
					12					
					13					
					14					
					15					
					16					
					17					
				55.20		17.80	Hard black bright COAL - intact, full flush returns. [Top Beamshaw Seam].			
					18					
				54.20		18.80	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					19					
				53.20		19.80	End of Borehole at 19.800m			
					20					

Remarks

1. Rotary open-hole borehole terminated at 19.8m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH2/2B**

Sheet 1 of 3

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434700E - 408844N	Hole Type RO
Location:	Barnsley		Level:	73.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				68.70		4.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				67.00		6.00	Soft black semi-bright COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				66.50		6.50	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 22.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH2/2B**

Sheet 2 of 3

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434700E - 408844N	Hole Type RO
Location:	Barnsley		Level:	73.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
					11		Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					12					
					13					
					14					
					15					
					16					
					17					
					18					
					19					
					20					

Remarks

1. Rotary open-hole borehole terminated at 22.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH2/2B**

Sheet 3 of 3

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434700E - 408844N	Hole Type RO
Location:	Barnsley		Level:	73.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					21					
					22					
				50.50		22.50	End of Borehole at 22.500m			
					23					
					24					
					25					
					26					
					27					
					28					
					29					
					30					

Remarks

1. Rotary open-hole borehole terminated at 22.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH3/1A**

Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434709E - 408763N	Hole Type RO
Location:	Barnsley		Level:	68.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)	Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results						
						OVERBURDEN - Made ground and natural clay.			
				65.50	3.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				64.50	4.00	Hard black bright sub-anthracite COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				64.00	4.50	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 16.6m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH3/1A**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434709E - 408763N	Hole Type RO
Location:	Barnsley		Level:	68.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)	Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results						
						Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				53.90	14.60	Hard black bright COAL - intact, full flush returns. [Top Beamshaw Seam].			
				52.90	15.60	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				51.90	16.60	End of Borehole at 16.600m			

Remarks

1. Rotary open-hole borehole terminated at 16.6m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

			Borehole No. **PH3/1B** Sheet 1 of 2
Project Name: Athersley, Barnsley	Project No. P17-176	Co-ords: 434712E - 408764N	Hole Type RO
Location: Barnsley		Level: 68.50	Scale 1:50
Client: Harworth Estates		Dates:	Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				65.50		3.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				64.50		4.00	Hard black bright sub-anthracite COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				63.90		4.60	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 16.8m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH3/1B**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434712E - 408764N	Hole Type RO
Location:	Barnsley		Level:	68.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
					11		Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					12					
					13					
					14					
				53.70	15	14.80	Hard black bright COAL - intact, full flush returns. [Top Beamshaw Seam].			
				52.70	16	15.80	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				51.70	17	16.80	End of Borehole at 16.800m			
					18					
					19					
					20					

Remarks

1. Rotary open-hole borehole terminated at 16.8m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH3/1C**

Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434706E - 408762N	Hole Type RO
Location:	Barnsley		Level:	68.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				65.50		3.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				64.50		4.00	Hard black bright sub-anthracite COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				63.90		4.60	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 16.6m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH3/1C**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434706E - 408762N	Hole Type RO
Location:	Barnsley		Level:	68.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				54.10		14.40	Hard black bright COAL - intact, full flush returns. [Top Beamshaw Seam].			
				53.10		15.40	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				51.90		16.60	End of Borehole at 16.600m			

11 12 13 14 15 16 17 18 19 20

Remarks

1. Rotary open-hole borehole terminated at 16.6m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

			Borehole No. **PH3/2A** Sheet 1 of 2
Project Name: Athersley, Barnsley	Project No. P17-176	Co-ords: 434715E - 408737N	Hole Type RO
Location: Barnsley		Level: 67.00	Scale 1:50
Client: Harworth Estates		Dates:	Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay with COAL traces [Abdy (Winter) Seam]			
				65.00	2	2.00	Hard black bright sub-anthracite COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				64.80		2.20	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 13.8m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH3/2A**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434715E - 408737N	Hole Type RO
Location:	Barnsley		Level:	67.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				55.20	11	11.80	Hard black bright COAL - intact, full flush returns. [Top Beamshaw Seam].			
				54.20	12	12.80	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				53.20	13	13.80	End of Borehole at 13.800m			
					14					
					15					
					16					
					17					
					18					
					19					
					20					

Remarks

1. Rotary open-hole borehole terminated at 13.8m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH3/2B**

Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434718E - 408738N	Hole Type RO
Location:	Barnsley		Level:	67.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay with COAL traces [Abdy (Winter) Seam]			
				65.00	2	2.00	OVERBURDEN - Made ground and natural clay with COAL traces [Abdy (Winter) Seam]			
				64.70		2.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 13.9m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH3/2B**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434718E - 408738N	Hole Type RO
Location:	Barnsley		Level:	67.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				55.10	11	11.90	Hard black bright COAL - intact, full flush returns. [Top Beamshaw Seam].			
				54.10	12	12.90	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				53.10	13	13.90	End of Borehole at 13.900m			
					14					
					15					
					16					
					17					
					18					
					19					
					20					

Remarks

1. Rotary open-hole borehole terminated at 13.9m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH3/2C**

Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434712E - 408736N	Hole Type RO
Location:	Barnsley		Level:	67.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay with COAL traces [Abdy (Winter) Seam]			
				65.00	2	2.00	Hard black bright sub-anthracite COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				64.80		2.20	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 13.6m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH3/2C**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434712E - 408736N	Hole Type RO
Location:	Barnsley		Level:	67.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)	Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results						
						Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				55.40	11.60	Hard black bright COAL - intact, full flush returns. [Top Beamshaw Seam].			
				54.40	12.60	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				53.40	13.60	End of Borehole at 13.600m			

Remarks

1. Rotary open-hole borehole terminated at 13.6m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH4/1A**

Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434634E - 408781N	Hole Type RO
Location:	Barnsley		Level:	68.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				66.00	2	2.00	OVERBURDEN - Made ground and natural clay.			
							Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				61.70	6	6.30	**SOFT, NO RETURNS. Possible packed waste / backfill** [Possible Adit or workings]			
				60.40	7	7.60	SOLID, NO RETURNS. Probable MUDSTONE/ SANDSTONE [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 10.6m 2. Soft drilling and no returns (possible packed waste) at 6.3m to 7.6m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH4/1A**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434634E - 408781N	Hole Type RO
Location:	Barnsley		Level:	68.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				57.40		10.60	SOLID, NO RETURNS. Probable MUDSTONE/ SANDSTONE [Pennine Middle Coal Measures Formation].			
							End of Borehole at 10.600m			

Remarks

1. Rotary open-hole borehole terminated at 10.6m 2. Soft drilling and no returns (possible packed waste) at 6.3m to 7.6m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH4/1B**

Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434636E - 408782N	Hole Type RO
Location:	Barnsley		Level:	68.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				65.50	1 2 3 4 5 6 7 8 9 10	3.00	OVERBURDEN - Made ground and natural clay. Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 10.6m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH4/1B**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434636E - 408782N	Hole Type RO
Location:	Barnsley		Level:	68.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					11					
					12					
				56.30		12.20	Hard black bright COAL - intact, full flush returns. [Top Beamshaw Seam].			
				55.50	13	13.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				54.50	14	14.00	End of Borehole at 14.000m			
					15					
					16					
					17					
					18					
					19					
					20					

Remarks

1. Rotary open-hole borehole terminated at 10.6m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH4/1C**

Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434632E - 408781N	Hole Type RO
Location:	Barnsley		Level:	68.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)	Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results						
				65.00	3.00	OVERBURDEN - Made ground and natural clay.			
				62.30	5.70	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				60.40	7.60	**SOFT, NO RETURNS. Possible backfill** [Possible Adit or workings]			
						SOLID, NO RETURNS. Probable MUDSTONE/ SANDSTONE [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 10.6m 2. Soft drilling and no returns (possible backfill) at 5.7m to 7.6m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH4/1C**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434632E - 408781N	Hole Type RO
Location:	Barnsley		Level:	68.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				57.40		10.60	SOLID, NO RETURNS. Probable MUDSTONE/ SANDSTONE [Pennine Middle Coal Measures Formation].			
							End of Borehole at 10.600m			

Remarks

1. Rotary open-hole borehole terminated at 10.6m 2. Soft drilling and no returns (possible backfill) at 5.7m to 7.6m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH4/1D**

Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434630E - 408780N	Hole Type RO
Location:	Barnsley		Level:	68.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				65.00	3	3.00	OVERBURDEN - Made ground and natural clay.			
				62.20	6	5.80	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				60.40	8	7.60	**SOFT, NO RETURNS. Possible backfill** [Possible Adit or workings]			
					10		SOLID, NO RETURNS. Probable MUDSTONE/ SANDSTONE [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 10.6m 2. Soft drilling and no returns (possible backfill) at 5.8m to 7.6m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH4/1D**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434630E - 408780N	Hole Type RO
Location:	Barnsley		Level:	68.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				57.40		10.60	SOLID, NO RETURNS. Probable MUDSTONE/ SANDSTONE [Pennine Middle Coal Measures Formation].			
							End of Borehole at 10.600m			
					11					
					12					
					13					
					14					
					15					
					16					
					17					
					18					
					19					
					20					

Remarks

1. Rotary open-hole borehole terminated at 10.6m 2. Soft drilling and no returns (possible backfill) at 5.8m to 7.6m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH4/1E**

Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434628E - 408780N	Hole Type RO
Location:	Barnsley		Level:	68.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				65.00	3	3.00	OVERBURDEN - Made ground and natural clay.			
				62.20	6	5.80	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				60.50	8	7.50	**SOFT, NO RETURNS. Possible backfill** [Possible Adit or workings]			
							SOLID, NO RETURNS. Probable MUDSTONE/ SANDSTONE [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 10.6m 2. Soft drilling and no returns (possible backfill) at 5.8m to 7.5m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH4/1E**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434628E - 408780N	Hole Type RO
Location:	Barnsley		Level:	68.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				57.40		10.60	SOLID, NO RETURNS. Probable MUDSTONE/ SANDSTONE [Pennine Middle Coal Measures Formation].			
							End of Borehole at 10.600m			

11 12 13 14 15 16 17 18 19 20

Remarks

1. Rotary open-hole borehole terminated at 10.6m 2. Soft drilling and no returns (possible backfill) at 5.8m to 7.5m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH4/1F**

Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434626E - 408780N	Hole Type RO
Location:	Barnsley		Level:	68.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				65.00	3	3.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				63.40	4	4.60	**VOID** - Loss of flush, rods pushed without rotation or hammer. [Possible Adit or workings].			
				61.50	6	6.50	**SOFT, NO RETURNS. Possible backfill** [Possible Adit or workings]			
				60.70	7	7.30	SOLID, NO RETURNS. Probable MUDSTONE/ SANDSTONE [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 10.6m 2. VOID, soft drilling and no returns (workings and backfill) at 4.6m to m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH4/1F**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434626E - 408780N	Hole Type RO
Location:	Barnsley		Level:	68.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				57.40		10.60	SOLID, NO RETURNS. Probable MUDSTONE/ SANDSTONE [Pennine Middle Coal Measures Formation].			
							End of Borehole at 10.600m			

Remarks

1. Rotary open-hole borehole terminated at 10.6m 2. VOID, soft drilling and no returns (workings and backfill) at 4.6m to m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH4/1G**

Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434626E - 408782N	Hole Type RO
Location:	Barnsley		Level:	68.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				65.50	1 2 3 4 5 6 7 8 9 10	3.00	OVERBURDEN - Made ground and natural clay. Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 13.6m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH4/1G**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434626E - 408782N	Hole Type RO
Location:	Barnsley		Level:	68.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				56.90	11	11.60	Hard black bright COAL - intact, full flush returns. [Top Beamshaw Seam].			
				55.90	12	12.60	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				54.90	13	13.60	End of Borehole at 13.600m			
					14					
					15					
					16					
					17					
					18					
					19					
					20					

Remarks

1. Rotary open-hole borehole terminated at 13.6m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH4/1H**

Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434626E - 408778N	Hole Type RO
Location:	Barnsley		Level:	68.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				65.00	1 2 3 4 5 6 7 8 9 10	3.00	OVERBURDEN - Made ground and natural clay.			
							Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 13.6m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH4/1H**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434626E - 408778N	Hole Type RO
Location:	Barnsley		Level:	68.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				56.70	11	11.30	Hard black bright COAL - intact, full flush returns. [Top Beamshaw Seam].			
				55.70	12	12.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				54.40	13	13.60	End of Borehole at 13.600m			
					14					
					15					
					16					
					17					
					18					
					19					
					20					

Remarks

1. Rotary open-hole borehole terminated at 13.6m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH4/1I**

Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434637E - 408784N	Hole Type RO
Location:	Barnsley		Level:	67.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				64.50		3.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				60.50		7.00	**SOFT, NO RETURNS. TIGHT Backfill**			
				58.90		8.60	Grey MUDSTONE - SOLID NO RETURNS, [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 10.6m 2. Soft drilling and no returns (possible backfill) at 7.0m to 8.6m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **PH4/1I**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434637E - 408784N	Hole Type RO
Location:	Barnsley		Level:	67.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				56.90		10.60	Grey MUDSTONE - SOLID NO RETURNS, [Pennine Middle Coal Measures Formation].			
							End of Borehole at 10.600m			

Remarks

1. Rotary open-hole borehole terminated at 10.6m 2. Soft drilling and no returns (possible backfill) at 7.0m to 8.6m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No.
SHAFT 434408-007 PH01
Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	4344707E - 408853N	Hole Type RO
Location:	Barnsley		Level:	73.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				69.40		4.10	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				64.50		9.00	Soft black semi-bright COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				64.00		9.50	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			

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Remarks

1. Rotary open-hole borehole terminated at 10.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **SHAFT 434408-007 PH01**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	4344707E - 408853N	Hole Type RO
Location:	Barnsley		Level:	73.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				63.00		10.50	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
							End of Borehole at 10.500m			

Remarks

1. Rotary open-hole borehole terminated at 10.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

		Borehole No.	SHAFT 434408-007 PH02
		Sheet 1 of 2	
Project Name: Athersley, Barnsley	Project No. P17-176	Co-ords: 434706E - 408853N	Hole Type RO
Location: Barnsley		Level: 73.50	Scale 1:50
Client: Harworth Estates		Dates:	Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				69.10		4.40	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				64.50		9.00	Soft black semi-bright COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				64.00		9.50	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			

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Remarks

1. Rotary open-hole borehole terminated at 10.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. SHAFT 434408-007 PH02
Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434706E - 408853N	Hole Type RO
Location:	Barnsley		Level:	73.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				63.00		10.50	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
							End of Borehole at 10.500m			

Remarks

1. Rotary open-hole borehole terminated at 10.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

			Borehole No.	SHAFT 434408-007 PH03
			Sheet 1 of 2	
Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords: 434705E - 408854N	Hole Type RO
Location:	Barnsley		Level: 73.50	Scale 1:50
Client:	Harworth Estates		Dates:	Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				69.10		4.40	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				64.50		9.00	Soft black semi-bright COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				64.00		9.50	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			

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Remarks

1. Rotary open-hole borehole terminated at 10.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. SHAFT 434408-007 PH03
Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434705E - 408854N	Hole Type RO
Location:	Barnsley		Level:	73.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				63.00		10.50	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
							End of Borehole at 10.500m			

11 12 13 14 15 16 17 18 19 20

Remarks

1. Rotary open-hole borehole terminated at 10.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **SHAFT 434408-007 PH04**

Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434708E - 408853N	Hole Type RO
Location:	Barnsley		Level:	73.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				68.50	5	5.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				64.30	9	9.20	Soft black semi-bright COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				63.80	10	9.70	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 10.7m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. SHAFT 434408-007 PH04
Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434708E - 408853N	Hole Type RO
Location:	Barnsley		Level:	73.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				62.80		10.70	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
							End of Borehole at 10.700m			

Remarks

1. Rotary open-hole borehole terminated at 10.7m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No.
SHAFT 434408-007 PH05
Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434709E - 408852N	Hole Type RO
Location:	Barnsley		Level:	73.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				69.00		4.50	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				64.20		9.30	Soft black semi-bright COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				63.70		9.80	Grey MUDSTONE - [Pennine Middle Coal Measures			

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Remarks

1. Rotary open-hole borehole terminated at 10.8m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

				Borehole No.	SHAFT 434408-007 PH05
				Sheet 2 of 2	
Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434709E - 408852N	Hole Type RO
Location:	Barnsley		Level:	73.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				62.70	11	10.80	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
							End of Borehole at 10.800m			
					12					
					13					
					14					
					15					
					16					
					17					
					18					
					19					
					20					

Remarks

1. Rotary open-hole borehole terminated at 10.8m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **SHAFT 434408-007 PH06**

Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434706E - 408853N	Hole Type RO
Location:	Barnsley		Level:	73.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
					1		OVERBURDEN - Made ground and natural clay.			
					2					
					3					
				69.40	4	4.10	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					5					
					6					
				66.50	7	7.00	Soft black semi-bright COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				66.20		7.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					8					
					9					
					10					

Remarks

1. Rotary open-hole borehole terminated at 10.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **SHAFT 434408-007 PH06**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434706E - 408853N	Hole Type RO
Location:	Barnsley		Level:	73.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				63.00		10.50	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
							End of Borehole at 10.500m			

Remarks

1. Rotary open-hole borehole terminated at 10.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No.
SHAFT 434408-007 PH07
Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434707E - 408852N	Hole Type RO
Location:	Barnsley		Level:	73.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
					1		OVERBURDEN - Made ground and natural clay.			
					2					
					3					
					4					
				69.20		4.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					5					
					6					
				66.70		6.80	Soft black semi-bright COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				66.30	7	7.20	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					8					
					9					
					10					

Remarks

1. Rotary open-hole borehole terminated at 10.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No.
SHAFT 434408-007 PH07
Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434707E - 408852N	Hole Type RO
Location:	Barnsley		Level:	73.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				63.00		10.50	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
							End of Borehole at 10.500m			

Remarks

1. Rotary open-hole borehole terminated at 10.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **SHAFT 434408-007 PH08**

Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434707E - 408853N	Hole Type RO
Location:	Barnsley		Level:	73.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				69.50	4	4.00	**SOFT** - POOR RETURNS. [Probable mudstone and Abdy (Winter) Seam]			
				66.20	7	7.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 10.3m 2. Soft strata (possible backfilled ground or fractured rock) at 4.0m to 7.3m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **SHAFT 434408-007 PH08**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434707E - 408853N	Hole Type RO
Location:	Barnsley		Level:	73.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				63.20		10.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
							End of Borehole at 10.300m			

Remarks

1. Rotary open-hole borehole terminated at 10.3m 2. Soft strata (possible backfilled ground or fractured rock) at 4.0m to 7.3m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **SHAFT 434408-007 PH09**

Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434708E - 408851N	Hole Type RO
Location:	Barnsley		Level:	73.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				69.20		4.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				67.50		6.00	Soft black semi-bright COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				67.00		6.50	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			

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Remarks

1. Rotary open-hole borehole terminated at 10.3m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **SHAFT 434408-007 PH09**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434708E - 408851N	Hole Type RO
Location:	Barnsley		Level:	73.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				63.20		10.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
							End of Borehole at 10.300m			

Remarks

1. Rotary open-hole borehole terminated at 10.3m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

		Borehole No.	SHAFT 434408-007 PH10
		Sheet 1 of 2	
Project Name: Athersley, Barnsley	Project No. P17-176	Co-ords: 434706E - 408855N	Hole Type RO
Location: Barnsley		Level: 73.50	Scale 1:50
Client: Harworth Estates		Dates:	Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				69.20		4.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				64.20		9.30	Soft black semi-bright COAL - intact, full flush returns. [Abdy (Winter) Seam].			

