
THE ARLEY CONSULTING COMPANY LIMITED

Chorleian House
49-51 St Thomas's Road
Chorley, Lancashire, PR7 1JE

Tel: 01257 278300
Fax: 01257 268063
Email: mailbox@taccl.co.uk

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**COAL MINING
RISK ASSESSMENT
for the
FORMER MONCKTON COKE WORKS
LUND HILL LANE, MONCKTON
SOUTH YORKSHIRE**

Prepared for

**MONCKTON DEVELOPMENTS LIMITED
559 Carlisle Street East
Sheffield
S4 8DJ**

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Patrick Parsons

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1. INTRODUCTION

- 1.1 The Arley Consulting Company Limited (TACCL) has been commissioned by Monckton Developments Limited to prepare a coal mining risk assessment for the former Monckton Coke Works, Lund Hill Lane, Royston, Barnsley, South Yorkshire.
- 1.2 The former Monckton Coke Works site is located off Lund Hill Lane at Royston, to the north-east of Barnsley, South Yorkshire. Most of the previous buildings and structures have been demolished and cleared to slab, or sub slab level, with few structures remaining pending redevelopment.
- 1.3 The coal mining risk assessment will be required to support a planning application for the proposed redevelopment of the site for residential use. Pegasus Design has produced a Concept Masterplan drawing (Drawing No P19-1805_001B) a copy of which is presented in Appendix H.
- 1.4 TACCL has been provided with some specific information relating to the site and has accessed other data via web based searches.
- 1.5 TACCL has produced this assessment using the Coal Authority's model report template. The purpose of this Coal Mining Risk Assessment Report is to:
- Present a desk-based review of all available information on the coal mining issues which are relevant to the application site;
 - Use that information to identify and assess the risks to the proposed development from coal mining legacy, including the cumulative impact of issues;
 - Set out appropriate mitigation measures to address the coal mining legacy issues affecting the site, including any necessary remedial works and/or demonstrate how coal mining issues have influenced the proposed development; and
 - Demonstrate to the Local Planning Authority that the application site is, or can be made, safe and stable to meet the requirements of national planning policy with regard to development on unstable land.
- 1.6 The conclusions presented in this report are the result of our professional interpretation of the available data. TACCL reserves the right to amend the conclusions and recommendations if further information becomes available.

2. SITE DETAILS

2.1 Site Location and Description

- 2.1.1 The site is located off Lund Hill Lane, Royston, to the north-east of Barnsley, South Yorkshire. The National Grid Reference for the centre of the site is 437460, 412020.
- 2.1.2 The site location is illustrated on figures and drawings presented in Appendix H.
- 2.1.3 Most of the previous buildings and structures have been demolished and cleared to slab, or sub slab level, with few structures remaining. Those that remain are reported to be in a state of dereliction or retained for maintenance and operation of utility supplies.
- 2.1.4 The former engineering workshop, on the eastern boundary remains operational as a leased unit and a portion of the land, also on the eastern boundary has been redeveloped into offices and car parking for Hargreaves Industrial Services plc, the previous site owner.
- 2.1.5 It has been reported by others that the site is accessed from two main entrances off Lund Hill Lane which forms the eastern site boundary. There is the northern entrance providing access through a weighbridge to the former stockyard and Engineering Workshops and the southern entrance allowing access to the Hargreaves property and an effluent treatment plant in the far south of the site.
- 2.1.6 The ground levels are generally highest in the southern part of the site, the remainder of the site falls gently towards the north. The western and southern boundaries, slope steeply downwards into the railway cutting and road bridge. In the north, north-east and north-west, the land level has been cut into the hillside where tyres have been utilized as retaining walls.
- 2.1.7 For consistency with the work of other consultants and professionals the site is subdivided into three sections for descriptive purposes, as follows. The extent of each of these areas is shown on RSK Figure 3 and Patrick Parsons Drawing No G15009_700, in Appendix H.
- (i) Stockyard Area: The northernmost portion of the site, formerly occupied by the coke and coal stockyards. This area was the hub of the

former colliery operations and included numerous buildings and rail tracks.

- (ii) **Former Production and By-Products Area:** This forms the central section of the site and included the Combined Heat and Power (CHP) infrastructure, coking ovens and conveyors. This area also included plant used for the production of tar, benzole and ammonia.
- (iii) **Southern Area:** This area contains the effluent treatment plant and is predominantly wooded with coarse vegetation and semi-mature trees. Much of this area slopes steeply to the south.

2.2 Description and Layout of Proposed Development

2.2.1 It is proposed that the site is redeveloped for residential use.

2.2.2 Pegasus Design has produced a Concept Masterplan drawing (Drawing No P19-1805_001B) a copy of which is presented in Appendix H.

2.2.3 From this drawing it can be seen that the site is divided into development parcels by a network of estate roads. There is a landscaped area in the central northern part of the site. This is the area where the mine shafts are located.

3. SOURCES OF INFORMATION

3.1 General

3.1.1 TACCL has been supplied with the following information:

- (i) A Coal Mining Report (Ref 51001695159001, dated 22 November 2017).
- (ii) Coal Authority Shaft Plan and Data Sheets (Ref 510006955382001, dated 20 November 2014).
- (iii) Coal Authority/British Geological Survey Ground Stability Report (Ref 51001688129001, dated 22 November 2017)
- (iv) Various consultants reports for the site, as follows:
 - Patrick Parsons, August 2015, Ground Investigation Factual Report for the Former Monckton Coke Works, Nr Barnsley
 - Patrick Parsons, June 2016, Ground Investigation Factual Report for the Former Monckton Coke Works, Nr Barnsley
 - RSK Environmental, November 2014, Data Review & Preliminary Risk Assessment for Monckton Production Facility (Report No 321789(H)-R1 (00)
 - RSK Group, May 2011, Environmental Assessment for Monckton Coke & Chemicals Limited, Royston, South Yorkshire (Report No 16492-R1 (01)
 - Coal Mining Risk Assessment, undated and no author details

3.1.2 In addition TACCL has accessed information contained on the Coal Authority and British Geological Survey (BGS) websites in preparation of this assessment.

3.1.3 From the available information TACCL makes the following observations:

3.2 The Coal Authority Website

3.2.1 From the Coal Authority's interactive web viewer it can be seen that:

- (i) The site is in a defined '*coal mining reporting area*'. Consequently a coal mining risk assessment will be required to support any planning application for the site.
- (ii) The site is marked as a '*development high risk area*' associated the shafts in the northern part of the site and possible sub-cropping coal seams in the south.
- (iii) There are three mine entries in the northern part of the site, although these are reported to have limited zones of influence suggesting thin superficial deposits and rock head at relatively shallow depth.
- (iv) There are no fissures or break lines within influencing distance of the development site.
- (v) There is no record of '*past surface mining*' at the site or in the immediate vicinity of the site, but some past working are indicated to the north and east.
- (vi) There is an east-west trending '*coal seam*' which subcrops beneath the southern part of the site and another to the north, off-site. The seams are indicated to dip to the north.
- (vii) There are no recorded '*past shallow coal mine workings*' at the site, although some are shown to the north and north-east.
- (viii) '*Probable shallow coal mine workings*' are shown beneath the southern part of the site associated with the subcropping seam. The dip appears to be towards the north.

3.2.2 Copies of the Coal Authority web images are presented in Appendix A.

3.3 BGS Website

3.3.1 From BGS records, available via the web viewer, it can be seen that the geological conditions at the site comprise exposed Carboniferous Coal Measures strata, including Mexborough Rock sandstone across the majority of the site with undifferentiated strata (mudstone, siltstone, sandstone and coal) of the Pennine Middle Coal Measures formation outcropping beneath the south-western and north-eastern parts of the site.

3.3.2 No specific coal seams are shown on the interactive map.

- 3.3.3 Copies of the BGS website images are presented at Appendix B.
- 3.3.4 The BGS website also includes records of boreholes drilled in the vicinity of the site. This includes two shaft records in the northern part of the site (SE31SE3 & SE31SE5) and four boreholes in the south-western area (SE31SE101 to 103 & SE31SE128). Other boreholes are indicated beyond the site boundary.
- 3.3.5 The northern records are for Monckton Colliery Shaft Nos 4 and 6 (SE31SE5 & SE31SE3, respectively). The records provide a detailed interpretation of the geology to the full depth of the shafts (489.59 and 316.38 m). The shallow strata (to approximately 30 m) at these locations are detailed below.

Monckton Colliery Shaft No 4 (SE31SE5)

Strata	Thickness (m)	Depth (m bgl)
Made Ground	3.35	3.35
Dark brown clay	0.74	4.11
Banded sandstone	0.41	4.52
Light brown sandstone with pockets of grey sandstone	2.51	7.03
Hard grey sandstone with black streaks	0.05	7.09
Light brown sandstone	1.04	8.13
Hard grey sandstone with black streaks	0.18	8.31
Banded grey and yellow sandstone	1.42	9.73
Grey sandstone with black streaks in parts	10.74	20.47
Stone bind	0.18	20.65
Light grey sandstone with band of coal up to 4" thick at 21.95 m	1.5	22.15
Stone bind	2.01	24.16
Hard clunch	0.84	24.99
Banded sandstone	0.71	25.70
Light grey sandstone	0.43	26.14
Hard grey bind	3.74	29.87
Dark grey shale with ironstone bands and Foraminifera	3.33	33.20
Inferior CANNEL	0.18	33.38
Hard grey bind	0.76	34.14
Stone bind	4.14	38.28

Monckton Colliery Shaft No 6 (SE31SE3)

Strata	Thickness (m)	Depth (m bgl)
Grey clunch	3.05	3.05
Grey siltstone	4.50	7.54
Dark grey shale	0.08	7.62
Grey clunch	0.46	8.08

Carbonaceous clunch	0.15	8.25
Grey clunch with rootlets & ironstone nodules	0.01	8.84
Grey siltstone	2.74	11.58
Banded siltstone	1.22	12.80
Grey siltstone	0.38	13.18
Grey clunch with rootlets & ironstone nodules	1.07	14.25
Grey siltstone with scattered rootlets	2.06	16.31
Grey shale	0.91	17.22
Dark grey shale	0.08	17.30
Carbonaceous shale	0.10	17.40
COAL	0.13	17.53
Hard grey clunch with rootlets	0.46	17.98
Grey siltstone	0.91	18.90
Grey clunch with rootlets	0.38	19.28
Grey siltstone	2.97	22.25
Banded siltstone	0.61	22.86
Grey siltstone	1.30	24.16
Pale grey sandstone with black streaks in lower parts	4.72	28.88
Grey siltstone	0.30	29.18
COAL	0.10)	
Carbonaceous shale	0.05)	29.44
Inferior COAL	0.10)	
Carbonaceous shale	0.05	29.49
Dark grey shaly clunch with plant remains	0.30	29.79
Grey siltstone	0.61	30.40
Black shale with mussels	0.23	30.63
Grey shale	0.76	31.39
Dark grey shale	0.08	31.47
COAL	0.30)	
Dark grey clunch	0.03)	31.93
COAL	0.13)	
Hard grey clunch with rootlets	0.61	32.54
Banded siltstone	2.82	35.36

3.3.6 From these very detailed records it can be seen that there are thin coal seams at shallow depth, although as none is specifically named, with the exception of the Inferior Cannel. It is considered unlikely that these thin coals were ever worked beneath the site. Other specific observations are provided below:

- (i) The strata between 4.11 and 24.16 m at Shaft No 4 is labelled as the Mexborough Rock. These strata have been logged as individual bands of sandstone and stone bind and include a 4" thick coal bed near the base.

- (ii) The Sharston Top seam is the first main seam encountered at a depth of 63.22 m bgl in Shaft No 4. Other seams are noted below this including Sharlston Low, Sharlston Yard and Houghton Thin.
- (iii) The Swallow Wood seam is the first main seam encountered at in Shaft No 6 between 48.23 and 48.56 m bgl. Other seams are noted below this including Top Haigh Moor and Lower Haigh Moor.

3.3.7 The BGS records also include three shallow boreholes (up to 5 m deep) drilled for the effluent treatment works in the southern part of the site (Appendix C). Due to the limited depths, these boreholes provide no useful information with respect to potential shallow coal at this location but do confirm that the superficial soils are between 2.6 and 3.5 m thick and the rock head consists of highly weathered mudstone.

3.3.8 A record is also provided for the Lund Hill Lane Borehole drilled by the National Coal Board in the southern part of the site (Appendix C). The records for this borehole indicate the uppermost coal seam (Sharlston Top) is present at around 27.74 to 28.80 m bgl.

3.3.9 There is no evidence of the Royston seam being identified in this borehole.

3.4 Coal Mining Report

3.4.1 TACCL has been supplied with a coal mining report from the Coal Authority (Ref 51001695159001, dated 22 November 2019). In the report the Coal Authority reports that:

- The property *'is in a surface area that could be affected by underground mining in 12 seams of coal at 90m to 510m depth, and last worked in 1981. Any movement in the ground due to coal mining activity should have stopped'*.
- *'In addition the property is in an area where the Coal Authority believes there is coal at or close to the surface. This coal may have been worked at some time in the past. The potential presence of coal workings at or close to the surface should be considered prior to any site works or future development activity'*.
- The property *'is not with a surface area that could be affected by present (or planned future) underground mining. However, reserves of coal exist in the local area which could be worked at some time in the future'*.
- *'Within, or within 20 m of, the boundary of the property there are 3 mine entries, the approximate positions of which are shown on the enquiry boundary plot. Our records disclose the following information:*

437412-003 has been filled to the surface and capped (15m x 15 m x 1.2m reinforced concrete) by British Coal

437412-001 has been filled to the surface and capped (12m x 12 m x 1m reinforced concrete) by British Coal

437412-002 has been filled to the surface and capped (12m x 12 m x 1m reinforced concrete) by British Coal in February 1989

There may however be mine entries/additional mine entries in the local area which the Coal Authority has no knowledge of

- *‘The Coal Authority is not aware of any damage due to geological faults or other lines of weakness that have been affected by coal mining’.*
- *‘The property is not within the boundary of an opencast site from which coal has been removed by opencast methods’.*
- *‘The Coal Authority has not received a damage notice or claim for the subject property or any property within 50 metres since 31 October 1994’.*
- *‘The Coal Authority has no record of a mine gas emission requiring action’.*

3.4.2 A copy of the Coal Mining Report is presented in Appendix D.

3.4.3 It should be noted that there are other coal mining reports contained within reports produced for the site by other consultants, these include Report No 51000659183001, dated 31 October 2014.

3.4.4 This report is not reproduced herein and includes the same/very similar information.

3.5 Coal Authority Shaft Records

3.5.1 In 2014 RSK obtained a shaft plan and data sheets for the three shafts identified at the site (Ref 510006955382001, dated 20 November 2014).

3.5.2 A copy of these records is presented in Appendix E, from which the following supplementary information has been obtained.

	Shaft Ref No		
	437412-002	437412-002	437412-002
Name	New Monckton Colliery No 1	New Monckton Colliery No 2	New Monckton Colliery No 6
Co-ordinates	437431, 412216	437433, 412149	437505, 412185
Diameter	5.28 m	5.28 m	7.32 m
Depth	450.8 m	446.2 m	489.2 m

Table 1: Shaft Details

- 3.5.3 The records show that each of the shafts was filled to the surface and capped with re-inforced concrete by British Coal. This treatment will significantly reduce the potential for collapse of the shaft and surrounding superficial soils.

3.6 Ground Stability Report

- 3.6.1 TACCL has been supplied with a ground stability report produced by the Coal Authority and the BGS (Ref 51001688129001, dated 22 November 2019). A copy is presented at Appendix G.

- 3.6.2 This report contains all of the information presented in the Coal Mining Report (see Section 3.4). The following detailed findings are provided by the BGS:

- | | |
|-------------------------------------|---|
| (i) Shrinkable Clay | <p><i>'The property is in an area underlain by clay. Clay can shrink or swell if the moisture content changes.</i></p> <p><i>The clay deposits in this area are considered to be mainly of 'medium plasticity'. Movement is unlikely to occur unless changes are made to the ground and/or vegetation, including those caused by drought or excessive wet weather'.</i></p> |
| (ii) Running Sand | <p><i>'The property is in an area underlain by sand. Some sands, if voids are present, may flow if they come into contact with water.</i></p> <p><i>However, such movement is unlikely to occur unless substantial changes are made in the ground'.</i></p> |
| (iii) Deposits Which Could Compress | <p><i>'The property is in an area underlain by deposits which could compress and cause ground movement'.</i></p> |
| (iv) Deposits Which Could Collapse | <p><i>'The property is not in an area underlain by deposits which could collapse and cause ground movement'.</i></p> |
| (v) Natural Landslide Activity | <p><i>'The property is in an area where the local geology and steepness of slope could combine to create the likelihood of landslide activity.</i></p> |

Because of the nature of the geology in this area landslide activity could occur’.

(vi) Soluble Rocks

‘The property is in not an area underlain by soluble rocks’

3.6.3 Most of these findings do not relate to coal mining however point (iv) does and according to the BGS there is no risk of collapsing ground.

3.7 Site Investigation Records

3.7.1 TACCL has been provided with numerous reports produced by various consultants for the site over the last eight years or so. Relevant details are summarised in the following sections. These reports contain references to other earlier studies that are not currently available.

RSK Group, 2011

3.7.2 In 2011 RSK carried out an investigation at the site comprising five deep rotary boreholes and twelve windowless-sample boreholes with associated sampling, laboratory testing and environmental monitoring. The investigation was written up as Report No 16492-R1 (01), dated May 2011.

3.7.3 Unfortunately copies of the rotary borehole records are not appended to the digital copy of the report provided. However within the report text RSK states that:

- *‘In the majority of locations sandstone bedrock was encountered directly beneath the made ground, and this was mostly weathered to a gravelly sand at its upper surface’.*
- *‘Made ground was encountered across the site, in all locations, to depths of between 0.2 m bgl in the centre and 2.9 m bgl on the northern part of the site...’*
- *‘In two of the five deep boreholes, grey mudstone bedrock was encountered beneath the sandstone’.*

3.7.4 There is no mention of coal being encountered within these boreholes but it is also not known what depths they were drilled to.

Patrick Parsons, 2015

3.7.5 In 2015 Patrick Parsons carried out an investigation at the site comprising forty trial pits, nine mini/window sampler boreholes and ten rotary boreholes. The investigation was written up as Report No G15009, dated June 2016

3.7.6 Copies of the rotary borehole records (Borehole Nos RBH1, 1D, 2, 2A, 3, 3A, 4, 4A, 5 & 301 to 305) are presented in Appendix F. The borehole locations are illustrated on Patrick Parsons Drawing No G15009_702 Rev C in Appendix H. From this drawing it can be seen that the RBH holes were drilled in pairs and so have been counted as only five holes, rather than the nine actually drilled, this is not fully explained in the report but is likely to be related to their use for gas and groundwater monitoring.