Remarks

1. Rotary open-hole borehole terminated at 11.2m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. SHAFT 434408-007 PH10

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434706E - 408855N	Hole Type RO
Location:	Barnsley		Level:	73.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				63.30		10.20	Soft black semi-bright COAL - intact, full flush returns. [Abdy (Winter) Seam]. Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				62.30	11	11.20	End of Borehole at 11.200m			
					12					
					13					
					14					
					15					
					16					
					17					
					18					
					19					
					20					

Remarks

1. Rotary open-hole borehole terminated at 11.2m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No.
SHAFT 434408-007 PH11
Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434707E - 408854N	Hole Type RO
Location:	Barnsley		Level:	73.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				69.20		4.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				64.00		9.50	Soft black semi-bright COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				63.50		10.00				

Remarks

1. Rotary open-hole borehole terminated at 11.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **SHAFT 434408-007 PH11**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434707E - 408854N	Hole Type RO
Location:	Barnsley		Level:	73.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				62.50	11	11.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
							End of Borehole at 11.000m			
					12					
					13					
					14					
					15					
					16					
					17					
					18					
					19					
					20					

Remarks

1. Rotary open-hole borehole terminated at 11.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **SHAFT 434408-007 PH12**

Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434707E - 408854N	Hole Type RO
Location:	Barnsley		Level:	73.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				69.20		4.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				63.90		9.60	Soft black semi-bright COAL - intact, full flush returns. [Abdy (Winter) Seam].			

Remarks

1. Rotary open-hole borehole terminated at 1m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **SHAFT 434408-007 PH12**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434707E - 408854N	Hole Type RO
Location:	Barnsley		Level:	73.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)	Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results						
				63.40	10.10	Soft black semi-bright COAL - intact, full flush returns. [Abdy (Winter) Seam]. Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				62.40	11.10	End of Borehole at 11.100m			

Remarks

1. Rotary open-hole borehole terminated at 1m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No.
SHAFT 434408-007 PH13
Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434708E - 408853N	Hole Type RO
Location:	Barnsley		Level:	73.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				69.20		4.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				63.70		9.80	Soft black semi-bright COAL - intact, full flush returns. [Abdy			

Remarks

1. Rotary open-hole borehole terminated at 11.3m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **SHAFT 434408-007 PH13**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434708E - 408853N	Hole Type RO
Location:	Barnsley		Level:	73.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				63.20		10.30	Soft black semi-bright COAL - intact, full flush returns. [Abdy (Winter) Seam].			
							Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					11					
				62.20		11.30	End of Borehole at 11.300m			
					12					
					13					
					14					
					15					
					16					
					17					
					18					
					19					
					20					

Remarks

1. Rotary open-hole borehole terminated at 11.3m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **SHAFT 434408-007 PH14**

Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434709E - 408853N	Hole Type RO
Location:	Barnsley		Level:	73.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				69.20		4.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				63.60		9.90				

1 2 3 4 5 6 7 8 9 10

Remarks

1. Rotary open-hole borehole terminated at 11.4m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. SHAFT 434408-007 PH14

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434709E - 408853N	Hole Type RO
Location:	Barnsley		Level:	73.50	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				63.10		10.40	Soft black semi-bright COAL - intact, full flush returns. [Abdy (Winter) Seam].			
					11		Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				62.10		11.40	End of Borehole at 11.400m			
					12					
					13					
					14					
					15					
					16					
					17					
					18					
					19					
					20					

Remarks

1. Rotary open-hole borehole terminated at 11.4m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No.
SHAFT 434408-007 PH15
Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434707E - 408848N	Hole Type RO
Location:	Barnsley		Level:	73.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				69.00	4	4.00	**SOFT BACKFILL (PROBABLE SHAFT)**			

Remarks

1. Rotary open-hole borehole terminated at 10.5m 2. Probable shaft backfill at 4.0m to 10.5m (base not determined) 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **SHAFT 434408-007 PH15**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434707E - 408848N	Hole Type RO
Location:	Barnsley		Level:	73.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				62.50		10.50	**SOFT BACKFILL (PROBABLE SHAFT)**			
							End of Borehole at 10.500m			
					11					
					12					
					13					
					14					
					15					
					16					
					17					
					18					
					19					
					20					

Remarks

1. Rotary open-hole borehole terminated at 10.5m 2. Probable shaft backfill at 4.0m to 10.5m (base not determined) 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **SHAFT 434408-007 PH16**

Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434706E - 408848N	Hole Type RO
Location:	Barnsley		Level:	73.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				69.00	4	4.00	**SOFT BACKFILL (PROBABLE SHAFT)**			

Remarks

1. Rotary open-hole borehole terminated at 10.5m 2. Probable shaft backfill at 4.0m to 10.5m (base not determined) 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **SHAFT 434408-007 PH16**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434706E - 408848N	Hole Type RO
Location:	Barnsley		Level:	73.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				62.50		10.50	**SOFT BACKFILL (PROBABLE SHAFT)**			
							End of Borehole at 10.500m			
					11					
					12					
					13					
					14					
					15					
					16					
					17					
					18					
					19					
					20					

Remarks

1. Rotary open-hole borehole terminated at 10.5m 2. Probable shaft backfill at 4.0m to 10.5m (base not determined) 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

		Borehole No.	**SHAFT 434408-007 PH17**
		Sheet 1 of 2	
Project Name: Athersley, Barnsley	Project No. P17-176	Co-ords: 434705E - 408849N	Hole Type RO
Location: Barnsley		Level: 73.00	Scale 1:50
Client: Harworth Estates		Dates:	Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				68.00	5	5.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				66.30		6.70	Soft black semi-bright COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				65.90	7	7.10	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				63.60		9.40	**SOFT BACKFILL** [Edge of shaft or workings in Abdy (Winter) Seam]			

Remarks

1. Rotary open-hole borehole terminated at 12.3m 2. Soft strata and no returns (possible backfill) at 9.4m to 11.3m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **SHAFT 434408-007 PH17**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434705E - 408849N	Hole Type RO
Location:	Barnsley		Level:	73.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
					11		**SOFT BACKFILL** [Edge of shaft or workings in Abdy (Winter) Seam]			
				61.70		11.30	SOLID NO RETURNS. Probable MUDSTONE/ SANDSTONE [Pennine Middle Coal Measures Formation].			
					12					
				60.70		12.30	End of Borehole at 12.300m			
					13					
					14					
					15					
					16					
					17					
					18					
					19					
					20					

Remarks

1. Rotary open-hole borehole terminated at 12.3m 2. Soft strata and no returns (possible backfill) at 9.4m to 11.3m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No.
SHAFT 434408-007 PH18
Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434708E - 408848N	Hole Type RO
Location:	Barnsley		Level:	73.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				69.00	4	4.00	**SOFT BACKFILL (PROBABLE SHAFT)**			

Remarks

1. Rotary open-hole borehole terminated at 10.5m 2. Probable shaft backfill at 4.0m to 10.5m (base not determined) 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **SHAFT 434408-007 PH18**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434708E - 408848N	Hole Type RO
Location:	Barnsley		Level:	73.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				62.50		10.50	**SOFT BACKFILL (PROBABLE SHAFT)**			
							End of Borehole at 10.500m			
					11					
					12					
					13					
					14					
					15					
					16					
					17					
					18					
					19					
					20					

Remarks

1. Rotary open-hole borehole terminated at 10.5m 2. Probable shaft backfill at 4.0m to 10.5m (base not determined) 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No.
SHAFT 434408-007 PH19
Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434709E - 408847N	Hole Type RO
Location:	Barnsley		Level:	73.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
					1		**SOFT BACKFILL (PROBABLE SHAFT)**			
					2					
					3					
					4					
					5					
					6					
					7					
				65.00	8	8.00	**SOLID, NO RETURNS (PROBABLE EDGE OF SHAFT)**			
					9					
					10					

Remarks

1. Rotary open-hole borehole terminated at 10.5m 2. Soft strata and no returns (probable edge of shaft) at 0.0m to 8.0m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **SHAFT 434408-007 PH19**
Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434709E - 408847N	Hole Type RO
Location:	Barnsley		Level:	73.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				62.50		10.50	**SOLID, NO RETURNS (PROBABLE EDGE OF SHAFT)**			
							End of Borehole at 10.500m			
					11					
					12					
					13					
					14					
					15					
					16					
					17					
					18					
					19					
					20					

Remarks

1. Rotary open-hole borehole terminated at 10.5m 2. Soft strata and no returns (probable edge of shaft) at 0.0m to 8.0m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No.
SHAFT 434408-007 PH20
Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434710E - 408847N	Hole Type RO
Location:	Barnsley		Level:	73.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
					1		OVERBURDEN - Made ground and natural clay.			
					2					
					3					
					4					
				68.70		4.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					5					
					6					
				66.50		6.50	Soft black semi-bright COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				66.10	7	6.90	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
					8					
					9					
					10					

Remarks

1. Rotary open-hole borehole terminated at 10.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No.
SHAFT 434408-007 PH20
Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434710E - 408847N	Hole Type RO
Location:	Barnsley		Level:	73.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				62.50		10.50	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
							End of Borehole at 10.500m			

Remarks

1. Rotary open-hole borehole terminated at 10.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **SHAFT 434408-007 PH21**

Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434707E - 408847N	Hole Type RO
Location:	Barnsley		Level:	73.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				69.00		4.00	**SOFT BACKFILL (PROBABLE SHAFT)**			

Remarks

1. Rotary open-hole borehole terminated at 10.5m 2. Probable shaft backfill at 4.0m to 10.5m (base not determined) 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Project Name: Athersley, Barnsley	Project No. P17-176	Co-ords: 434707E - 408847N	Hole Type RO
Location: Barnsley		Level: 73.00	Scale 1:50
Client: Harworth Estates		Dates:	Logged By AT

Borehole No. **SHAFT 434408-007 PH21**

Sheet 2 of 2

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				62.50		10.50	**SOFT BACKFILL (PROBABLE SHAFT)**			
							End of Borehole at 10.500m			
					11					
					12					
					13					
					14					
					15					
					16					
					17					
					18					
					19					
					20					

Remarks

1. Rotary open-hole borehole terminated at 10.5m 2. Probable shaft backfill at 4.0m to 10.5m (base not determined) 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No.
SHAFT 434408-007 PH22
Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434706E - 408846N	Hole Type RO
Location:	Barnsley		Level:	73.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
					1		**SOFT BACKFILL (PROBABLE SHAFT)**			
					2					
					3					
					4					
					5					
					6					
				66.00	7	7.00	**SOLID, NO RETURNS (PROBABLE EDGE OF SHAFT)**			
					8					
					9					
					10					

Remarks

1. Rotary open-hole borehole terminated at 10.5m 2. Soft strata and no returns (probable edge of shaft) at 0.0m to 7.0m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **SHAFT 434408-007 PH22**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434706E - 408846N	Hole Type RO
Location:	Barnsley		Level:	73.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				62.50		10.50	**SOLID, NO RETURNS (PROBABLE EDGE OF SHAFT)**			
							End of Borehole at 10.500m			
					11					
					12					
					13					
					14					
					15					
					16					
					17					
					18					
					19					
					20					

Remarks

1. Rotary open-hole borehole terminated at 10.5m 2. Soft strata and no returns (probable edge of shaft) at 0.0m to 7.0m 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No.
SHAFT 434408-007 PH23
Sheet 1 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434706E - 408845N	Hole Type RO
Location:	Barnsley		Level:	73.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				69.00	4	4.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				66.50	6	6.50	Soft black semi-bright COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				66.00	7	7.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			

Remarks

1. Rotary open-hole borehole terminated at 10.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **SHAFT 434408-007 PH23**

Sheet 2 of 2

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434706E - 408845N	Hole Type RO
Location:	Barnsley		Level:	73.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				62.50		10.50	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
							End of Borehole at 10.500m			

Remarks

1. Rotary open-hole borehole terminated at 10.5m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No.
SHAFT 434408-023 PH01
Sheet 1 of 1

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434693E - 408837N	Hole Type RO
Location:	Barnsley		Level:	72.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				67.70		4.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				65.70		6.30	Hard black bright sub-anthracite COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				64.70		7.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				63.70		8.30	End of Borehole at 8.300m			

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Remarks

1. Rotary open-hole borehole terminated at 8.3m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No.
SHAFT 434408-023 PH02
Sheet 1 of 1

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434692E - 408837N	Hole Type RO
Location:	Barnsley		Level:	72.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				67.70		4.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				65.70		6.30	Hard black bright sub-anthracite COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				64.70		7.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				63.70		8.30	End of Borehole at 8.300m			

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5
6
7
8
9
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Remarks

1. Rotary open-hole borehole terminated at 8.3m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

		Borehole No.	SHAFT 434408-023 PH03
		Sheet 1 of 1	
Project Name: Athersley, Barnsley	Project No. P17-176	Co-ords: 434691E - 408837N	Hole Type RO
Location: Barnsley		Level: 72.00	Scale 1:50
Client: Harworth Estates		Dates:	Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				67.40		4.60	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				65.70		6.30	Hard black bright sub-anthracite COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				65.00		7.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				64.00		8.00	End of Borehole at 8.000m			

1 2 3 4 5 6 7 8 9 10

Remarks

1. Rotary open-hole borehole terminated at 8.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No.
SHAFT 434408-023 PH04
Sheet 1 of 1

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434693E - 408838N	Hole Type RO
Location:	Barnsley		Level:	72.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				67.70		4.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				65.70		6.30	Hard black bright sub-anthracite COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				64.70		7.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				63.70		8.30	End of Borehole at 8.300m			

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Remarks

1. Rotary open-hole borehole terminated at 8.3m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No.
SHAFT 434408-023 PH05
Sheet 1 of 1

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434692E - 408838N	Hole Type RO
Location:	Barnsley		Level:	72.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				67.70		4.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				65.70		6.30	Hard black bright sub-anthracite COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				64.70		7.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				63.70		8.30	End of Borehole at 8.300m			

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Remarks

1. Rotary open-hole borehole terminated at 8.3m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **SHAFT 434408-023 PH06**

Sheet 1 of 1

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434691E - 408838N	Hole Type RO
Location:	Barnsley		Level:	72.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				67.70		4.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				65.70		6.30	Hard black bright sub-anthracite COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				65.00		7.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				64.00		8.00	End of Borehole at 8.000m			

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Remarks

1. Rotary open-hole borehole terminated at 8.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No.
SHAFT 434408-023 PH07
Sheet 1 of 1

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434694E - 408837N	Hole Type RO
Location:	Barnsley		Level:	72.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				67.40		4.60	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				65.70		6.30	Hard black bright sub-anthracite COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				65.00		7.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				64.00		8.00	End of Borehole at 8.000m			