3.7.7 A summary of the borehole findings is presented in Table 2.

Borehole No	Drilled Depth (m)	Superficial Deposits (m)	Description of Rock Strata
RBH1	16.0	1.2	14.0 m Sandstone
RBH1D	15.5	1.5	1.1 m Broken Sandstone 0.4 m No Recovery 9.5 m Sandstone 3.0 m Mudstone
RBH2	16.0	1.1	2.0 m Sandstone 1.8 m Mudstone 11.1 m Sandstone
RBH2A	17.0	3.3	9.2 m Sandstone 4.5 m Mudstone
RBH3	21.0	0.9	16.1 m Sandstone 4.0 m Mudstone
RBH3A	18.0	4.0	14 m Sandstone
RBH4	18.0	3.4	14.6 m Sandstone
RBH4A	19.5	1.3	14.2 m Sandstone
RBH5	16.0	0.7	8.8 m Mudstone 0.5 m Black Shaley Mudstone 2.0 m Sandstone 4.0 m Mudstone
301	25.0	2.7	15.3 m Sandstone 5.0 m Mudstone 2.0 m Sandstone
302	25.0	2.0	19.0 m Sandstone 4.0 m Mudstone
303	25.0	4.5	14.0 m Sandstone 6.5 m Mudstone
304	12.0	1.5	5.0 m Sandstone 1.5 m Mudstone 4.0 m Sandstone
305	2.0	30.0	7.0 m Sandstone 1.3 m Mudstone 4.7 m Sandstone 10.0 m Mudstone 5.0 m Sandstone

Table 2: Summary of Borehole Findings, 2015

3.7.8 From this information it can be seen that the boreholes were drilled to various depths ranging from 12 to 30 m. The following is noted:

- (i) No coal was encountered in any of the boreholes drilled.
- (ii) Borehole No RBH1D was drilled in the north-western part of the site. This hole encountered '*broken sandstone*' between 1.5 and 2.6 m bgl, immediately beneath the thin superficial deposits (made ground and clay). Furthermore there was no recovery between 2.6 and 3.0 m bgl. This could be indicative of collapsed workings but given the very shallow depth this is considered unlikely.

No broken ground was encountered in the adjacent Borehole No RBH1.

- (iii) Borehole No RBH5 was drilled in the southernmost part of the site adjacent to the Effluent Treatment Plant, close to the reported Royston Seam Outcrop. This hole was drilled to the greatest depth of all investigation boreholes, 30 m. No coal or coal mine workings were encountered.

3.8 Previous Coal Mining Risk Assessment

3.8.1 TACCL has been provided with a previous Coal Mining Risk Assessment prepared for the site, although it is undated and the author is not credited.

3.8.2 Notwithstanding it contains some useful geological information obtained from the 1:10,000 scale BGS geological map (Sheet 87 Barnsley, 2008 edition). Further details are provided as follows:

'BGS geological maps record the Royston Coal to subcrop in the extreme south of the site and is anticipated to be present at a shallow depth in this area. Strata is indicated to dip to the north at a shallow angle of approximately 3 degrees.'

3.8.3 A table of the coal seams underlying the site, as encountered locally in the BGS boreholes or recorded in BGS maps is also provided, this is reproduced as Table 3 below.

Strata	Thickness (m)	Anticipated Depth (m bgl)	Status	Thickness (m)
Royston Seam	0 - 0.8	5 - 41	No record of workings beneath site	N/A
Sharlston Top	0 - 1.9	31 - 67	No record of workings beneath site	N/A
Sharlston Low	0 - 2.6	75 - 100	Worked	1.20
Sharlston Yard	Approx. 0 - 1.0	100 - 123	Worked	1.02
Meltonfield	0 - 1.4	288	Worked	0.94
Winter (AKA Abdy Coal)	0 - 1.9	292 - 317	Worked	0.82 - 0.84
Top Beamshaw (AKA Kilnhurst)	0 - 2.9	329	Worked	1.27
Low Beamshaw	0 - 1.2	348	Worked	0.71
Kent Thick	0 - 1.9	297 - 376	Worked	0.3 - 2.6
Warren House	0 - 0.1	431	Worked	1.04
Barnsley	0 - 3.9	429	Worked	1.55
Top Haigh Moor	0 - 4.3	437 - 511	Worked	1.07 - 1.30

Table 3: Summary of Underlying Coal Seams

- 3.8.4 It is also reported that *‘the depth of the shallowest workings and calculated sufficient rock cover’* is 44 m at the site.
- 3.8.5 It is also reported that *‘there are no groundwater abstractions listed in the environmental database report (Landmark 2014) within 1km of the site’* and *‘there is no reason to suppose that there will be any dramatic rise or fall in (groundwater) level (at the site) and certainly not as a consequence of the proposed redevelopment.’*

4. IDENTIFICATION & ASSESSMENT OF SITE SPECIFIC COAL MINING RISKS

- 4.1 CIRIA Special Publication 32, Construction Over Abandoned Mine Workings states that the maximum height of collapse is often taken as five to ten times the seam thickness. This is supported in the Garrard and Taylor paper 'Collapse Mechanisms of Shallow Coal-Mine Workings from Field Measurement' 1988.
- 4.2 It is 'normal engineering practise' to assume that there is a risk of surface instability if there is less than ten times seam thickness cover above any worked coal seam. It should be noted that competent cover means rock and superficial deposits, such as glacial till, do not contribute to this cover.
- 4.3 The Sharlston Low, the shallowest worked seam, is recorded to range from 75 m to 100 m bgl, with the 'recorded' shallowest workings at 89 m bgl (as reported in the previous Coal Mining Risk Assessment). Rock head is at shallow depth (<5 m bgl) beneath the site. Therefore, based on published figures for the thickness of the Sharlston Low mine seam, it is considered that the risk to surface stability at the site from workings within these seams is very low.
- 4.4 A summary of the potential risks associated with coal mining legacy at the site, identified from *the available information* is presented in Table 4.

Coal Mining Issue	Yes/No	Risk Assessment
Underground coal mining (recorded at shallow depths)	No	There are no recorded shallow mine working at the site. Records do show mining in twelve seams between 90 and 510 m beneath the site. It is considered that there is likely to be sufficient competent rock cover above any workings in the Sharlston Low coal seam to mitigate the impact of collapse at the surface. TACCL considers that potential risks associated with recorded coal mine workings at the site to be very low.

Table 4 (Part 1 of 3): Summary of Potential Mining Risks

Coal Mining Issue	Yes/No	Risk Assessment
Underground coal mining (probable at shallow depths)	Yes	The Coal Authority believes that there could be coal at or close to the surface which may have been worked at some time in the past and classifies the southern part of the site as Development High Risk Given the presence of shallow coal there is a possibility of shallow workings beneath the site. BGS records for boreholes and mine shafts located at the site have not encountered coal mine workings at shallow depth, although some thin coal has been identified. TACCL considers that it is unlikely that these have been mined at the site. Numerous investigation boreholes have been drilled at the site by RSK Group and Partick Parsons. No coal or coal mine workings have been encountered although from the available records the maximum investigation depth is 30 m at Borehole No RBH5 in the southern part of the site. However, based on the available data, TACCL considers the potential for unrecorded mine workings to be low.
Mine entries (shafts and adits)	Yes	Three shafts filled to the surface and capped by British Coal. There is very limited superficial deposits, with rock head recorded at 4.11 m depth at Shaft No 4 and at surface at Shaft No 6. This means that in the unlikely event of shaft collapse the potential zone of influence would be very limited. Due to the mine entry treatment potential stability risks associated with these shafts is considered very low. However there is potential for unrecorded coal mine entries and the developer should be mindful of this when carrying out groundworks at the site.

Table 4 (Part 2 of 3): Summary of Potential Mining Risks

Coal Mining Issue	Yes/No	Risk Assessment
Coal mining geology (fissures)	No	
Record of past mine gas emissions	No	The Coal Authority has no records of past mine gas emissions at the site. Gas monitoring has been carried out during the investigations at the site. Trace levels of methane and low levels of carbon dioxide have been measured. These are not specifically attributed to mine gas and are likely to be sourced from nears surface made ground and organic rich materials.
Recorded coal mining surface hazard	No	
Surface mining (opencast workings)	No	The Coal Authority has no record of previous surface mining at the site, however, there is considered to be potential for unrecorded historic surface mining in the Royston Coal seam in the area immediately north of the seam subcrop in the extreme south of the site. BGS records indicate that the uppermost coal seam was the Sharlston Top seam present at around 27.74 to 28.80 m bgl. There was no evidence of the Royston seam.

Table 4 (part 3 of 3): Summary of Potential Mining Risks

- 4.5 Based on the information obtained and reviewed as part of this assessment TACCL considers that it is possible that there is shallow underground coal and/or coal mine workings beneath the site although it is considered unlikely, based on the available information.
- 4.6 If shallow unrecorded workings are present there could be potential risks to the stability of the proposed development. At present there are no specific or indicative development plans although it is anticipated that the site will be redeveloped for residential use.

- 4.7 Further investigation should be undertaken to confirm the anticipated ground conditions and determine whether any shallow coal and/or mine workings are present or if there is sufficient competent rock strata above any identified coal seams prior to the construction of any proposed houses.
- 4.8 TACCL considers that this could be conditioned as part of any planning approval.
- 4.9 Risks associated with other mining legacy, such as mine gas, will need to be assessed during contaminated land investigations and assessments undertaken to determine human health risks.

5. MITIGATION STRATEGY

- 5.1 The available information indicates that there is a low risk to the site from unrecorded or recorded shallow coal workings at the site. Therefore, it is considered that no specific mitigation strategy is required for potential shallow coal workings.
- 5.2 In the event that future intrusive investigation identifies shallow coal or coal mine workings within influencing depth these can be treated by drilling and grouting which is a fairly standard remediation technology.
- 5.3 TACCL considers that any ground treatment required would be undertaken as a precursor to the actual construction works. These works should not be carried out before planning permission is granted.
- 5.4 The shaft caps can be located and identified on site and any redevelopment proposals can accommodate these structures. It is not anticipated that any further mine entry treatment is required.
- 5.5 There is a possibility of unrecorded mine entries at the site. Therefore it is recommended that any excavations during development works are inspected for evidence of mine entries. If a mine entry is suspected, then works within the area should cease immediately and the area should be made safe. Further advice should be sought from a suitably experienced engineer.
- 5.6 Caution should be taken to avoid areas of uncompact made ground, such as colliery spoil, when undertaking works in the extreme south of the site, north of the Royston Coal subcrop.

6. CONCLUSIONS

- 6.1 On the basis of the information obtained as part of this study TACCL considers that there is a possibility that shallow coal or coal mine workings could be present beneath, although considered unlikely.
- 6.2 Further investigation is recommended to supplement that available data and confirm the anticipated ground conditions, prior to any construction works being undertaken. Notwithstanding, this should not prevent further ground investigation being carried out and any necessary ground remediation works.
- 6.3 It will be necessary to obtain the Coal Authority's permission prior to undertaking any future coal mine investigations.

M LOVELOCK
BEng (Hons) CGeol FGS MCIWM
Technical Director

APPENDIX A

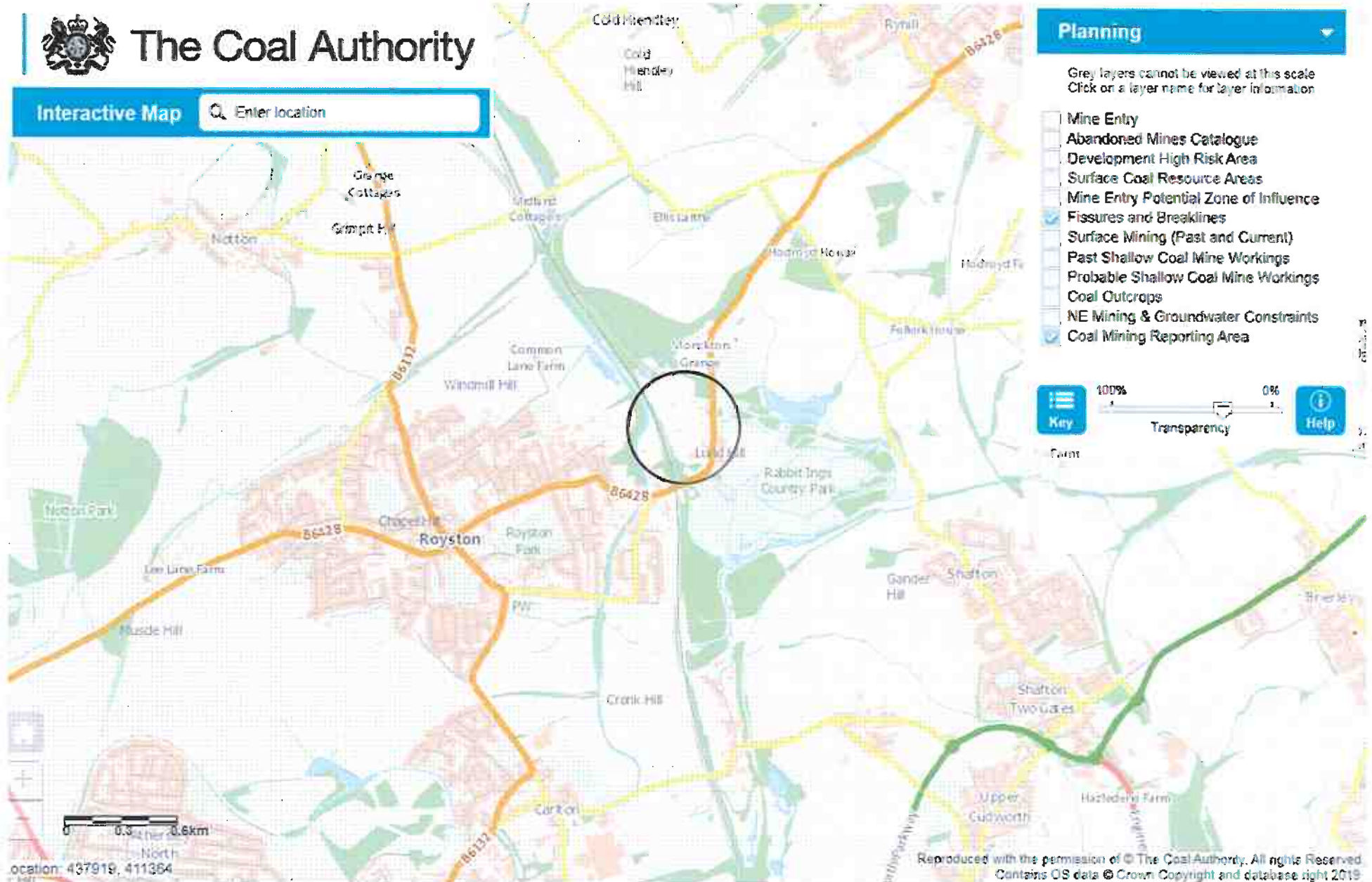
Coal Authority Web Images



The Coal Authority

Interactive Map

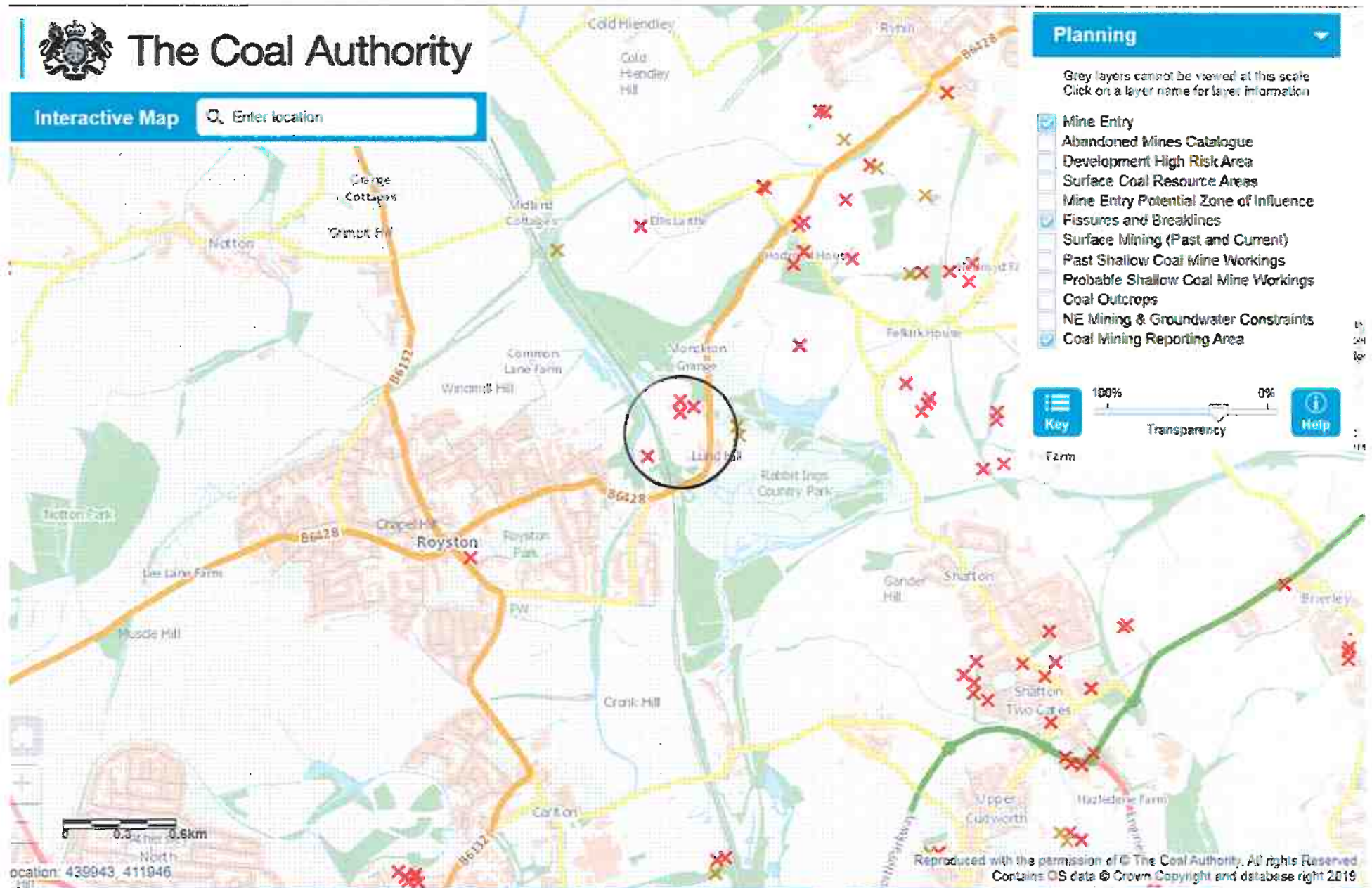
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Interactive Map