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Remarks

1. Rotary open-hole borehole terminated at 8.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No.
SHAFT 434408-023 PH08
Sheet 1 of 1

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434695E - 408837N	Hole Type RO
Location:	Barnsley		Level:	72.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
				67.40	1	4.60	OVERBURDEN - Made ground and natural clay.			
					2					
					3					
					4					
					5		Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				65.70	6	6.30	Hard black bright sub-anthracite COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				65.00	7	7.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				64.00	8	8.00	End of Borehole at 8.000m			
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					10					

Remarks

1. Rotary open-hole borehole terminated at 8.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **SHAFT 434408-023 PH09**

Sheet 1 of 1

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434694E - 408838N	Hole Type RO
Location:	Barnsley		Level:	72.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				67.40		4.60	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				65.50		6.50	Hard black bright sub-anthracite COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				64.80		7.20	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				63.80		8.20	End of Borehole at 8.200m			

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Remarks

1. Rotary open-hole borehole terminated at 8.2m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No.
SHAFT 434408-023 PH10
Sheet 1 of 1

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434695E - 408838N	Hole Type RO
Location:	Barnsley		Level:	72.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)	Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results						
						OVERBURDEN - Made ground and natural clay.			
				67.70	4.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				65.40	6.60	COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				64.70	7.30	Hard black bright sub-anthracite COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				63.70	8.30	End of Borehole at 8.300m			

Remarks

1. Rotary open-hole borehole terminated at 8.3m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No.
SHAFT 434408-023 PH11
Sheet 1 of 1

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434695E - 408839N	Hole Type RO
Location:	Barnsley		Level:	72.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				67.70		4.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				65.60		6.40	Hard black bright sub-anthracite COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				65.00		7.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				64.00		8.00	End of Borehole at 8.000m			

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Remarks

1. Rotary open-hole borehole terminated at 8.m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **SHAFT 434408-023 PH12**

Sheet 1 of 1

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434694E - 408839N	Hole Type RO
Location:	Barnsley		Level:	72.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				67.70		4.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				65.70		6.30	Hard black bright sub-anthracite COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				64.70		7.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				63.70		8.30	End of Borehole at 8.300m			

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Remarks

1. Rotary open-hole borehole terminated at 8.3m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **SHAFT 434408-023 PH13**

Sheet 1 of 1

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434693E - 408839N	Hole Type RO
Location:	Barnsley		Level:	72.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				67.40		4.60	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				65.70		6.30	Hard black bright sub-anthracite COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				64.70		7.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				63.70		8.30	End of Borehole at 8.300m			

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Remarks

1. Rotary open-hole borehole terminated at 8.3m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **SHAFT 434408-023 PH14**

Sheet 1 of 1

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434692E - 408839N	Hole Type RO
Location:	Barnsley		Level:	72.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				67.40		4.60	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				65.70		6.30	Hard black bright sub-anthracite COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				64.70		7.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				63.70		8.30	End of Borehole at 8.300m			

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Remarks

1. Rotary open-hole borehole terminated at 8.3m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **SHAFT 434408-023 PH15**

Sheet 1 of 1

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434691E - 408839N	Hole Type RO
Location:	Barnsley		Level:	72.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				67.40		4.60	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				65.70		6.30	Hard black bright sub-anthracite COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				64.70		7.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				63.70		8.30	End of Borehole at 8.300m			

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Remarks

1. Rotary open-hole borehole terminated at 8.3m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

		Borehole No.	**SHAFT 434408-023 PH16**
		Sheet 1 of 1	
Project Name: Athersley, Barnsley	Project No. P17-176	Co-ords: 434694E - 408834N	Hole Type RO
Location: Barnsley		Level: 72.00	Scale 1:50
Client: Harworth Estates		Dates:	Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				67.70		4.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				65.70		6.30	Hard black bright sub-anthracite COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				64.70		7.30	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				63.70		8.30	End of Borehole at 8.300m			

1 2 3 4 5 6 7 8 9 10

Remarks

1. Rotary open-hole borehole terminated at 8.3m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No.
SHAFT 434408-023 PH17
Sheet 1 of 1

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434693E - 408834N	Hole Type RO
Location:	Barnsley		Level:	72.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				67.40		4.60	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				65.70		6.30	Hard black bright sub-anthracite COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				65.00		7.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				64.00		8.00	End of Borehole at 8.000m			

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Remarks

1. Rotary open-hole borehole terminated at 8.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No.
SHAFT 434408-023 PH18
Sheet 1 of 1

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434692E - 408834N	Hole Type RO
Location:	Barnsley		Level:	72.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				67.40		4.60	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				65.70		6.30	Hard black bright sub-anthracite COAL - fractured, POOR RETURNS. [Abdy (Winter) Seam].			
				65.00		7.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				64.00		8.00	End of Borehole at 8.000m			

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Remarks

1. Rotary open-hole borehole terminated at 8.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **SHAFT 434408-023 PH19**

Sheet 1 of 1

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434692E - 408834N	Hole Type RO
Location:	Barnsley		Level:	72.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				67.00	5	5.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				65.00	7	7.00	Hard black bright sub-anthracite COAL - fractured, POOR RETURNS. [Abdy (Winter) Seam].			
				64.40		7.60	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				64.00	8	8.00	End of Borehole at 8.000m			

1 2 3 4 5 6 7 8 9 10

Remarks

1. Rotary open-hole borehole terminated at 8.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

Borehole Log

Borehole No. **SHAFT 434408-023 PH20**

Sheet 1 of 1

Project Name:	Athersley, Barnsley	Project No. P17-176	Co-ords:	434691E - 408834N	Hole Type RO
Location:	Barnsley		Level:	72.00	Scale 1:50
Client:	Harworth Estates		Dates:		Logged By AT

Sample and In Situ Testing				Level (m)		Depth (m)	Stratum Description	Legend	Water Strikes	Well
Depth (m)	Ref.	Type	Results							
							OVERBURDEN - Made ground and natural clay.			
				67.00	5	5.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				65.70	6	6.30	Hard black bright sub-anthracite COAL - intact, full flush returns. [Abdy (Winter) Seam].			
				65.00	7	7.00	Grey MUDSTONE - [Pennine Middle Coal Measures Formation].			
				64.00	8	8.00	End of Borehole at 8.000m			

Remarks

1. Rotary open-hole borehole terminated at 8.0m 2. Intact coal only 3. Backfilled with sand and cement mix 4. Drilling plant: Soilmec SM-14 top hammer rig 5. No mine gas or mine water emission detected

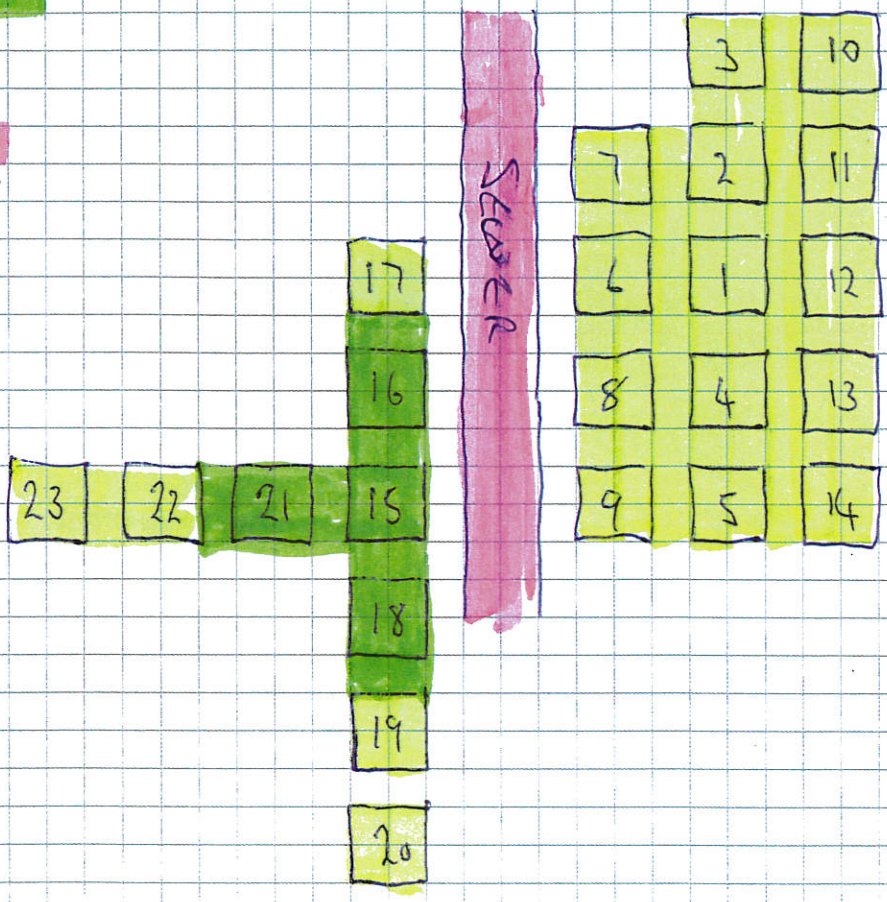
PROB HOLES FOR SHAFT NO 434408/007

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VAN ELLE
TOTAL FOUNDATION SOLUTIONS

Kirkby Lane, Pinxton, Nottinghamshire NG16 6JA
Telephone: (01773) 580580 Fax: (01773) 862100
Website: www.van-elle.co.uk E-mail: info@van-elle.co.uk

Open Hole Drillers Log

Site: WAKEFIELD RD ATHERSLEY | Sheet: 1 of 1

Rig: SM 14 1173 | Crew: I MITCHISON D SIMPSON | Date: 23/9/19

Hours on Site: | Travelling Time:

BH	Depth	Strata Description
RH 004	0000 0200	OVER BURDEN
	0200 0560	BOULDER CLAY
	0560 0620	SANDSTONE
	0620 0640	COAL
	0640 1430	MUDSTONE SANDSTONE
	1430 1540	SOFT COAL
	1540 2550	MUDSTONE SANDSTONE (POOR RETURNS)
		6M CASED
PH1/3	0000 0400	OVER BURDEN
	0400 0410	COAL
	0410 1150	MUDSTONE
	1150 1180	COAL
	1180 2430	MUDSTONE SANDSTONE
	2430 2550	COAL
	2550 3200	MUDSTONE SANDSTONE
		4M CASED

BH	Depth	Strata Description
RH 005	0000 0400	OVER BURDEN
	0400 0440	SANDSTONE
	0440 0470	COAL
	0470 1330	MUDSTONE SANDSTONE (BANDS)
	1330 1430	COAL
	1430 2400	MUDSTONE SANDSTONE (BANDS)
	2400 2500	COAL
	2500 3200	MUDSTONE SANDSTONE (BANDS)
		4M CASED
PH1/2 A		
	0000 0500	OVER BURDEN
	0500 1200	MUDSTONE SANDSTONE (BANDS)
	1200 1250	COAL
	1250 1650	MUDSTONE SANDSTONE (BANDS)
		4M CASED

Casing/Water Level Details

BH	Casing		Water		
	Dia	Depth	Strike	Rise	Sealed

Totals	BH	Drill	Case	Install
Today	4	106.00	18. M	
Previous	0	0	0	
To Date	4	106.00	18 M	

I confirm this is a true record
Van Elle operative name: IAN MITCHISON
Drill hole Nos. checked Yes ☑ No ☐
Hole Depth checked Yes ☑ No ☐
SIGNED
Dated 23/9/19

Client's Name A TAYLOR
Client's position ENGINEER
Signature
Dated 23/09/19

VAN ELLE
TOTAL FOUNDATION SOLUTIONS

Kirkby Lane, Pinxton, Nottinghamshire NG16 6JA
Telephone: (01773) 580580 Fax: (01773) 862100
Website: www.van-elle.co.uk E-mail: info@van-elle.co.uk

Open Hole Drillers Log

Site: WAKEFIELD RD ATHERSLEY | Sheet: 1 of 1

Rig: SM 14 1173 | Crew: I MITCHISON D SIMPSON | Date: 24/9/19

Hours on Site: | Travelling Time:

BH	Depth	Strata Description
PH 1/2 B		
	0000 0400	OVER BURDEN
	0400 0530	BOULDER CLAY
	0530 0950	MUDSTONE
	0950 1050	COAL
	1050 1650	MUDSTONE SANDSTONE BANDS
		4M CASED
PH 1/2 C		
	0000 0410	OVER BURDEN
	0410 1130	MUDSTONE
	1130 1230	COAL
	1230 1650	MUDSTONE SANDSTONE BANDS
		4M CASED
SHAFT PROB 1 434408/007		
	0000 0410	OVER BURDEN
	0410 0900	MUDSTONE
	0900 0950	COAL
	0950 1050	MUDSTONE

BH	Depth	Strata Description
SHAFT PROB 2		434408/007
	0000 0440	OVER BURDEN
	0440 0900	MUDSTONE
	0900 0950	COAL
	0950 1050	MUDSTONE
		4M CASED
SHAFT PROB 3		434408/007
	0000 0440	OVER BURDEN
	0440 0900	MUDSTONE
	0900 0950	COAL
	0950 1050	MUDSTONE
		4M CASED
SHAFT PROB 4		434408/007
	0000 0500	OVER BURDEN
	0500 0920	MUDSTONE
	0920 0970	COAL
	0970 1070	MUDSTONE
		4M CASED

Casing/Water Level Details 4M CASED

BH	Casing		Water		
	Dia	Depth	Strike	Rise	Sealed

Totals	BH	Drill	Case	Install
Today	6	75.20	24M	/
Previous	4	106.00	18M	
To Date	10	181.20	42M	

I confirm this is a true record.
Van Elle operative name IAN MITCHISON
Drill hole Nos. checked Yes ☑ No ☐
Hole Depth checked Yes ☑ No ☐
SIGNED
Dated 24/9/19

Client's Name ATKINS
Client's position ENGINEER
Signature
Dated 24/09/19

VAN ELLE
TOTAL FOUNDATION SOLUTIONS

Kirkby Lane, Pinxton, Nottinghamshire NG16 6JA
Telephone: (01773) 580580 Fax: (01773) 862100
Website: www.van-elle.co.uk E-mail: info@van-elle.co.uk

Open Hole Drillers Log

Site: WAKEFIELD RD ATHERSLEY | Sheet: 2 of 2

Rig: SM 14 1173 | Crew: I MITCHISON D SIMPSON | Date: 24/9/19

Hours on Site:

Travelling Time:

BH	Depth	Strata Description
SHAFT	PROB 5 434408/007	
	0000 0450	OVER BURDEN
	0450 0930	MUDSTONE
	0930 0980	COAL
	0980 1080	MUDSTONE
		4M CASED
SHAFT	PROB 6	434408/007
	0000 0410	OVER BURDEN
	0410 0700	MUDSTONE
	0700 0730	COAL
	0730 1050	MUDSTONE
		4M CASED
SHAFT	PROB 7	434408/007
	0000 0430	OVER BURDEN
	0430 0680	MUDSTONE
	0680 0720	COAL
	0720 1050	MUDSTONE
		4M CASED

BH	Depth	Strata Description
SHAFT	PROB 8	434408/007
	0000 0400	OVER BURDEN
	0400 0730	SOFT POOR RETURNS
	0730 1030	MUDSTONE
		4M CASED
SHAFT	PROB 9	434408/007
	0000 0430	OVERBURDEN
	0430 0600	MUDSTONE
	0600 0650	COAL
	0650 1030	MUDSTONE
		4M CASED
SHAFT	PROB 10	434408/007
	0000 0430	OVER BURDEN
	0430 0930	MUDSTONE
	0930 1020	COAL
	1020 1120	MUDSTONE
		4M CASED

Casing/Water Level Details

BH	Casing		Water		
	Dia	Depth	Strike	Rise	Sealed

Totals	BH	Drill	Case	Install
Today	6	63.60	24 M	
Previous	10	181.20	42 M	
To Date	16	244.80	66 M	

I confirm this is a true record.
Van Elle operative name IAN MITCHISON
Drill hole Nos. checked Yes ☑ No ☐
Hole Depth checked Yes ☑ No ☐
SIGNED
Dated 24/9/19

Client's Name ATAGAR
Client's position ENGINEER
Signature
Dated 24/09/19

VAN ELLE
TOTAL FOUNDATION SOLUTIONS

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Open Hole Drillers Log

Site: WAKEFIELD RD ATHERSLEY | Sheet: 3 of 3

Rig: SM 14 1173 | Crew: J MITCHISON D SIMPSON | Date: 24/9/19

Hours on Site: | Travelling Time:

BH	Depth	Strata Description
SHAFT PROB 11	434408/007	
	0000 0430	OVER BURDEN
	0430 0950	MUDSTONE
	0950 1000	COAL
	1000 1100	MUDSTONE
		4M CASED
SHAFT PROB 12		434408/007
	0000 0430	OVER BURDEN
	0430 0960	MUDSTONE
	0960 1010	COAL
	1010 1110	MUDSTONE
		4 M CASED
SHAFT PROB 13		434408/007
	0000 0430	OVER BURDEN
	0430 0980	MUDSTONE
	0980 1030	COAL
	1030 1130	MUDSTONE
		4M CASED