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Interactive Map

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Planning

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Click on a layer name for layer information

- ☐ Mine Entry
- ☐ Abandoned Mines Catalogue
- ☒ Development High Risk Area
- ☐ Surface Coal Resource Areas
- ☐ Mine Entry Potential Zone of Influence
- ☒ Fissures and Breaklines
- ☐ Surface Mining (Past and Current)
- ☐ Past Shallow Coal Mine Workings
- ☐ Probable Shallow Coal Mine Workings
- ☐ Coal Outcrops
- ☐ NE Mining & Groundwater Constraints
- ☒ Coal Mining Reporting Area



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Help

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- Abandoned Mines Catalogue
- Development High Risk Area
- Surface Coal Resource Areas
- Mine Entry Potential Zone of Influence
- Fissures and Breaklines
- Surface Mining (Past and Current)
- Past Shallow Coal Mine Workings
- Probable Shallow Coal Mine Workings
- Coal Outcrops
- NE Mining & Groundwater Constraints
- Coal Mining Reporting Area

Key

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15

Location: 437707, 409831

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- ☐ Abandoned Mines Catalogue
- ☐ Development High Risk Area
- ☐ Surface Coal Resource Areas
- ☐ Mine Entry Potential Zone of Influence
- ☐ Fissures and Breaklines
- ☒ Surface Mining (Past and Current)
- ☒ Past Shallow Coal Mine Workings
- ☒ Probable Shallow Coal Mine Workings
- ☐ Coal Outcrops
- ☐ NE Mining & Groundwater Constraints
- ☒ Coal Mining Reporting Area



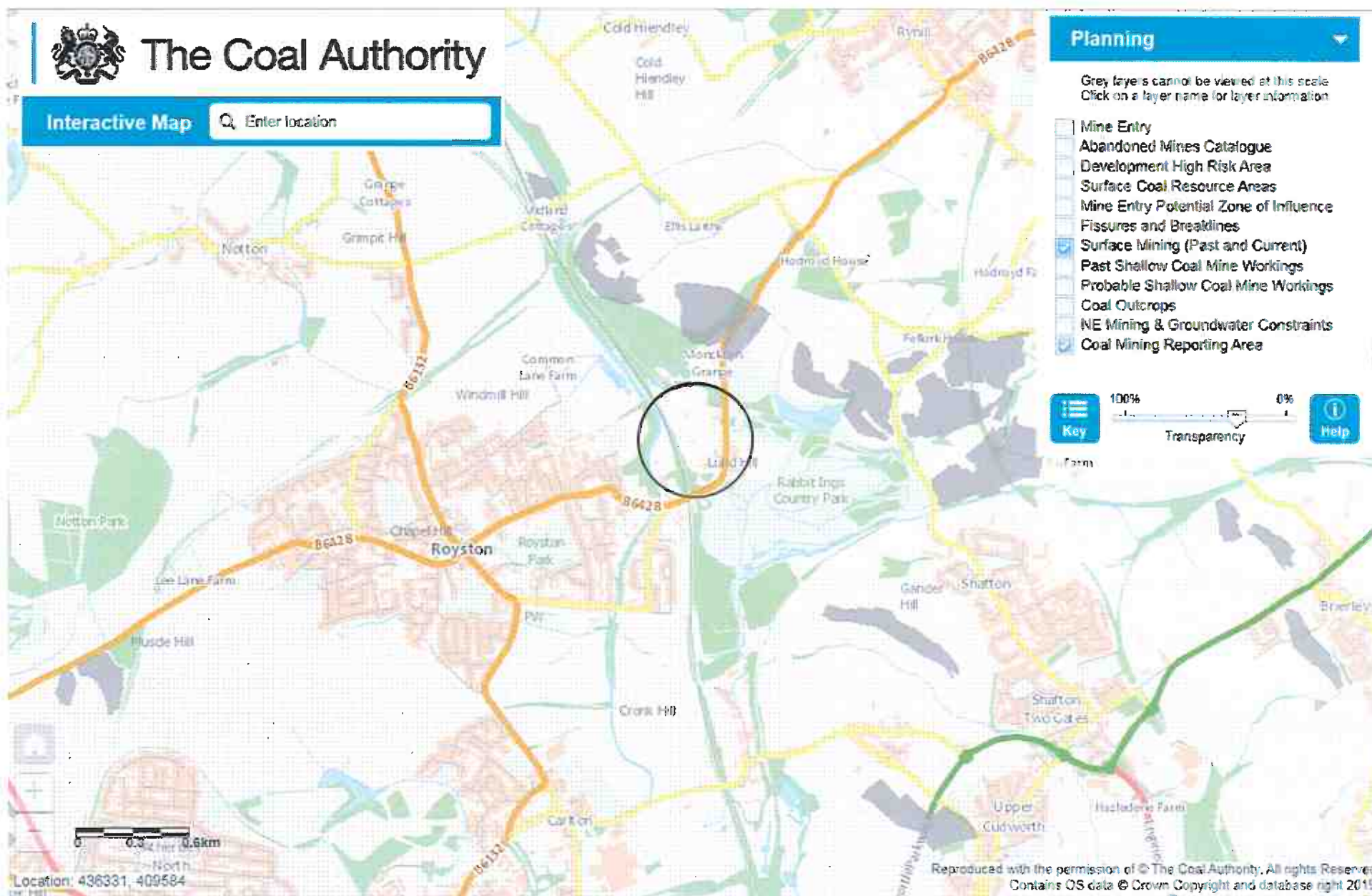
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- ☐ Probable Shallow Coal Mine Workings
- ☐ Coal Outcrops
- ☐ NE Mining & Groundwater Constraints
- ☒ Coal Mining Reporting Area



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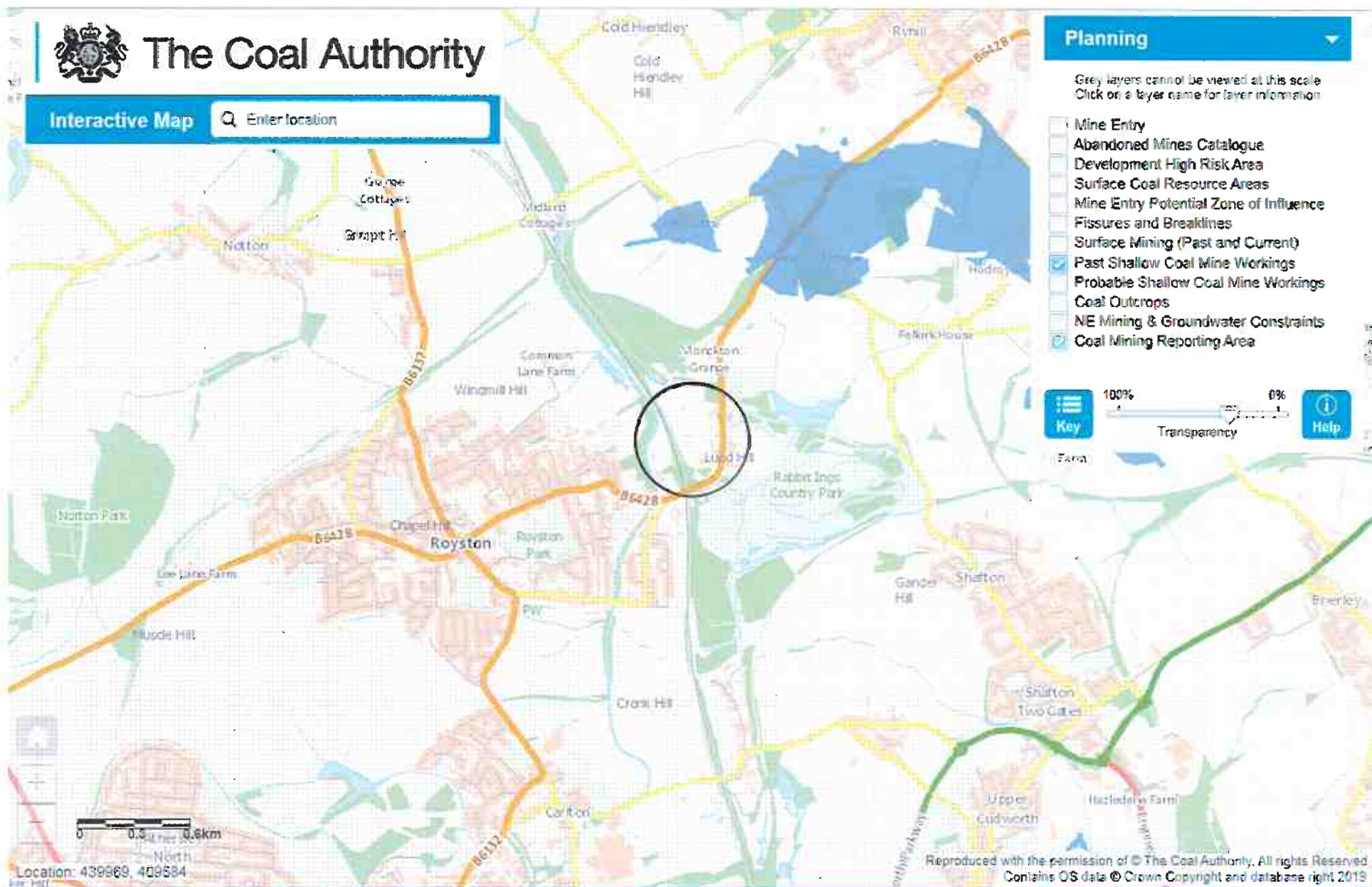


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- Mine Entry
- Abandoned Mines Catalogue
- Development High Risk Area
- Surface Coal Resource Areas
- Mine Entry Potential Zone of Influence
- Fissures and Breaklines
- Surface Mining (Past and Current)
- Past Shallow Coal Mine Workings
- Probable Shallow Coal Mine Workings
- Coal Outcrops
- NE Mining & Groundwater Constraints
- Coal Mining Reporting Area



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OS Hill

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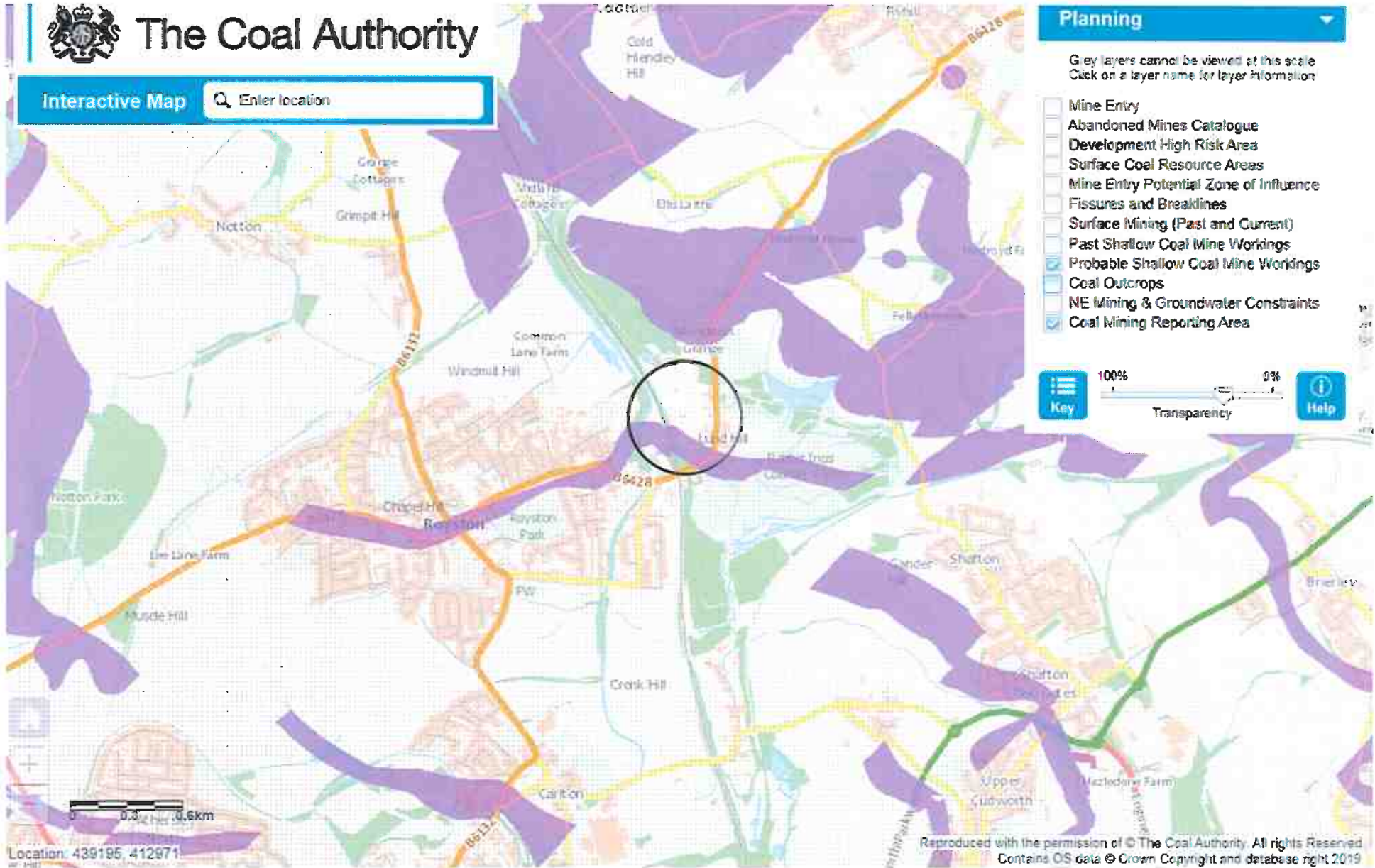
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Click on a layer name for layer information

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- ☐ Abandoned Mines Catalogue
- ☐ Development High Risk Area
- ☐ Surface Coal Resource Areas
- ☐ Mine Entry Potential Zone of Influence
- ☐ Fissures and Breaklines
- ☐ Surface Mining (Past and Current)
- ☐ Past Shallow Coal Mine Workings
- ☒ Probable Shallow Coal Mine Workings
- ☐ Coal Outcrops
- ☐ NE Mining & Groundwater Constraints
- ☒ Coal Mining Reporting Area

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APPENDIX B

BGS Web Images



British Geological Survey
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Geology of Britain viewer

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[More BGS map viewers](#)



Surface
Geology



3D
Models



Borehole
Scans



Earthquake
Timeline

Surface Geology

- ☒ Superficial only
- ☐ Bedrock only
- ☐ Bedrock and Superficial

Visible geology:
1:50 000 scale

Geology
Key

[More on digital geology](#)



Go to
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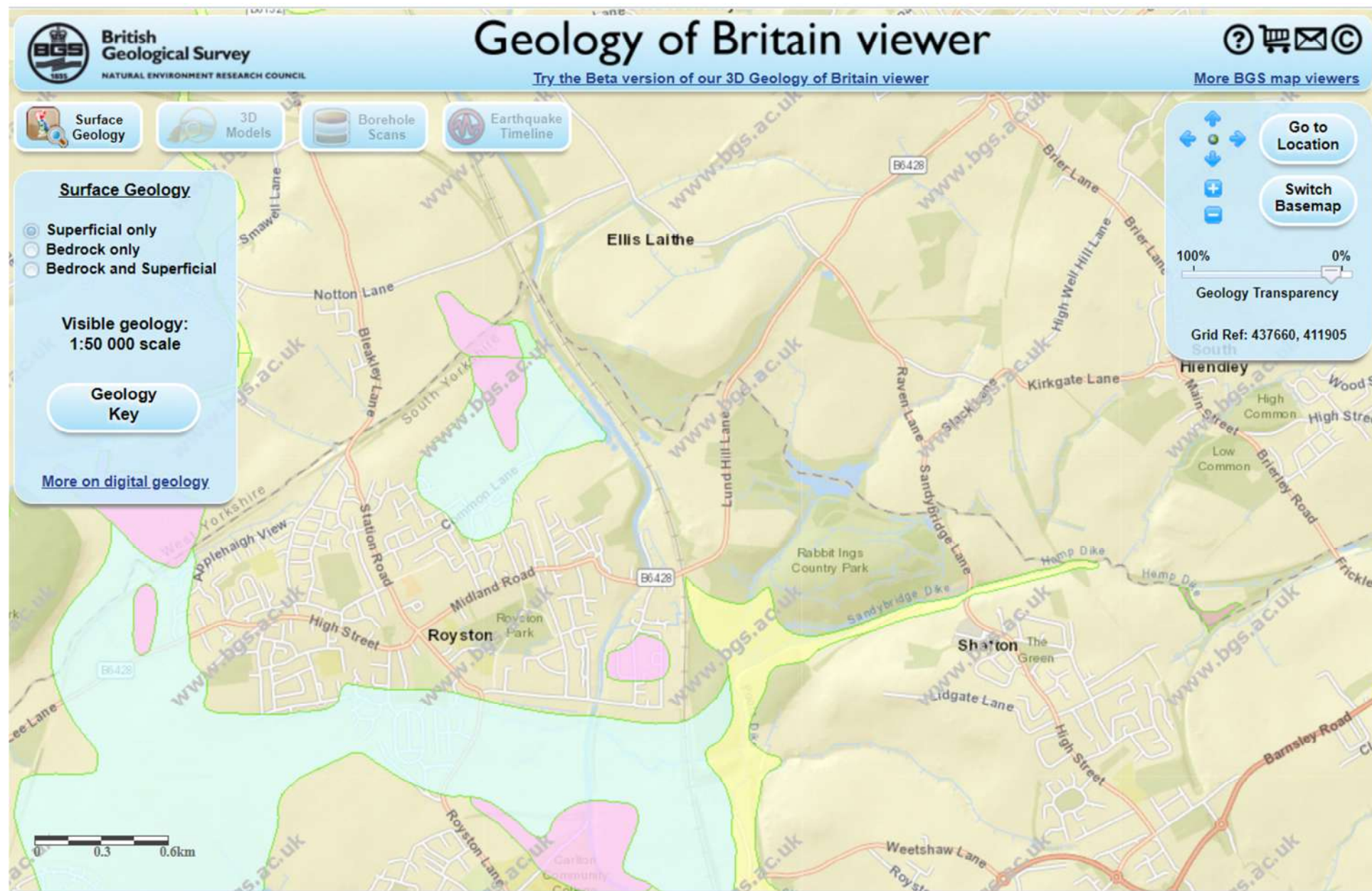
Switch
Basemap