BH	Depth	Strata Description
SHAFT PROB 14		434408/007
	0000 0430	OVER BURDEN
	0430 0990	MUDSTONE
	0990 1040	COAL
	1040 1140	MUDSTONE
		4M CASED

Casing/Water Level Details

BH	Casing		Water		
	Dia	Depth	Strike	Rise	Sealed

Totals	BH	Drill	Case	Install
Today	4	44.80	16.M	
Previous	16	244.80	66 M	
To Date	20	289.60	82.M	

I confirm this is a true record.
Van Elle operative name: DAN MITCHISON

Drill hole Nos. checked Yes ☑ No ☐

Hole Depth checked Yes ☐ No ☐

SIGNED

Dated 24/9/19

Client's Name A TAYLOR

Client's position ENGINEER

Signature

Dated 24/09/19

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Open Hole Drillers Log

Site: WAKE FIELD RD ATHERSLEY | Sheet: 1 of 1

Rig: SM14 1173 | Crew: I MITCHISON D SIMPSON | Date: 25/9/19

Hours on Site: | Travelling Time:

BH	Depth	Strata Description
PH15	SHAFT PROB 434408/007	
	0000 0400	OVER BURDEN
	0400 1050	SOFT BACK FILL (SHAFT)
		4M CASED
PH16	SHAFT PROB 434408/007	
	0000 0400	OVER BURDEN
	0400 1050	SOFT BACK FILL (SHAFT)
PH17	SHAFT PROB 434408/007	
	0000 0500	OVER BURDEN
	0500 0670	MUDSTONE
	0670 0710	COAL
	0710 0940	MUDSTONE
	0940 1130	BACK FILL (POSS ADD IT)
	1130 1230	SOLID NO RETURNS
		4M CASED
PH18	SHAFT PROB 434408/007	
	0000 0600	OVER BURDEN
	0600 1050	SOFT BACK FILL (SHAFT)
		4M CASED
PH19	SHAFT PROB 434408/007	
	0000 0800	SOFT BACK FILL
	0800 1050	SOLID NO RETURNS (EDGE OF SHAFT)
		4M CASED
PH20	0000 0430	OVER BURDEN
	0430 0650	MUDSTONE
	0650 0690	COAL
	0690 1050	MUDSTONE
		4M CASED
PH21	SHAFT PROB 434408/007	
	0000 0400	OVER BURDEN
	0400 1050	SOFT BACK FILL (SHAFT)
		4M CASED

Casing/Water Level Details

BH	Casing		Water		
	Dia	Depth	Strike	Rise	Sealed

Totals	BH	Drill	Case	Install
Today	7	75.30	28 M	
Previous	20	289.60	82 M	
To Date	27	364.90	110.00	✓

I confirm this is a true record.
Van Elle operative name I MITCHISON
Drill hole Nos. checked Yes ☑ No ☐
Hole Depth checked Yes ☑ No ☐
SIGNED
Dated 25/9/19

Client's Name A TAYLOR
Client's position ENGINEER
Signature
Dated 25/09/19

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TOTAL FOUNDATION SOLUTIONS

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Open Hole Drillers Log

Site: WAKE FIELD RD ATHERSLEY | Sheet: 2 of 2

Rig: SM 14 1173 | Crew: I MITCHISON D SIMPSON | Date: 25/9/19

Hours on Site: | Travelling Time:

BH	Depth	Strata Description
PH22	SHAFT	PROB 436408/007
	0000 0700	SOFT BACK FILL
	0700 1050	SOLID NO RETURNS (EDGE OF SHAFT)
		4M CASED
PH 23		
	0000 0400	OVER BURDEN
	0400 0650	MUDSTONE
	0650 0700	COAL
	0700 1050	MUDSTONE
		4M CASED
PH 1/1 A		
	0000 0400	OVER BURDEN
	0400 0900	MUDSTONE
	0900 1000	COAL
	1000 1350	MUDSTONE
		4M CASED

BH	Depth	Strata Description
PH 1/1 B		
	0000 0430	OVER BURDEN
	0430 0950	MUDSTONE
	0950 1000	COAL
	1000 1350	MUDSTONE
		4M CASED
PH 1/1 D		
	0000 0430	OVER BURDEN
	0430 0950	MUDSTONE
	0950 1000	COAL
	1000 1350	MUDSTONE
		4M CASED
PH 1/1 C	0000 0430	OVER BURDEN
	0430 0630	MUDSTONE
	0630 0680	COAL
	0680 0950	MUDSTONE
	0950 1000	COAL
	1000 1050	MUDSTONE
		4M CASED

Casing/Water Level Details

BH	Casing		Water		
	Dia	Depth	Strike	Rise	Sealed

Totals	BH	Drill	Case	Install
Today	6	69.00	24.M	
Previous	27	364.90	110.00	
To Date	33	433.90	134.00	

I confirm this is a true record.
Van Elle operative name I MITCHISON
Drill hole Nos. checked Yes ☑ No ☐
Hole Depth checked Yes ☑ No ☐
SIGNED
Dated 25/9/19

Client's Name A TAYLOR
Client's position ENGINEER
Signature
Dated 25.09.19

CON 10 R2 31/03/15

VAN ELLE
TOTAL FOUNDATION SOLUTIONS

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Open Hole Drillers Log

Site: WAKEFIELD RD ATHERSLEY			Sheet: 3	of 3	
Rig: SM 14 1173	Crew: I MITCHISON D SIMPSON		Date: 25/9/19		
Hours on Site:			Travelling Time:		
BH	**Depth**	**Strata Description**	**BH**	**Depth**	**Strata Description**
PH 1/1 E					
	0000 0430	OVER BURDEN			
	0430 0700	MUDSTONE			
	0700 0730	COAL			
	0730 1050	MUDSTONE			
		4 M CASED			
PH 2/2 A					
	0000 0430	OVER BURDEN			
	0430 0650	MUDSTONE			
	0650 0700	COAL			
	0700 1780	MUDSTONE			
	1780 1880	COAL			
	1880 1980	MUDSTONE			
		4 M CASED			

Casing/Water Level Details

BH	Casing		Water		
	Dia	Depth	Strike	Rise	Sealed

Totals	BH	Drill	Case	Install
Today	2	30.30	8M	/
Previous	33	433.90	134.00	/
To Date	35	464.20	142.00	/

I confirm this is a true record.
Van Elle operative name IAN MITCHISON

Drill hole Nos. checked Yes ☑ No ☐

Hole Depth checked Yes ☑ No ☐

SIGNED [signature]

Dated 25/9/19

Client's Name A TAYLOR

Client's position ENGINEER

Signature [signature]

Dated 25/09/19

VAN ELLE
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Open Hole Drillers Log

Site: WAKEFIELD RD ATHERSLEY | Sheet: 1 of 1

Rig: JM 14 1173 | Crew: I MITCHISON D SIMPSON | Date: 26/9/19

Hours on Site: | Travelling Time:

BH	Depth	Strata Description
PH 2/2 B		
	0000 0430	OVER BURDEN
	0430 0600	MUDSTONE
	0600 0650	COAL
	0650 2250	MUDSTONE
		4 M CASED
PH 2/1 A		
	0000 0600	OVER BURDEN
	0600 0680	MUDSTONE
	0680 0710	COAL
	0710 1800	MUDSTONE
	1800 1930	COAL
	1930 2250	MUDSTONE
		6 M CASED

BH	Depth	Strata Description
PH 2/1 B		
	0000 0600	OVER BURDEN
	0600 0620	MUDSTONE
	0620 0720	COAL
	0720 1800	MUDSTONE
	1800 1930	COAL
	1930 2250	MUDSTONE
		6 M CASED
PH 2/1 C		
	0000 0600	OVER BURDEN
	0600 0650	MUDSTONE
	0650 0700	COAL
	0700 1810	MUDSTONE
	1810 1920	COAL
	1920 2250	MUDSTONE
		6 M CASED

Casing/Water Level Details

BH	Casing		Water		
	Dia	Depth	Strike	Rise	Sealed

Totals	BH	Drill	Case	Install
Today	4	90.00	22M	/
Previous	35	464.20	142.00	
To Date	39	554.20	164.00	

I confirm this is a true record.
Van Elle operative name IAN MITCHISON

Drill hole Nos. checked Yes ☑ No ☐

Hole Depth checked Yes ☑ No ☐

SIGNED

Dated 26/9/19

Client's Name ADAM

Client's position ENGINEER

Signature

Dated 26/09/19

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TOTAL FOUNDATION SOLUTIONS

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Open Hole Drillers Log

Site: WAKE FIELD RD ATHERSLEY | Sheet: 2 of 2

Rig: SM 14 1173 | Crew: I MITCHISON D SIMPSON | Date: 26/9/19

Hours on Site:

Travelling Time:

BH	Depth	Strata Description
PH 2/1 D		
	0000 0600	OVER BURDEN
	0600 0700	MUDSTONE
	0700 0730	SOFT POSS COAL
	0730 1800	MUDSTONE
	1800 1900	COAL
	1900 2250	MUDSTONE
		6M CASED
PH 006 A		
	0000 0500	OVER BURDEN
	0500 0540	MUDSTONE
	0540 0680	VOID
	0680 0780	SOLID NO RETURNS
		6M CASED

BH	Depth	Strata Description
PH 006 B		
	0000 0540	OVER BURDEN
	0540 0580	MUDSTONE
	0580 0680	COAL
	0680 0780	MUDSTONE
		6M CASED
PH 006 C		
	0000 0500	OVER BURDEN
	0500 0660	MUDSTONE
	0660 0760	COAL
	0760 0860	MUDSTONE
		6M CASED
PH 008 A		
	0000 0500	OVER BURDEN
	0500 0750	MUDSTONE
		6M CASED

Casing/Water Level Details

BH	Casing		Water		
	Dia	Depth	Strike	Rise	Sealed

Totals	BH	Drill	Case	Install
Today	5	54.20	30.00	
Previous	39	554.20	164.00	
To Date	44	608.40	194.00	

I confirm this is a true record.
Van Elle operative name IAN MITCHISON
Drill hole Nos. checked Yes ☑ No ☐
Hole Depth checked Yes ☑ No ☐
SIGNED
Dated 26/9/19

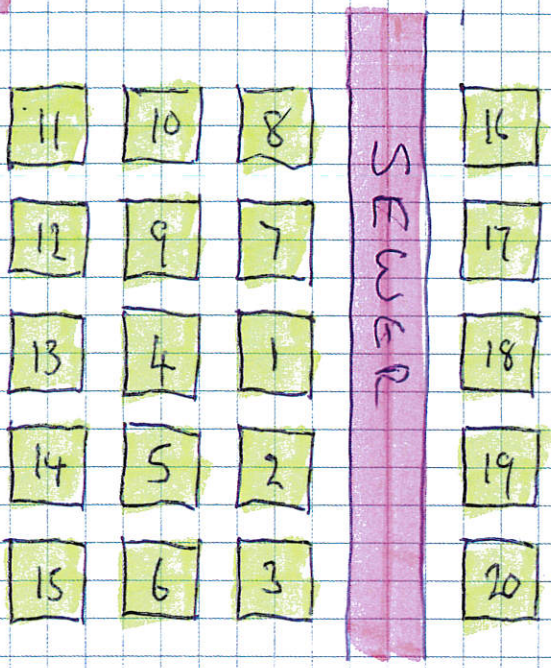
Client's Name A TAYLOR
Client's position ENGINEER
Signature
Dated 26/09/19

MAT®
Mischanlagentechnik GmbH

IN THE SHAFT 2

NO SHAFT FOUND

SEWER



VAN ELLE
TOTAL FOUNDATION SOLUTIONS

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Website: www.van-elle.co.uk E-mail: info@van-elle.co.uk

Open Hole Drillers Log

Site: WAKE FIELD RD ATHERSLEY | Sheet: 1 of 1

Rig: SM 14 1173 | Crew: I MITCHISON D SIMPSON | Date: 27/9/19

Hours on Site: | Travelling Time:

BH	Depth	Strata Description
PH008A		
	0000 0400	OVER BURDEN
	0400 0440	MUDSTONE
	0440 0540	COAL
	0540 1560	MUDSTONE
	1560 1660	COAL
	1660 2670	MUDSTONE
	2670 2720	COAL
	2720 3500	MUDSTONE
		4 M CASED
FH008C		
	0000 0430	OVER BURDEN
	0430 0460	MUDSTONE
	0460 0580	COAL
	0580 0760	MUDSTONE
		4 M CASED

BH	Depth	Strata Description
RH007		
	0000 0440	OVER BURDEN
	0440 0460	MUDSTONE
	0460 0570	COAL
	0570 1570	MUDSTONE
	1570 1660	COAL
	1660 2740	MUDSTONE
	2740 2830	COAL
	2830 3800	MUDSTONE
		6 M CASED

Casing/Water Level Details

BH	Casing		Water		
	Dia	Depth	Strike	Rise	Sealed

Totals	BH	Drill	Case	Install
Today	3	80.60	14.00	
Previous	44	608.40	194.00	
To Date	47	689.00	208.00	

I confirm this is a true record.
Van Elle operative name IAN MITCHISON
Drill hole Nos. checked Yes ☑ No ☐
Hole Depth checked Yes ☐ No ☐
SIGNED
Dated 27/9/19

Client's Name A JAYNE
Client's position ENGINEER
Signature
Dated 27/09/19

VAN ELLE
TOTAL FOUNDATION SOLUTIONS

Kirkby Lane, Pinxton, Nottinghamshire NG16 6JA
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Open Hole Drillers Log

Site: NAKE FIELD RD ATHERSLEY | Sheet: 1 of 1

Rig: SM 14 1173 | Crew: I MITCHISON D SIMPSON | Date: 30/9/19

Hours on Site:

Travelling Time:

BH	Depth	Strata Description
R009		
	0000 0440	OVER BURDEN
	0440 0460	MUDSTONE
	0460 0570	COAL
	0570 1560	MUDSTONE SANDSTONE
	1560 1660	COAL
	1660 2760	MUDSTONE
	2760 2830	COAL
	2830 2930	MUDSTONE
		4M CASED
R10	0000 0400	OVER BURDEN
	0400 0630	MUDSTONE
	0630 0680	COAL
	0680 1470	MUDSTONE
	1470 1500	COAL
	1500 2470	MUDSTONE
	2470 2530	COAL
	2530 3580	MUDSTONE
	3580 3630	COAL
	3630 3730	MUDSTONE

BH	Depth	Strata Description
PROBING FOR SHAFT		2434408/023
PH1	0000 0430	OVER BURDEN
	0430 0630	MUDSTONE
	0630 0730	COAL
	0730 0830	MUDSTONE
		2M CASED
PH2	0000 0430	OVER BURDEN
	0430 0630	MUDSTONE
	0630 0730	COAL
	0730 0830	MUDSTONE
		2M CASED
PH3	0000 0460	OVER BURDEN
	0460 0630	MUDSTONE
	0630 0700	COAL
	0700 0800	MUDSTONE
		2M CASED

Casing/Water Level Details 4M CASED

BH	Casing		Water		
	Dia	Depth	Strike	Rise	Sealed

Totals	BH	Drill	Case	Install
Today	5	91.20	14 M	✓
Previous	47	689.00	208.00	
To Date	52	780.20	222.00	

I confirm this is a true record.
Van Elle operative name: IAN MITCHISON
Drill hole Nos. checked Yes ☑ No ☐
Hole Depth checked Yes ☑ No ☐
SIGNED
Dated 30/9/19

Client's Name A TAYLOR
Client's position ENGINEER
Signature
Dated 30/09/19

VAN ELLE
TOTAL FOUNDATION SOLUTIONS

Kirkby Lane, Pinxton, Nottinghamshire NG16 6JA
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Open Hole Drillers Log

Site: WAKEFIELD RD ATHERSLEY | Sheet: 2 of 2

Rig: SM 16 1173 | Crew: I MITCHISON D SIMPSON | Date: 30/9/19

Hours on Site:

Travelling Time:

BH	Depth	Strata Description
PROBE FOR SHAFT 2 434408/023		
PH4	0000 0430	OVER BURDEN
	0430 0630	MUDSTONE
	0630 0730	COAL
	0730 0830	MUDSTONE
		2M CASED
PH5	0000 0430	OVER BURDEN
	0430 0630	MUDSTONE
	0630 0730	COAL
	0730 0830	MUDSTONE
		2M CASED
PH6	0000 0430	OVER BURDEN
	0430 0630	MUDSTONE
	0630 0700	COAL
	0700 0800	MUDSTONE
		2M CASED

BH	Depth	Strata Description
PH7	0000 0460	OVER BURDEN
	0460 0630	MUDSTONE
	0630 0700	COAL
	0700 0800	MUDSTONE
		2M CASED
PH8	0000 0460	OVER BURDEN
	0460 0630	MUDSTONE
	0630 0700	COAL
	0700 0800	MUDSTONE
		2M CASED
PH9	0000 0460	OVER BURDEN
	0460 0650	MUDSTONE
	0650 0720	COAL
	0720 0820	MUDSTONE
		2M CASED

Casing/Water Level Details

BH	Casing		Water			Totals	BH	Drill	Case	Install
	Dia	Depth	Strike	Rise	Sealed	Today	6	48.80	12M	7
						Previous	52	780.20	222.00	/
						To Date	58	829.00	234.00	