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Geology Transparency

Grid Ref: 437660, 411905

0 0.3 0.6km





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Surface
Geology



3D
Models



Borehole
Scans



Earthquake
Timeline

Surface Geology

- ☐ Superficial only
- ☒ Bedrock only
- ☐ Bedrock and Superficial

Visible geology:
1:50 000 scale

Geology
Key

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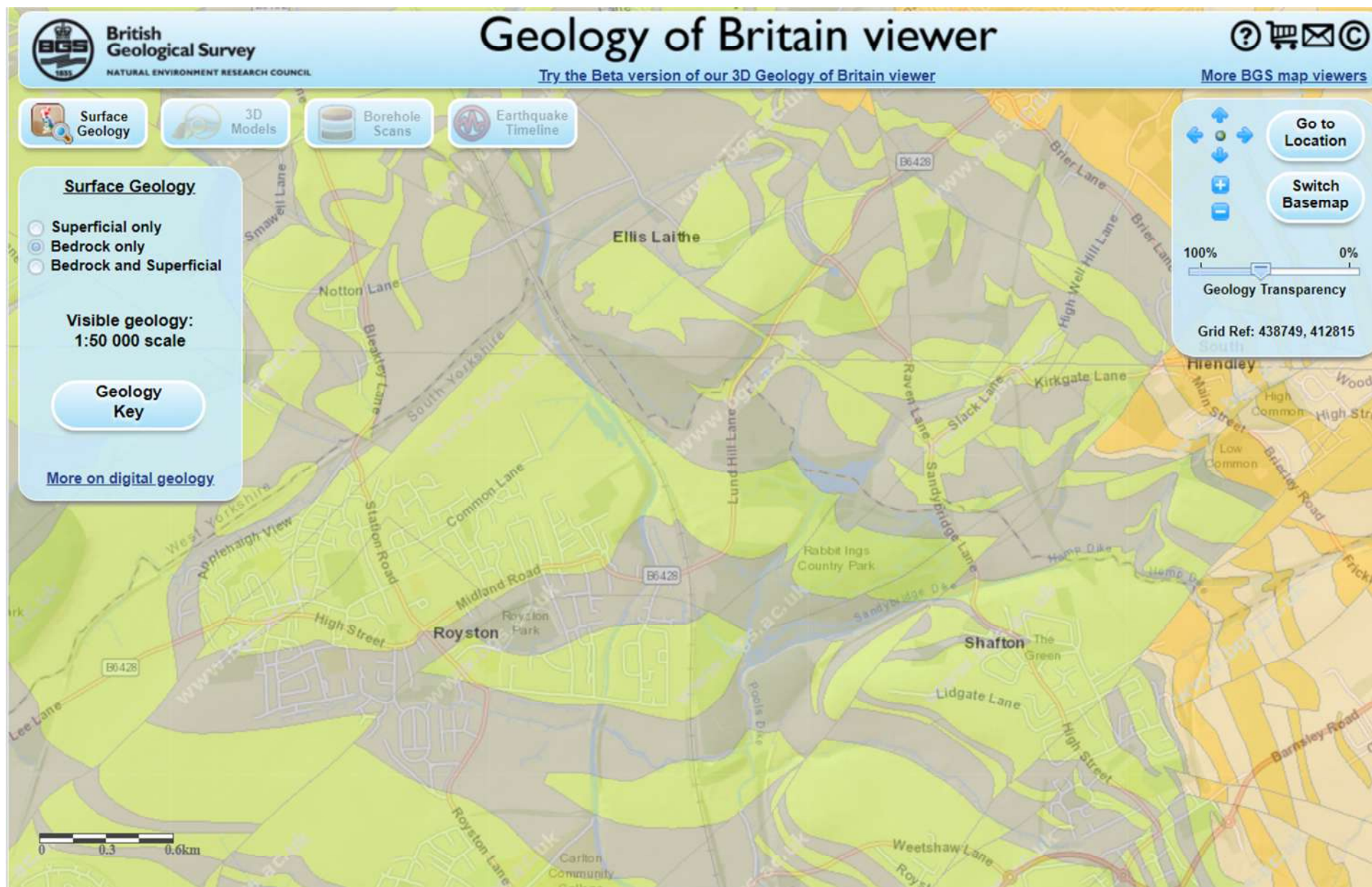


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Surface Geology



3D Models



Borehole Scans



Earthquake Timeline

Borehole Scans

Click on a borehole to view scan.

Borehole depth

- 0 - 10m
- 10 - 30m
- 30m+
- Unknown
- Confidential or Restricted

[More on boreholes](#)



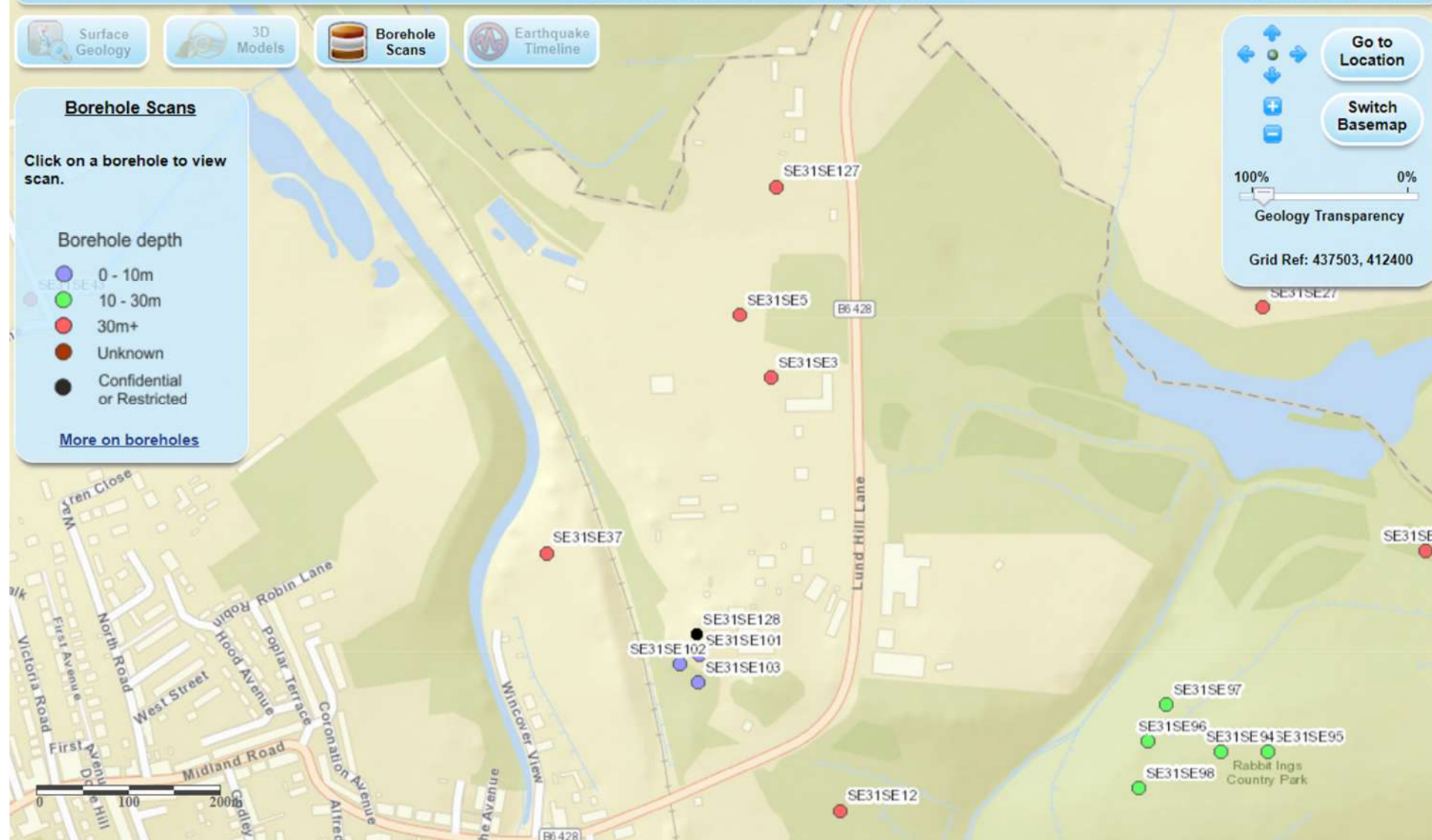
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Geology Transparency

Grid Ref: 437503, 412400



APPENDIX C

BGS Borehole & Shaft Records

174 SE 31 SE/3

CUR SE 31 SE/3

SE 31 SE/3

NEW YORKER OIL COMPANY, INC.

1 in. Geological Map: 87
6 in. map: Yorks. 263 SW.

Date: 1954 - 57

Site: Lat. 53°36'17" Long. 1°26'0"
Height above O.D. 214.75 ft. 65.4m.
Sinking: Cementation Co., Ltd.