I confirm this is a true record.
Van Elle operative name IAN MITCHISON

Drill hole Nos. checked Yes ☑ No ☐

Hole Depth checked Yes ☑ No ☐

SIGNED I Mitchison

Dated 30/9/19

Client's Name A TAYLOR
Client's position ENGINEER
Signature A Taylor
Dated 30/09/19

VAN ELLE
TOTAL FOUNDATION SOLUTIONS

Kirkby Lane, Pinxton, Nottinghamshire NG16 6JA
Telephone: (01773) 580580 Fax: (01773) 862100
Website: www.van-elle.co.uk E-mail: info@van-elle.co.uk

Open Hole Drillers Log

Site: WAKEFIELD RD ATHERSLEY | Sheet: 3 of 3

Rig: SM14 1173 | Crew: MITCHISON D SIMPSON | Date: 30/9/19

Hours on Site:

Travelling Time:

BH	Depth	Strata Description
PROBING FOR	SHAFT 2	434408/023
PH10	0000 0430	OVER BURDEN
	0430 0660	MUDSTONE
	0660 0730	COAL
	0730 0830	MUDSTONE
		2M CASED
PH11	0000 0430	OVER BURDEN
	0430 0640	MUDSTONE
	0640 0700	COAL
	0700 0800	MUDSTONE
		2M CASED
PH12	0000 0430	OVER BURDEN
	0430 0630	MUDSTONE
	0630 0730	COAL
	0730 0830	MUDSTONE
		2M CASED

BH	Depth	Strata Description
PH13	0000 0460	OVER BURDEN
	0460 0630	MUDSTONE
	0630 0730	COAL
	0730 0830	MUDSTONE
		2M CASED
PH14	0000 0460	OVER BURDEN
	0460 0630	MUDSTONE
	0630 0730	COAL
	0730 0830	MUDSTONE
		2M CASED
PH15	0000 0460	OVER BURDEN
	0460 0630	MUDSTONE
	0630 0730	COAL
	0730 0830	MUDSTONE
		2M CASED

Casing/Water Level Details

BH	Casing		Water		
	Dia	Depth	Strike	Rise	Sealed

Totals	BH	Drill	Case	Install
Today	6	49.50	12M	✓
Previous	58	829.00	234.00	
To Date	64	878.50	246.00	

I confirm this is a true record.
Van Elle operative name: IAN MITCHISON

Drill hole Nos. checked Yes ☑ No ☐

Hole Depth checked Yes ☑ No ☐

SIGNED [signature]

Dated 30/9/19

Client's Name: A TAYLOR

Client's position: ENGINEER

Signature: [signature]

Dated 30/09/19

VAN ELLE
TOTAL FOUNDATION SOLUTIONS

Kirkby Lane, Pinxton, Nottinghamshire NG16 6JA
Telephone: (01773) 580580 Fax: (01773) 862100
Website: www.van-elle.co.uk E-mail: info@van-elle.co.uk

Open Hole Drillers Log

Site: WAKEFIELD RD ATHERSLEY | Sheet: 1 of 1

Rig: SM 14 1173 | Crew: I MITCHISON D SIMPSON | Date: 1/10/19

Hours on Site:

Travelling Time:

BH	Depth	Strata Description
PH16	PROBING FOR SHAFT 2 434408/023	
	0000 0480	OVER BURDEN
	0480 0630	MUDSTONE
	0630 0730	COAL
	0730 0830	MUDSTONE
		2M CASED
PH17	0000 0460	OVER BURDEN
	0460 0630	MUDSTONE
	0630 0700	COAL
	0700 0800	MUDSTONE
		2M CASED
PH18	0000 0460	OVER BURDEN
	0460 0630	MUDSTONE
	0630 0700	COAL (POOR RETURNS)
	0700 0800	MUDSTONE
		2M CASED
PH19	0000 0500	OVER BURDEN
	0500 0700	MUDSTONE
	0700 0760	COAL (POOR RETURNS)
	0760 0860	MUDSTONE
		2M CASED
PH20	0000 0500	OVER BURDEN
	0500 0630	MUDSTONE
	0630 0700	COAL
	0700 0800	MUDSTONE
		2M CASED
RH 4/1 A	0000 0200	OVER BURDEN
	0200 0630	MUDSTONE
	0630 0760	SOFT (LOSS BACKED UP)
	0760 1060	SOLID NO RETURNS
		2M CASED

Casing/Water Level Details

BH	Casing		Water		
	Dia	Depth	Strike	Rise	Sealed

Totals	BH	Drill	Case	Install
Today	6	51.50	12M	
Previous	64	878.50	246.00	
To Date	70	930.00	258.00	

I confirm this is a true record.
Van Elle operative name IAN MITCHISON

Drill hole Nos. checked Yes ☑ No ☐

Hole Depth checked Yes ☑ No ☐

SIGNED

Dated 1/10/19

Client's Name A TAYLOR
Client's position ENG TECH
Signature
Dated 01/10/19

VAN ELLE
TOTAL FOUNDATION SOLUTIONS

Kirkby Lane, Pinxton, Nottinghamshire NG16 6JA
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Website: www.van-elle.co.uk E-mail: info@van-elle.co.uk

Open Hole Drillers Log

Site: WAKEFIELD RD ATHERSLEY | Sheet: 2 of 2
Rig: SM 14 1173 | Crew: MITCHISON D SIMPSON | Date: 1/10/19
Hours on Site: | Travelling Time:

BH	Depth	Strata Description
RH4/1B		
	0000 0300	OVER BURDEN
	0300 1220	MUDSTONE
	1220 1300	COAL
	1300 1400	MUDSTONE
		4M CASED
RH4/1C		
	0000 0300	OVER BURDEN
	0300 0570	MUDSTONE
	0570 0760	POSS BACK FILL
	0760 1060	SOLID NO RETURNS
		4M CASED
RH4/1D		
	0000 0300	OVER BURDEN
	0300 0580	MUDSTONE
	0580 0760	BACK FILL
	0760 1060	SOLID NO RETURNS
		4M CASED

BH	Depth	Strata Description
RH4/1E		
	0000 0300	OVER BURDEN
	0300 0580	MUDSTONE
	0580 0750	BACK FILL
	0750 1060	SOLID NO RETURNS
		4M CASED
RH4/1F		
	0000 0300	OVER BURDEN
	0300 0460	MUDSTONE
	0460 0650	VOID
	0650 0730	BACK FILL
	0730 1060	SOLID NO RETURNS
		4M CASED

Casing/Water Level Details

BH	Casing		Water			Totals	BH	Drill	Case	Install
	Dia	Depth	Strike	Rise	Sealed	Today	5	56.40	20M	/
						Previous	70	930.00	258.00	/
						To Date	75	986.40	278.00	/

I confirm this is a true record
Van Elle operative name IAN MITCHISON
Drill hole Nos. checked Yes ☑ No ☐
Hole Depth checked Yes ☑ No ☐
SIGNED
Dated 1/10/19

Client's Name A TAYLOR
Client's position ENGINEER
Signature
Dated 01/10/19

VAN ELLE
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Open Hole Drillers Log

Site: WAKEFIELD RD ATHERSLEY | Sheet: 1 of 1
Rig: SM 14 1173 | Crew: I MITCHISON D SIMPSON | Date: 2/10/19
Hours on Site: | Travelling Time:

BH	Depth	Strata Description
RH4/1G		
	0000 0300	OVER BURDEN
	0300 1160	MUDSTONE
	1160 1260	COAL
	1260 1360	MUDSTONE
		4M CASED
RH4/1H		
	0000 0300	OVERBURDEN
	0300 1130	MUDSTONE
	1130 1230	COAL
	1230 1360	MUDSTONE
		4M CASED
RH4/1I		
	0000 0300	OVER BURDEN
	0300 0700	MUDSTONE
	0700 0860	TIGHT BACK FILL
	0860 1060	SOLID NO RETURNS
		4M CASED

BH	Depth	Strata Description
RH17	0000 0300	OVER BURDEN
	0300 0930	MUDSTONE
	0930 1030	COAL
	1030 2660	MUDSTONE SANDSTONE
	2660 2830	BROKEN GROUND
	2830 2930	SOLID NO RETURNS
		4M CASED

Casing/Water Level Details

BH	Casing		Water		
	Dia	Depth	Strike	Rise	Sealed

Totals	BH	Drill	Case	Install
Today	4	67.10	16M	
Previous	75	986.40	278.00	
To Date	79	1053.50	294.00	

I confirm this is a true record.
Van Elle operative name IAN MITCHISON
Drill hole Nos. checked Yes ☑ No ☐
Hole Depth checked Yes ☑ No ☐
SIGNED
Dated 2/10/19

Client's Name A TAYLOR
Client's position ENGINEER
Signature
Dated 02/10/19

VAN ELLE
TOTAL FOUNDATION SOLUTIONS

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Open Hole Drillers Log

Site: WAKE FIELED RD ATHERSLEY | Sheet: 1 of 1

Rig: SM 14 1173 | Crew: I MITCHISON D SIMPSON | Date: 3/10/19

Hours on Site: | Travelling Time:

BH	Depth	Strata Description
RH16	0000 0350	OVER BURDEN
	0350 0580	MUDSTONE
	0580 0660	COAL
	0660 1640	MUDSTONE
	1640 1690	COAL
	1690 3550	MUDSTONE SANDSTONE BANDS
	3550 3650	SOFT POSS COAL POOR RETURNS
	3650 3800	MUDSTONE
		4 M CASED
RH18	0000 0230	OVER BURDEN
	0230 0700	WEATHER SANDSTONE
	0700 0760	MUDSTONE
	0760 1260	BROKEN GROUND
	1260 2980	MUDSTONE
	2980 3010	SOFT LOSS OF FLUSH
	3010 3160	SOLID NO RETURNS
		2 M CASED

BH	Depth	Strata Description
RH18	B	
	0000 0230	OVER BURDEN
	0230 0430	SANDSTONE
	0430 1060	MUDSTONE
		2M CASED
RH14	A	
	0000 0300	OVER BURDEN
	0300 0680	SANDSTONE MUDSTONE
	0680 0780	COAL
	0780 1830	MUDSTONE
	1830 1930	COAL
	1930 2030	MUDSTONE
		2 M CASED

Casing/Water Level Details

BH	Casing		Water		
	Dia	Depth	Strike	Rise	Sealed

Totals	BH	Drill	Case	Install
Today	4	100.50	10 M	
Previous	79	1,053.50	294.00	
To Date	83	1,154.00	304.00	

I confirm this is a true record
Van Elle operative name IAN MITCHISON
Drill hole Nos. checked Yes ☑ No ☐
Hole Depth checked Yes ☑ No ☐
SIGNED
Dated 3/10/19

Client's Name ATKINS
Client's position ENGINEER
Signature
Dated 03/10/19

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Open Hole Drillers Log

Site: WAKEFIELD RD ATHERSLEY | Sheet: 2 of 2

Rig: SM14 1173 | Crew: I MITCHISON D SIMPSON | Date: 3/10/19

Hours on Site: | Travelling Time:

BH	Depth	Strata Description
RH14 B		
	0000 0300	OVER BURDEN
	0300 0500	SANDSTONE MUDSTONE
	0500 0600	COAL
	0600 1780	MUDSTONE
	1780 1880	COAL
	1880 1980	MUDSTONE
		2M CASED

BH	Depth	Strata Description

Casing/Water Level Details

BH	Casing		Water		
	Dia	Depth	Strike	Rise	Sealed

Totals	BH	Drill	Case	Install
Today	1	19.80	2M	
Previous	83	1,154.00	304.00	
To Date	84	1173.80	306.00	

I confirm this is a true record.
Van Elle operative name IAN MITCHISON
Drill hole Nos. checked Yes ☑ No ☐
Hole Depth checked Yes ☑ No ☐
SIGNED
Dated 3/10/19

Client's Name A TAYLOR
Client's position ENGINEER
Signature
Dated 03/10/19

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Open Hole Drillers Log

Site: WAKEFIELD RD ATHERSLEY | Sheet: 1 of 1

Rig: SM 14 1173 | Crew: I MITCHISON D SIMPSON | Date: 4/10/19

Hours on Site:

Travelling Time:

BH	Depth	Strata Description
PH3/1 A		
	0000 0300	OVER BURDEN
	0300 0400	MUDSTONE
	0400 0650	COAL
	0650 1460	MUDSTONE
	1460 1560	COAL
	1560 1660	MUDSTONE
		2M CASED
PH3/1 B		
	0000 0300	OVER BURDEN
	0300 0400	MUDSTONE
	0400 0460	COAL
	0460 1480	MUDSTONE
	1480 1580	COAL
	1580 1680	MUDSTONE
		2M CASED

BH	Depth	Strata Description
PH3/1 C		
	0000 0300	OVER BURDEN
	0300 0400	MUDSTONE
	0400 0460	COAL
	0460 1440	MUDSTONE
	1440 1540	COAL
	1540 1660	MUDSTONE
		2M CASED
PH3/2 A		
	0000 0200	OVERBURDEN
	0200 0220	COAL
	0220 1180	MUDSTONE
	1180 1280	COAL
	1280 1380	MUDSTONE
		2M CASED

Casing/Water Level Details

BH	Casing		Water		
	Dia	Depth	Strike	Rise	Sealed

Totals	BH	Drill	Case	Install
Today	4	63.80	8M	
Previous	84	1,173.80	306.00	
To Date	88	1237.60	314.00	

I confirm this is a true record
Van Elle operative name I MITCHISON

Drill hole Nos. checked Yes ☑ No ☐

Hole Depth checked Yes ☑ No ☐

SIGNED

Dated 4/10/19

Client's Name ATKINS

Client's position ENGINEER

Signature

Dated 04/10/19

VAN ELLE
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Open Hole Drillers Log

Site: WAKEFIELD RD ATHERSLEY | Sheet: 2 of 2

Rig: SM 14 1173 | Crew: I MITCHISON D SIMPSON | Date: 4/10/19

Hours on Site: | Travelling Time:

BH	Depth	Strata Description	BH	Depth	Strata Description
PH3/2 B					
	0000 0200	OVER BURDEN			
	0200 0230	COAL			
	0230 1190	MUDSTONE			
	1190 1290	COAL			
	1290 1390	MUDSTONE			
		2M CASED			
PH3/2 C					
	0000 0200	OVER BURDEN			
	0200 0220	COAL			
	0220 1160	MUDSTONE			
	1160 1260	COAL			
	1260 1360	MUDSTONE			
		2M CASED			

Casing/Water Level Details

BH	Casing		Water		
	Dia	Depth	Strike	Rise	Sealed

Totals	BH	Drill	Case	Install
Today	2	27.50	4M	9
Previous	88	1237.60	314.00	
To Date	90	1265.10	318.00	

I confirm this is a true record
Van Elle operative name I MITCHISON

Drill hole Nos. checked Yes ☑ No ☐

Hole Depth checked Yes ☑ No ☐

SIGNED

Dated 4/10/19

Client's Name A TAYLOR
Client's position ENGINEER
Signature A Taylor
Dated 04/10/19

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Open Hole Drillers Log

Site: WAKEFIELD RD ATHERSLEY | Sheet: 1 of 1

Rig: SM14 1173 | Crew: I MITCHISON D SIMPSON | Date: 7/10/19

Hours on Site: | Travelling Time:

BH	Depth	Strata Description
RH21		
	0000 0300	OVER BURDEN
	0300 0400	MUDSTONE
	0400 0450	COAL
	0450 3050	MUDSTONE SANDSTONE
	3050 3100	COAL
	3100 3460	MUDSTONE SANDSTONE
		2M CASED
RH20		
	0000 0300	OVER BURDEN
	0300 1130	MUDSTONE
	1130 1230	COAL
	1230 1640	MUDSTONE
	1640 1740	COAL
	1740 3160	MUDSTONE SANDSTONE
		2M CASED

BH	Casing		Water		
	Dia	Depth	Strike	Rise	Sealed

Totals	BH	Drill	Case	Install
Today	2	66.20	4M	
Previous	90	1265.10	318.00	
To Date	92	1331.30	322.00	

I confirm this is a true record.
Van Elle operative name IAN MITCHISON

Drill hole Nos. checked Yes ☑ No ☐

Hole Depth checked Yes ☑ No ☐

SIGNED

Dated 7/10/19

Client's Name A TAYLOR
Client's position ENGINEER
Signature
Dated 07/10/19

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TOTAL FOUNDATION SOLUTIONS

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Open Hole Drillers Log

Site: WAKEFIELD RD ATHERSLEY | Sheet: of

Rig: SM 14 1173 | Crew: T MITCHISON D SIMPSON | Date: 8/10/19

Hours on Site:

Travelling Time:

BH	Depth	Strata Description
RH19		
	0000 0300	OVER BURDEN (COAL TRACES)
	0300 1340	MUDSTONE
	1340 1390	COAL
	1390 1480	MUDSTONE
	1480 1530	COAL
	1530 2050	MUDSTONE
	2050 2260	SOFT (POOR RETURNS)
	2260 2300	MUDSTONE (FULL RETURNS)
	2300 2400	COAL
	2400 3200	MUDSTONE SANDSTONE
		2M CASED

BH	Depth	Strata Description
RH15	0000 0300	OVER BURDEN
	0300 0400	MUDSTONE
	0400 0410	COAL
	0410 0710	MUDSTONE
	0710 0760	COAL
	0760 1870	MUDSTONE
	1870 1900	COAL
	1900 1940	MUDSTONE
	1940 1990	COAL
	1990 2770	MUDSTONE SANDSTONE
	2770 2820	COAL
	2820 3200	MUDSTONE SANDSTONE
		2M CASED

Casing/Water Level Details

BH	Casing		Water		
	Dia	Depth	Strike	Rise	Sealed

Totals	BH	Drill	Case	Install
Today	2	64.00	4.M	
Previous	92	1331.30	322.00	
To Date	94	1,395.30	326.00	

I confirm this is a true record.
Van Elle operative name: T MITCHISON

Drill hole Nos. checked Yes ☑ No ☐

Hole Depth checked Yes ☑ No ☐

SIGNED

Dated 8/10/19

Client's Name: A TAYLOR
Client's position: ENGINEER
Signature:
Dated: 08/10/19

VAN ELLE
TOTAL FOUNDATION SOLUTIONS

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Open Hole Drillers Log

Site: WAKEFIELD RD ATHERSLEY | Sheet: 2 of 2

Rig: SM14 1173 | Crew: MITCHISON J SIMPSON | Date: 8/10/19

Hours on Site: | Travelling Time:

BH	Depth	Strata Description	BH	Depth	Strata Description
RH13					
	0000300	OVER BURDEN (COAL TRACKS)			
	0300 0410	MUDSTONE			
	0410 0460	COAL			
	0460 1200	MUDSTONE			
	1200 1300	COAL			
	1300 2840	MUDSTONE SANDSTONE			
	2840 2860	COAL			
	2860 2960	MUDSTONE SANDSTONE			
	2960 3010	COAL			
	3010 3800	MUDSTONE SANDSTONE			
		2M CASED			

Casing/Water Level Details

BH	Casing		Water		
	Dia	Depth	Strike	Rise	Sealed

Totals	BH	Drill	Case	Install
Today	1	38.00	2M	
Previous	94	1,395.30	326.00	
To Date	95	1433.30	328.00	

I confirm this is a true record.
Van Elle operative name: LIAM MITCHISON

Drill hole Nos. checked Yes ☑ No ☐

Hole Depth checked Yes ☑ No ☐

SIGNED: [signature]

Dated: 8/10/19

Client's Name: A TAYLOR

Client's position: ENGINEER

Signature: [signature]

Dated: 08/10/19

VAN ELLE
TOTAL FOUNDATION SOLUTIONS

Kirkby Lane, Pinxton, Nottinghamshire NG16 6JA
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Website: www.van-elle.co.uk E-mail: info@van-elle.co.uk

Open Hole Drillers Log

Site: WAKEFIELD RD ATHERSLEY | Sheet: 1 of

Rig: SM14 1173 | Crew: I MITCHISON D SIMPSON | Date: 9/10/19

Hours on Site:

Travelling Time:

BH	Depth	Strata Description
RH11		
	0000 0300	OVERBURDEN (COAL TRACES)
	0300 0440	MUDSTONE
	0440 0460	COAL
	0460 0790	MUDSTONE
	0790 0840	COAL
	0840 1610	MUDSTONE
	1610 1660	COAL
	1660 1990	MUDSTONE
	1990 2060	SOFT (POOR RETURNS)
	2060 2710	MUDSTONE (POOR RETURNS)
	2710 2760	COAL
	2760 2780	MUDSTONE
	2780 2820	COAL
	2820 3800	MUDSTONE
		2M CASED

BH	Depth	Strata Description
RH12A	0000 0350	OVERBURDED (COAL TRACES)
	0350 0400	MUDSTONE
	0400 0450	COAL
	0450 1900	FRACTURED ROCK (POOR RETURNS)
	1900 2000	COAL
	2000 2800	SOLID NO RETURNS
		2M CASED
RH12B	0000 0300	OVERBURDEN
	0300 0580	MUDSTONE
	0580 0760	SOFT NO RETURNS
	0760 1400	SOLID NO RETURNS
		4M CASED
RH1A	0000 0350	OVERBURDEN
	0350 0450	MUDSTONE
	0450 0550	COAL
	0550 0910	MUDSTONE
	0910 1010	SOFT NO RETURNS
	1010 1400	SOLID NO RETURNS
		4M CASED

Casing/Water Level Details

BH	Casing		Water		
	Dia	Depth	Strike	Rise	Sealed

Totals	BH	Drill	Case	Install
Today	4	94.00	12 M	/
Previous	95	1433.30	328.00	
To Date	99	1527.30	340.00	

I confirm this is a true record.
Van Elle operative name: IAN MITCHISON

Drill hole Nos. checked Yes ☑ No ☐

Hole Depth checked Yes ☑ No ☐

SIGNED

Dated 9/10/19

Client's Name A TAYLOR
Client's position ENGINEER
Signature
Dated 09/10/19

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Open Hole Drillers Log

Site: WAKEFIELD RD ATHERSLEY | Sheet: 1 of

Rig: SM14 1173 | Crew: I MITCHISON D SIMPSON | Date: 10/10/19

Hours on Site:

Travelling Time:

BH	Depth	Strata Description
RH1B	0000 0300	OVER BURDEN
	0300 0350	MUDSTONE
	0350 0460	COAL
	0460 1000	SANDSTONE MUDSTONE
	1000 1020	SAND
	1020 1810	MUDSTONE
	1810 1860	COAL
	1860 3160	MUDSTONE SANDSTONE
	3160 3190	COAL
	3190 3280	MUDSTONE
	3280 3310	COAL
	3310 3800	MUDSTONE SANDSTONE
		6M CASED
RH2A	0000 0400	OVER BURDEN (COAL TRACES)
	0400 1060	SANDSTONE MUDSTONE
	1060 1260	SOFT NO RETURNS
	1260 2300	SOLID NO RETURNS
		2M CASED

BH	Depth	Strata Description
RH2B	0000 0400	OVERBURDEN
	0400 1910	SANDSTONE MUDSTONE
	1910 1960	SOFT COAL
	1960 3010	MUDSTONE SANDSTONE
	3010 3080	COAL
	3080 3800	MUDSTONE SANDSTONE
		6M CASED
RH3A	0000 0300	OVER BURDEN
	0300 0400	SANDSTONE
	0400 0440	COAL
	0440 0600	MUDSTONE SANDSTONE
	0600 0650	COAL
	0650 1360	SOFT NO RETURNS
	1360 1660	SOLID NO RETURNS
		4M CASED

Casing/Water Level Details

BH	Casing		Water		
	Dia	Depth	Strike	Rise	Sealed

Totals	BH	Drill	Case	Install
Today	4	115.60	18 M	
Previous	99	1527.30	340.00	
To Date	103	1642.90	358.00	

I confirm this is a true record.
Van Elle operative name IAN MITCHISON
Drill hole Nos. checked Yes ☑ No ☐
Hole Depth checked Yes ☑ No ☐
SIGNED
Dated 10/10/19

Client's Name ATAZAN
Client's position ENGINEER
Signature
Dated 10/10/19

VAN ELLE
TOTAL FOUNDATION SOLUTIONS

Kirkby Lane, Pinxton, Nottinghamshire NG16 6JA
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Website: www.van-elle.co.uk E-mail: info@van-elle.co.uk

Open Hole Drillers Log

Site: WAKE FIELD RD ATHERSLEY | Sheet: 1 of 1

Rig: SM 14 1173 | Crew: I MITCHISON D SIMPSON | Date: 11/10/19

Hours on Site: | Travelling Time:

BH	Depth	Strata Description	BH	Depth	Strata Description
RH3B	0000300	OVER BURDEN			
	0300600	SANDSTONE MUDSTONE			
	0600 0700	COAL			
	0700 0960	MUDSTONE SANDSTONE			
	0960 0980	SAND			
	0980 1210	SANDSTONE MUDSTONE			
	1210 1260	SOFT (Poss FRACTURED ROCK)			
	1260 1700	SOLID NO RETURNS			
		6M CASED			

Casing/Water Level Details

BH	Casing		Water			Totals	BH	Drill	Case	Install
	Dia	Depth	Strike	Rise	Sealed	Today	1	1700	6M	
						Previous	103	1642.90	358.00	
						To Date	104	1659.90	364.00	

I confirm this is a true record.
Van Elle operative name: IAN MITCHISON

Drill hole Nos. checked Yes ☑ No ☐
Hole Depth checked Yes ☑ No ☐
SIGNED
Dated 11/10/19

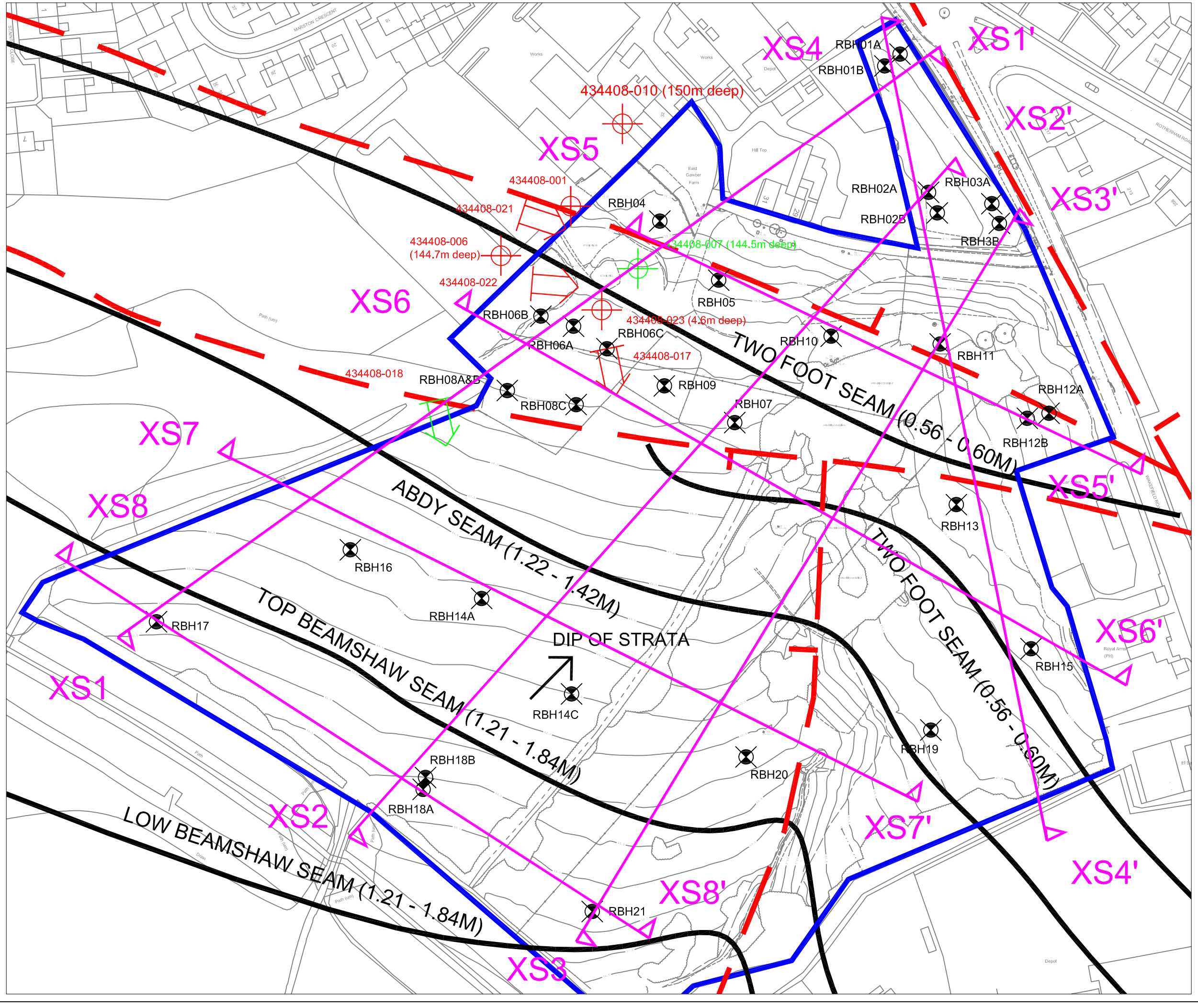
Client's Name AGATHA
Client's position ENGINEER
Signature
Dated 11/10/19

Appendix D: Geological Cross Sections

Cross Section 1 – 8

Lines of section indicated on drawing 17176-RLE-19-XX-DR-O-009

A3



GENERAL NOTES

NO DIMENSIONS TO BE SCALED OFF THIS DRAWING.

THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECT'S AND ENGINEER'S DRAWINGS.

ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.

ALL LEVELS ARE IN METRES UNLESS NOTED OTHERWISE.

ANY DISCREPANCIES NOTED ON SITE ARE TO BE REPORTED TO THE ENGINEER IMMEDIATELY.

KEY

- SITE BOUNDARY
- COAL SEAM (NAMED) WITH THICKNESS
- FAULT (INFERRED) WITH TICK ON DOWNTROWN SIDE
- APPROXIMATE LOCATION OF MINESHAFT ON OR WITHIN 20M OF THE SITE (POSITION PROVIDED BY COAL AUTHORITY) NOT IDENTIFIED BY ROTARY DRILLING
- LOCATION OF MINESHAFT IDENTIFIED ON SITE BY ROTARY DRILLING
- APPROXIMATE LOCATION OF ADIT ON OR WITHIN 20M OF THE SITE (POSITION PROVIDED BY COAL AUTHORITY) NOT IDENTIFIED BY ROTARY DRILLING
- LOCATION OF POSSIBLE ADIT IDENTIFIED ON SITE BY ROTARY DRILLING
- RBH02 — LOCATION AND REFERENCE OF ROTARY OPEN-HOLE BOREHOLE TO INVESTIGATE FOR SHALLOW WORKINGS
- XS1 — LINE AND REFERENCE OF GEOLOGICAL CROSS SECTION

Rev	Date	Amendments	By	Chk

Client
HARWORTH ESTATES

Project
ATHERSLEY

Drawing Title
CROSS SECTION
PLAN

Status
INFORMATION

Scale	Drawn	Checked	Date
NTS	AT	IPB	22/10/19

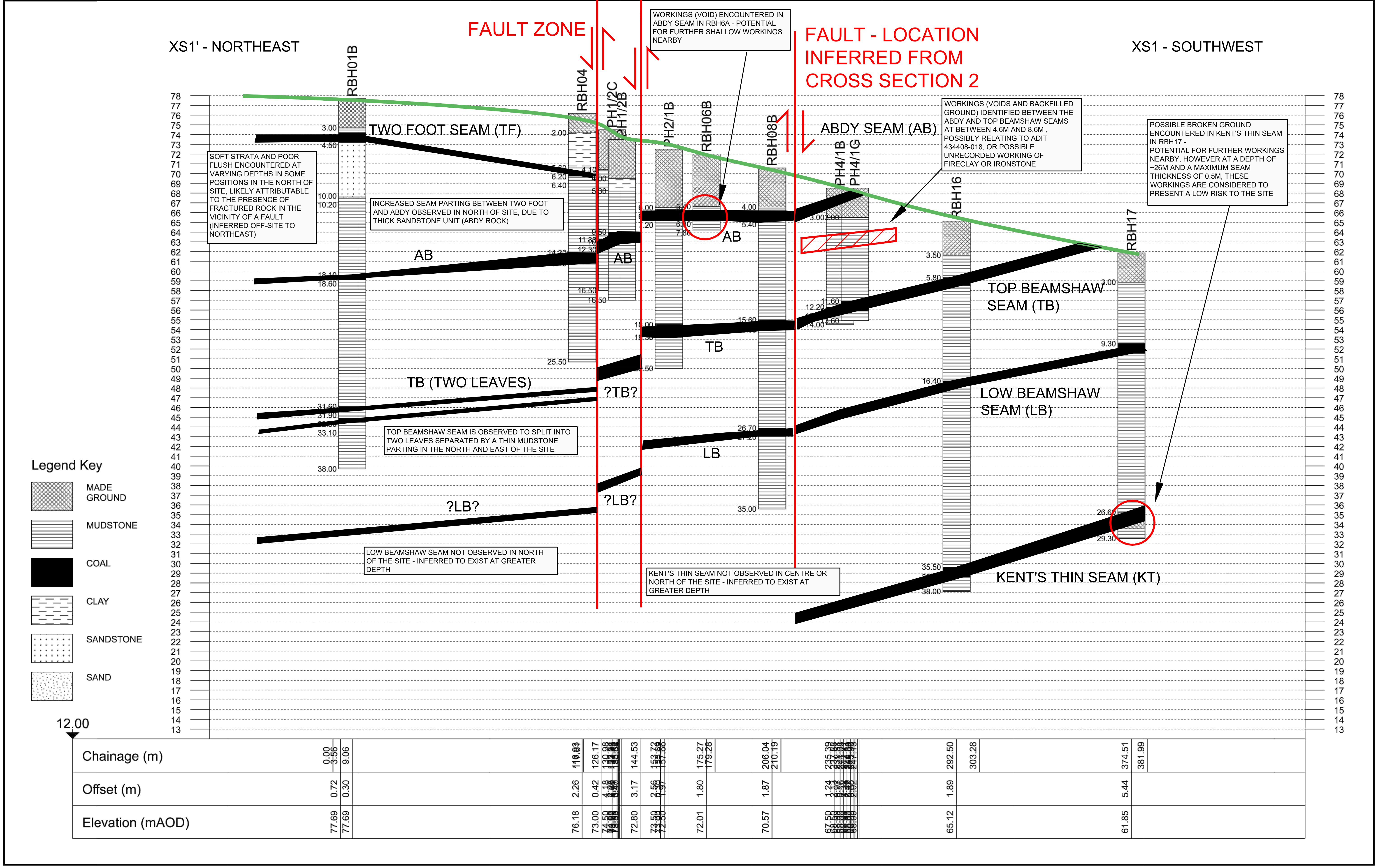
Drawing No. — Rev.
17176-RLE-19-XX-DR-0-009-P01

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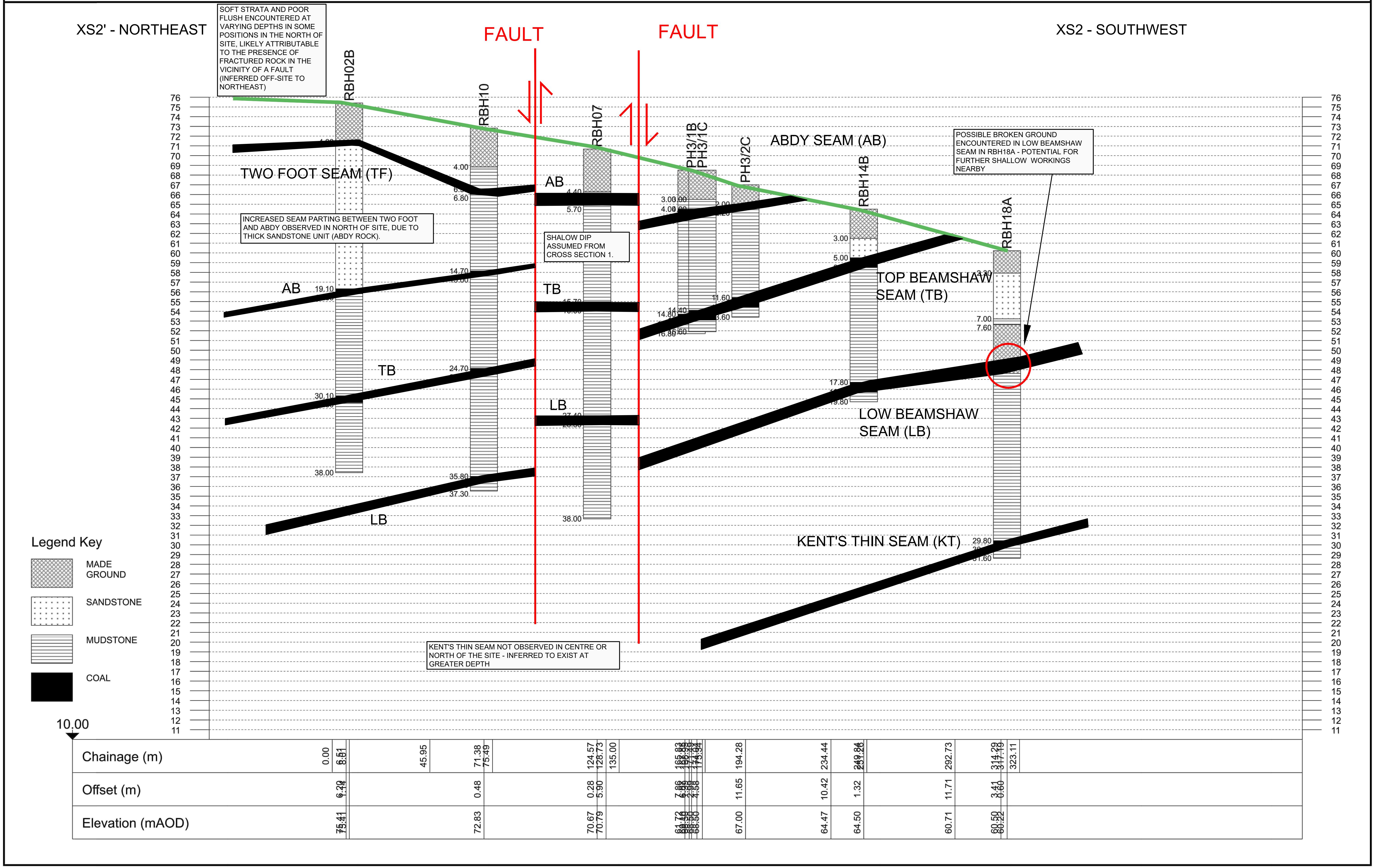
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Project Title: Athersley, Barnsley
Location: Barnsley
Client: Harworth Estates

Title: Section line 1
Vertical Scale: 1:350 @ A3
Horizontal Scale: 1:1600
Engineer: AT



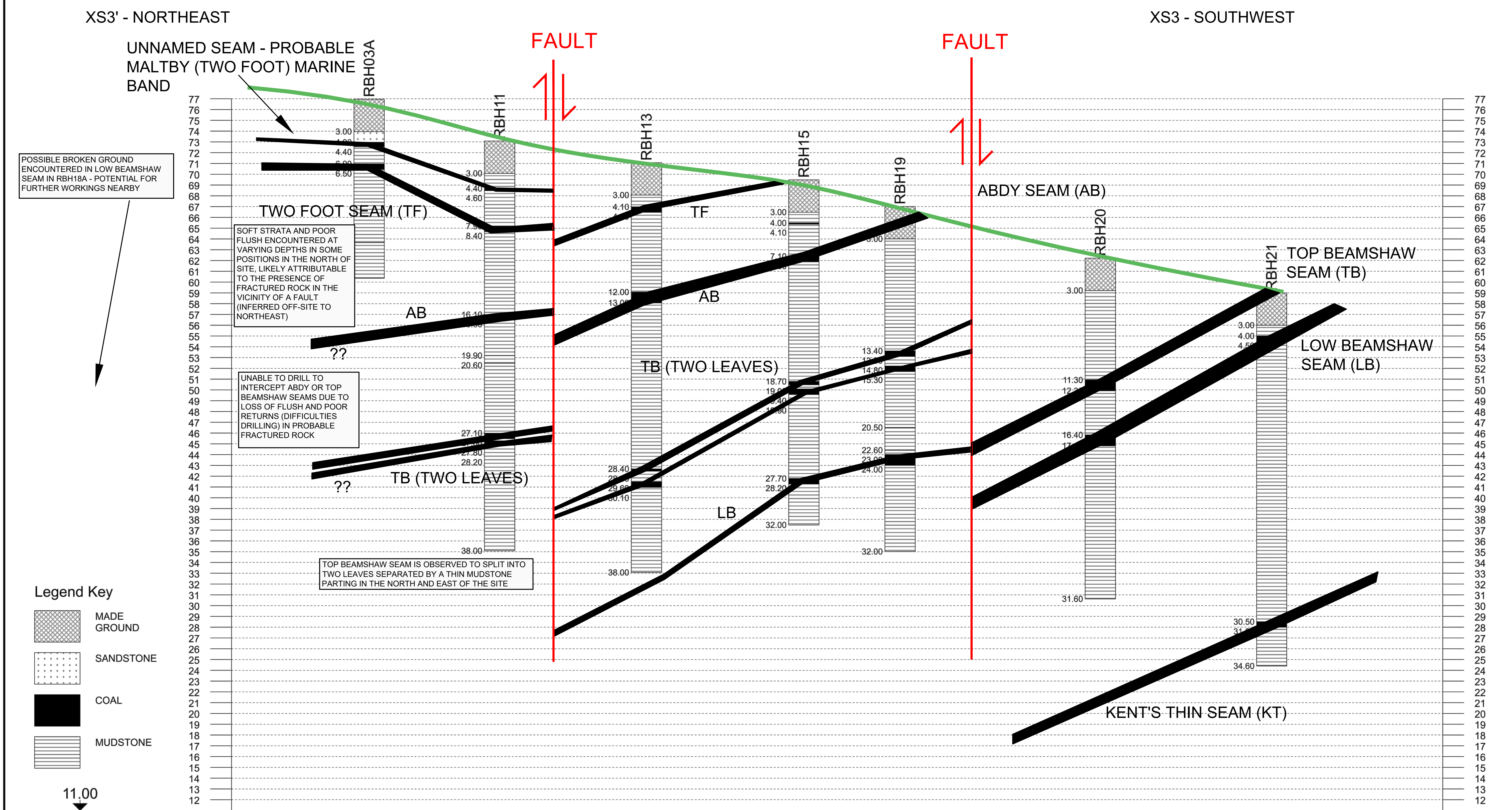
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Project Title: Athersley, Barnsley
Location: Barnsley
Client: Harworth Estates

Title: Section line 2
Vertical Scale: 1:350 @ A3
Horizontal Scale: 1:1600
Engineer: AT



Project Id: P17-176
Project Title: Athersley, Barnsley
Location: Barnsley
Client: Harworth Estates

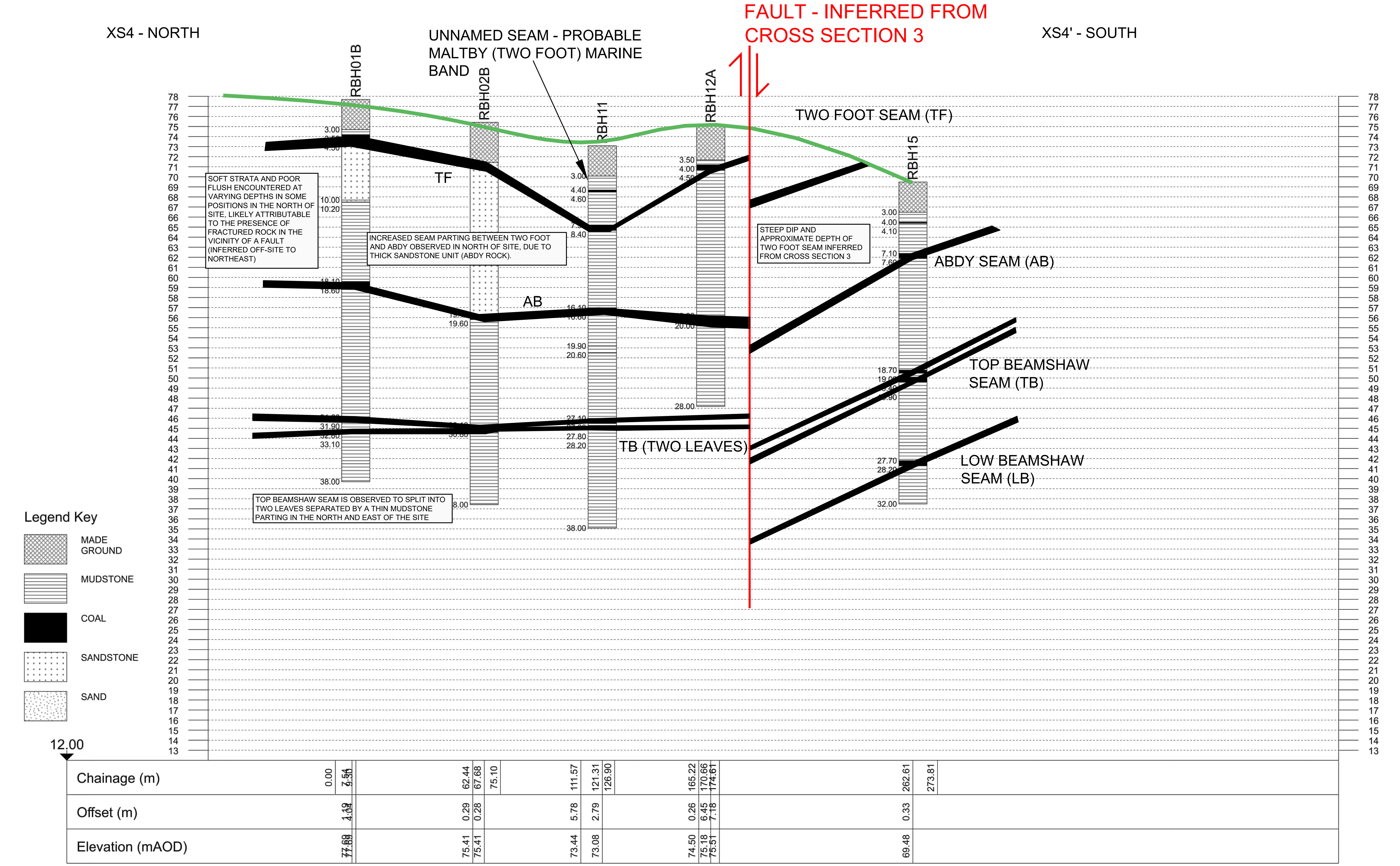
Title: Section line 3
Vertical Scale: 1:350 @ A3
Horizontal Scale: 1:1600
Engineer: AT



Chainage (m)	0.00 2.98	48.33	55.92 58.89	118.19 120.44	173.27	185.03	225.89	233.30	310.79 312.25	348.04	383.59 385.07
Offset (m)	0.43 4.03	6.96	0.16	4.24	2.92	4.55	0.32		7.49	2.29	0.04
Elevation (mAOD)	76.96 76.96	73.44	73.08	71.07	69.32	69.48	67.01		62.22	60.70	59.00

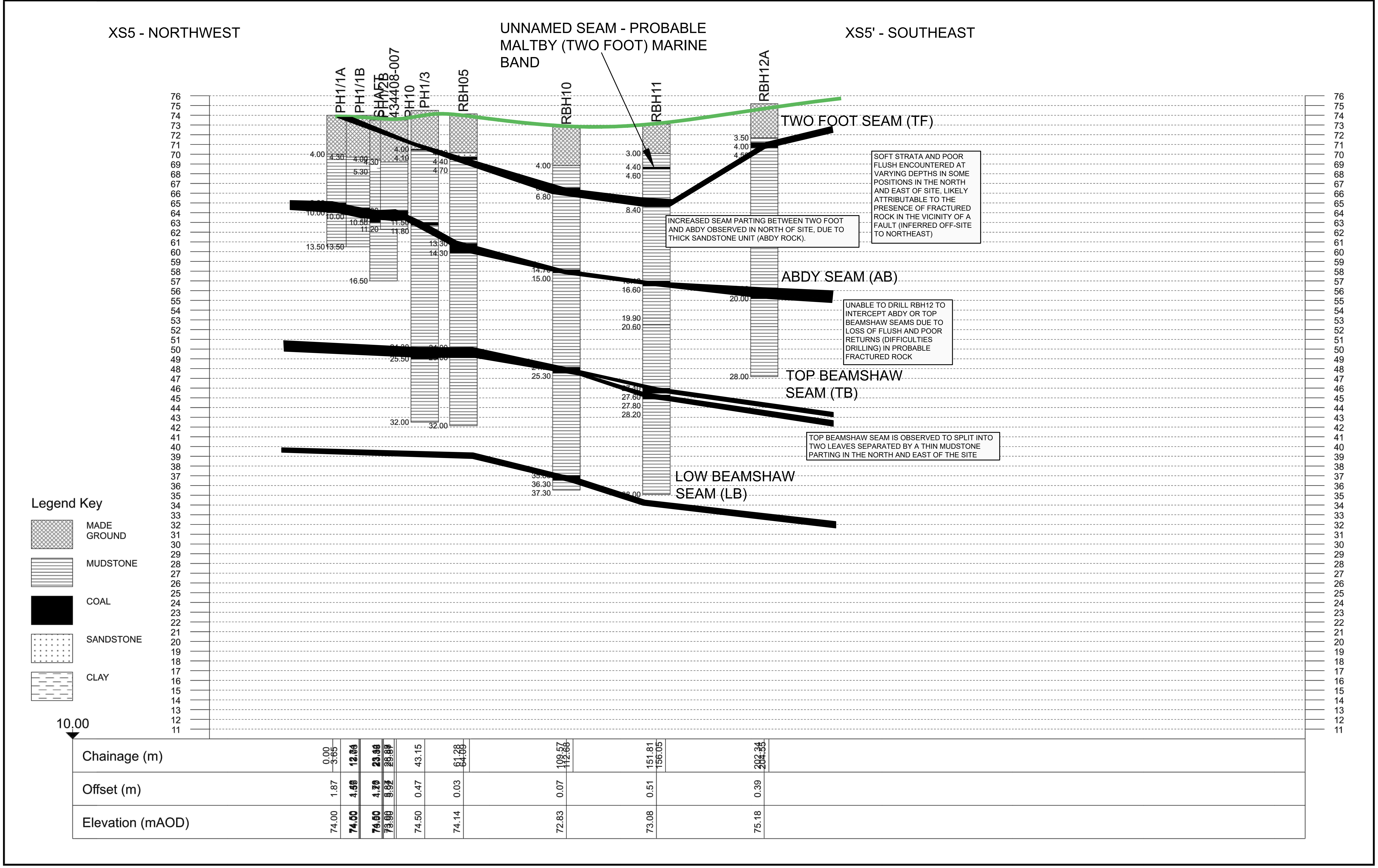
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Project Title: Athersley, Barnsley
Location: Barnsley
Client: Harworth Estates

Title: Section line 4
Vertical Scale: 1:350 @ A3
Horizontal Scale: 1:1600
Engineer: AT



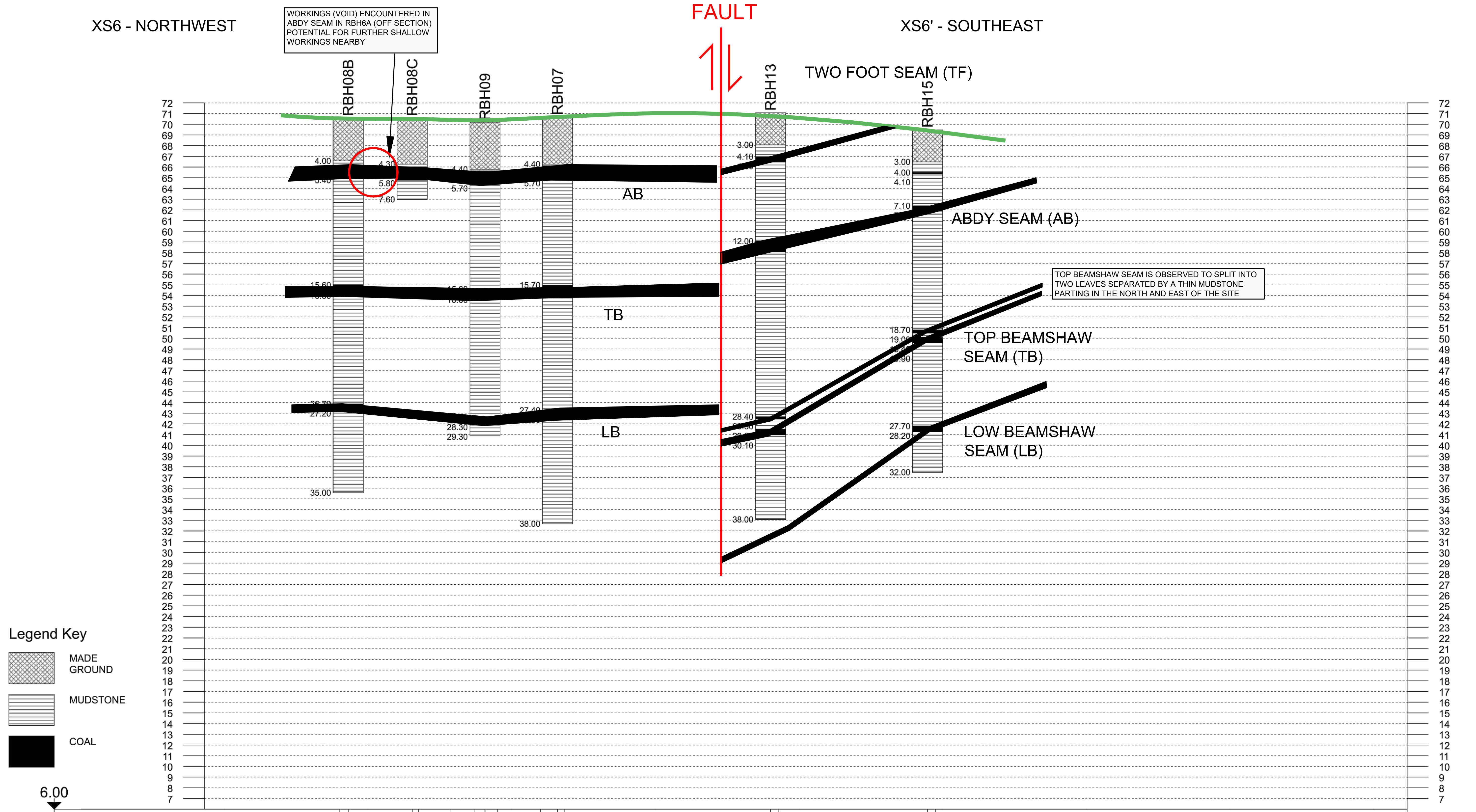
Project Id: P17-176
Project Title: Athersley, Barnsley
Location: Barnsley
Client: Harworth Estates

Title: Section line 5
Vertical Scale: 1:350 @ A3
Horizontal Scale: 1:1600
Engineer: AT



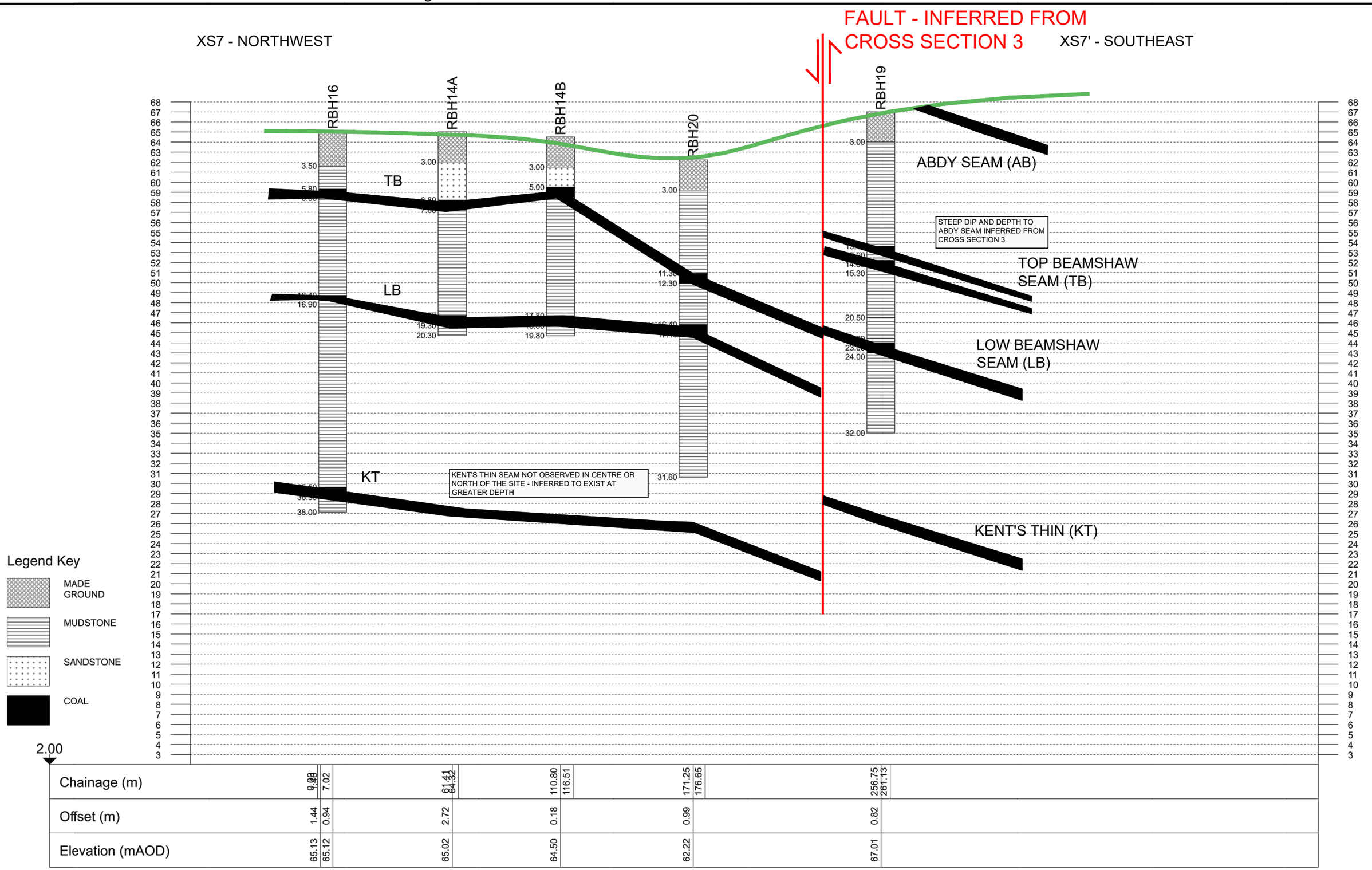
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Project Title: Athersley, Barnsley
Location: Barnsley
Client: Harworth Estates

Title: Section line 6
Vertical Scale: 1:350 @ A3
Horizontal Scale: 1:1600
Engineer: AT



Chainage (m)	0.00 3.62	31.01 33.63	47.51	57.40	62.03	67.46	85.81	93.09 95.89	184.01 187.50	251.04 254.34
Offset (m)	0.20	0.60	3.15	1.06	0.42		2.40	0.79	0.27	1.44
Elevation (mAOD)	70.57	70.57	71.90	71.50	70.19		70.79	70.67	71.07	69.48

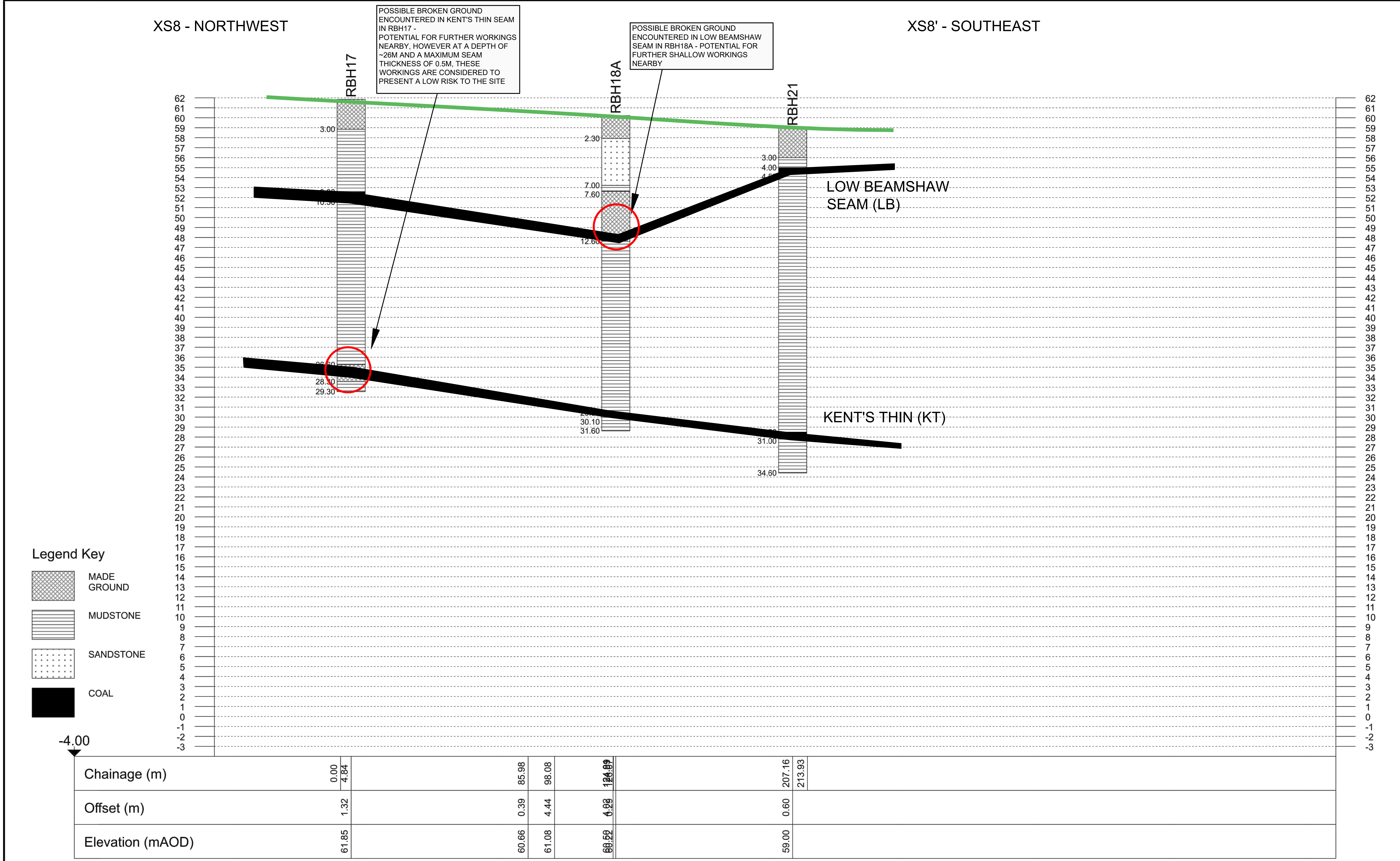
Project Id: P17-176	Title: Section line 7
Project Title: Athersley, Barnsley	Vertical Scale: 1:350 @ A3
Location: Barnsley	Horizontal Scale: 1:1600
Client: Harworth Estates	Engineer: AT



Chainage (m)	0.00	1.44	7.02	61.41	64.32	110.80	116.51	171.25	176.65	256.75	261.13												
Offset (m)	1.44	0.94		2.72		0.18		0.99		0.82													
Elevation (mAOD)	65.13	65.12		65.02		64.50		62.22		67.01													

Project Id: P17-176
Project Title: Athersley, Barnsley
Location: Barnsley
Client: Harworth Estates

Title: Section line 8
Vertical Scale: 1:350 @ A3
Horizontal Scale: 1:1600
Engineer: AT



Appendix E: Mining Remedial Works Plan

Drawing No:17176-RLE-19-XX-DR-O-010

A3

REMEDATION OF MINE ENTRIES REQUIRED
MINE ENTRIES NOT IDENTIFIED WILL REQUIRED FURTHER INVESTIGATION, AND THEIR LOCATION WILL AFFECT PROPOSED DEVELOPMENT LAYOUT

434408-010 (150m deep)

434408-001

434408-021

434408-006
(144.7m deep)

434408-022

NO EVIDENCE OF ADIT ENCOUNTERED
FURTHER INVESTIGATION REQUIRED.
DRILLING AND GROUTING REQUIRED WHERE FOUND

434408-007 (144.5m deep)

SHAFT LOCATED
DRILLING, GROUTING AND CAPPING REQUIRED.
NO BUILD ZONE OF 10M RADIUS FROM SHAFT CENTRE.

RBH06A

434408-023 (4.6m deep)

434408-017

VOID IN ABDY AT 5.4M TO 6.8M

NO EVIDENCE OF SHAFT ENCOUNTERED
FURTHER INVESTIGATION REQUIRED.
DRILLING,GROUTING AND CAPPING REQUIRED WHERE FOUND

434408-018

VOIDS AND BROKEN GROUND AT
4.6M TO 8.6M

PH4/1

NO EVIDENCE OF ADIT ENCOUNTERED
FURTHER INVESTIGATION REQUIRED.
DRILLING AND GROUTING REQUIRED WHERE FOUND

EXTENT OF SHALLOW WORKING HAS BEEN ESTIMATED BASED ON THE AREA BETWEEN BOREHOLES WHERE BROKEN GROUND OR VOIDS WERE ENCOUNTERED, AND THE NEAREST BOREHOLE WHERE THE SEAM WAS FOUND TO BE INTACT.
DRILLING AND GROUTING REQUIRED IN THESE AREAS. PROOF DRILLING AND GROUTING OR FURTHER SITE INVESTIGATION WILL BE REQUIRED SURROUNDING THESE AREAS

BROKEN GROUND IN LOW BEAMSHAW AT 7.6M TO 12.6M

RBH18A

GENERAL NOTES

NO DIMENSIONS TO BE SCALED OFF THIS DRAWING.

THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECT'S AND ENGINEER'S DRAWINGS.

ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.

ALL LEVELS ARE IN METRES UNLESS NOTED OTHERWISE.

ANY DISCREPANCIES NOTED ON SITE ARE TO BE REPORTED TO THE ENGINEER IMMEDIATELY.

KEY

- SITE BOUNDARY
- APPROXIMATE LOCATION OF MINESHAFT ON OR WITHIN 20M OF THE SITE (POSITION PROVIDED BY COAL AUTHORITY) NOT IDENTIFIED BYROTARY DRILLING
- LOCATION OF MINESHAFT IDENTIFIED ON SITE BY ROTARY DRILLING
- APPROXIMATE LOCATION OF ADIT ON OR WITHIN 20M OF THE SITE (POSITION PROVIDED BY COAL AUTHORITY) NOT IDENTIFIED BY ROTARY DRILLING
- LOCATION OF POSSIBLE ADIT IDENTIFIED ON SITE BY ROTARY DRILLING
- ESTIMATED EXTENT OF IDENTIFIED POSSIBLE SHALLOW WORKINGS REQUIRING TREATMENT

Rev	Date	Amendments	By	Chk
PO2	14.11.19	DRAFT PROPOSED MASTERPLAN ADDED AS DWG UNDERLAY	AT	SF

Client
HARWORTH ESTATES

Project
ATHERSLEY

Drawing Title
MINING REMEDIAL WORKS PLAN

Status
INFORMATION

Scale	Drawn	Checked	Date
NTS	AT	IPB	08/11/19

Drawing No. 17176-RLE-19-XX-DR-0-010 Rev. PO2

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