	Description of Strata.	Thickness.	Depth.
	Made ground.	11 0 8.35	11 0 8.35
	Dark brown clay.	2 6 6.41	13 6 4.11
	Banded sandstone.	1 4 0.41	14 10 4.52
	Light brown sandstone with pockets of grey sandstone.	8 32.51	23 17.03
	Hard grey sandstone with black streaks.	2 0.05	25 37.09
	Light brown sandstone.	3 51.04	26 08.13
	Hard grey sandstone with black streaks - variable.	7 0.18	27 38.31
MEXICAN ROCK	Banded grey and yellow sandstone.	4 81.42	31 119.73
	Grey sandstone with black streaks in parts.	35 3 10.74	67 2 20.47
	Stone bind.	7 0.18	67 920.65
	Light grey sandstone with band of COAL up to 1/4" thick at 72 ft. 21.45m.	4 11.15	72 822.15
	Stone bind.	6 72.01	79 324.16
	Hard clunch.	2 98.94	82 024.99
	Banded sandstone.	2 4 0.71	84 425.7
	Light grey sandstone.	1 50.43	85 926.14
	Hard grey bind.	12 33.78	98 029.87
	Dark grey shale with ironstone bands and Foraminifera.	10 113.33	108 1238.2
MEXICAN ROCK	Inferior CANAL.	2 7 0.18	109 633.38
	Hard grey bind.	2 6 0.76	112 034.14
	Stone bind.	13 74.14	125 733.28
	Grey shale with ironstone bands.	6 132.11	132 660.39
	Black shale with ironstone bands.	2 100.86	135 441.35
	Light grey clunch.	2 80.81	138 042.06
	Stone bind with band of inferior COAL up to 7/16" thick at 153 ft. 47.24m.	23 16.43	159 248.49
	Grey shale with ironstone bands.	5 50.13	159 648.62
	Black bind.	2 26.05	159 868.67
	COAL.	3 30.08	159 1148.74
	Hard grey clunch.	4 11.25	164 049.99
	Banded sandstone.	2 00.61	166 050.6
	Stone bind.	3 41.01	169 451.61
	Dark grey shale.	4 40.10	169 851.71
	Carbonaceous shale with COAL streaks.	6 60.45	170 251.87
	Dark shaly clunch.	6 60.45	170 852.02
	Hard grey clunch.	1 10.38	171 952.35
	Grey siltstone.	4 31.3	176 083.64
	Pale grey sandstone.	4 61.37	180 655.02
	Grey shale.	1 30.32	181 955.4
	Banded siltstone.	6 31.91	188 057.3
	Grey shale.	2 00.61	190 057.91
	Banded siltstone.	3 00.91	193 058.83
	Banded sandstone.	5 61.68	198 660.50
	Grey shale with ironstone bands.	4 61.37	203 061.87
	Dark grey shale.	3 02.23	203 962.10

	Description of Strata.	Thickness.	Depth.		
SHARLSTON TOP	(COAL 2-10 } 0-36 (Dirt. 1 } 0-03 (Inferior COAL 4 } 0-1 (Dirt. 1-3 } 0-04 (Inferior COAL 3-2 } 0-09 Grey clunch. 1 11 0-58 Shaly COAL 2 0-08 Grey clunch. 4 8 1-42 Dark grey clunch. 4 4 1-52 Grey siltstone. 4 0 1-22 Grey shale. 2 6 0-76 Grey siltstone. 6 6 1-98 Ironstone. 4 0 1-10 COAL and dirt. 8 } 0-1 Grey clunch. 7 } 0-18 COAL and dirt. 2 } 0-05 Grey clunch. 1 9 0-93 Grey shale. 1 6 0-44 Grey siltstone. 1 6 0-46 Grey clunch. 1 4 0-41 COAL and dirt. 1 1 0-03 Grey clunch. 1 7 0-48 Grey shale with plants. 8 0 2-44 Carbonaceous shale with ironstone streaks. 5 0-12 COAL and dirt with grits. 3 0-08 Hard grey clunch. 2 4 0-71 Grey siltstone. 15 0 3-96 Banded siltstone. 6 0 4-83 Grey siltstone. 12 5 3-73 (COAL 2-5 1/2 } 0-75 (Inferior COAL 3 } 0-08 (COAL 11 } 0-28 (Inferior COAL and dirt. 2 1/2 } 0-06 Carbonaceous shale. 5 0-08 Grey clunch. 4 5 1-35 Grey shale. 2 0 0-61 COAL 2 3 0-08 Hard grey clunch. 2 10 0-86 Pale grey sandstone. 9 2 2-80 Banded siltstone. 12 0 3-66 Grey siltstone. 9 0 2-74 Grey shale. 15 0 5- Dark grey shale with ironstone bands. 5 0 0-91 Black shale. 1 2 0-36 (Inferior COAL 4 1/2 } 0-11 (COAL 5 1/2 } 0-14 (Calcy dirt 2 } 0-03 (COAL 1-1/2 } 0-41 Grey clunch. 6 9 2-06 Grey siltstone. 5 9 1-75 Grey clunch. 1 6 0-46 Grey siltstone. 5 3 1-60 Grey clunch. 3 9 1-14 Grey siltstone. 15 6 4-72 Pale Grey sandstone. 2 0 0-61 Dark grey shale. 1 1 0-33 (COAL 5 } 0-18 (Dirt. 1 } 0-1 (COAL and dirt. 6 } 0-15 (COAL 9 } 0-23 Grey clunch. 2 6 0-76 Hard grey clunch. 2 5 0-74 Pale grey sandstone. 7 5 2-26 Banded siltstone. 3 3 0-38 Banded sandstone. 3 10 1-17	3	8 1-12	207	5 63-22
	209	4 63-80			
	209	6 63-94			
	214	2 65-28			
	218	6 66-60			
	222	6 67-82			
	225	0 68-58			
	231	6 70-56			
	231	10 70-66			
	233	3 71-09			
	235	0 71-63			
	236	6 72-09			
	238	0 72-54			
	239	4 72-93			
	239	5 72-98			
	241	0 73-44			
	249	0 75-90			
	249	5 76-02			
	249	8 76-10			
	252	0 76-41			
	265	0 80-77			
	271	0 82-60			
	283	3 86-33			
	SHARLSTON LOW	287	1 87-50		
		287	4 87-58		
291		9 88-73			
295		9 89-54			
294		0 89-61			
296		10 90-47			
306		0 93-27			
318		0 96-93			
327		0 99-67			
346		0 105-46			
349		0 106-38			
350		2 106-73			
352		6 107-44			
359		3 109-5			
365		0 111-25			
366		6 111-71			
371		9 113-21			
375		6 114-45			
393		0 119-18			
393		0 119-79			
394		1 120-12			
396		1 120-73			
398		7 121-49			
401		0 122-22			
403		5 124-49			
409	3 124-87				
413	5 126-03				
HOUGHTON REIN.	413	5 126-03			
	413	5 126-03			
	413	5 126-03			
	413	5 126-03			
	413	5 126-03			

		Description of Strata.	Thickness.	Depth.
F horizon of MANSPFIELD MARINE BAND.		Gray siltstone.	4	61.37
		Banded siltstone.	4	61.37
		Gray siltstone.	50	65.34
		Hard gray shale.	4	61.22
		Gray shale with ironstone bands.	12	63.81
		Dark gray shale.	3	41.01
		(Gray shale and ironstone.		90.23
		Dark gray shale.	4	81.42
		Dark gray "bank"	1	30.38
		Black shale.	1	90.53
		Soft gray clunch.	3	91.14
		Hard gray clunch.	1	00.20
		Hard gray shale with ironstone bands.	10	03.05
		Gray siltstone.	8	02.44
		Banded siltstone.	10	03.05
		Gray siltstone.	5	31.60
		Pale Gray sandstone.	1	30.28
		Gray siltstone.	1	00.20
		Pale gray sandstone with carbonaceous streaks	2	60.76
		Gray siltstone	2	90.84
		Pale gray sandstone.	9	91.97
		Gray siltstone.		90.23
OAKS ROCK (178')		(Pale gray sandstone with carbonaceous streaks	51	30.27.81
		Gray siltstone.	1	00.30
		Pale gray sandstone.	26	67.08
		Banded siltstone.	5	101.78
		Pale gray sandstone.	3	20.47
		Banded siltstone.	3	61.07
		Pale gray sandstone.	1	00.20
		Banded siltstone.	4	61.27
		Gray shale.	2	00.61
		Dark gray shale.	4	21.27
		Black shale with muscels.		80.20
		COAL		80.26
		Dark gray clunch.	3	20.47
		Hard gray clunch with ironstone nodules	3	101.17
		Banded siltstone.	4	61.27
		Gray siltstone.	5	61.68
		COAL		50.13
		Stone clunch.	2	00.44
		Pale gray sandstone.	10	13.07
		Gray siltstone.	3	02.44
		Gray shale.	2	00.61
		Gray siltstone.	12	03.16
		Gray shale.	16	04.08
		Dark gray shale.	2	00.61
		Gray clunch	6	01.83
		Gamoid shale.	3	09.91
BOOLEY EDGE ROCK (105')		Broken ground - fault.	1	00.26
		Gray siltstone.	11	02.35
		Hard gray clunch.	6	01.83
		Gray siltstone.	2	00.41
		Pale gray sandstone.	2	80.91
		Gray siltstone.	2	00.61
		Pale gray sandstone with some carbonaceous streaks.	58	917.91
		Gray siltstone.	5	71.78
		Pale gray sandstone.	1	00.3
		Banded siltstone.	1	30.39
		Conglomerate.	1	00.20
		Pale gray sandstone with carbonaceous streaks.	32	99.98

SE 31 SE/3

	Description of Strata.	Thickness.	Depth.
MELTONFIELD	Grey shale with ironstone bands.	10	02-05
	Dark grey shale.	1	90-53
	COAL.	3	10-93
	Hard grey clunch.	2	40-71
	Grey siltstone.	15	10-1-28
	Grey shale.	4	61-37
	Black silty shale with mussels.	5	01-50
	Black silty shale with <u>Lingula</u>		20-05
	COAL.	1	910-54
	Hard grey clunch.	2	60-71
T-O FOOT MARIN BAND. TWO FOOT	Banded siltstone.	7	0-113
	Pale grey sandstone.	3	00-91
	Banded siltstone.	17	05-18
	Grey siltstone.	6	01-83
	Grey shale.	6	01-83
	Banded sandstone.	6	01-83
	Grey siltstone.	8	04-44
	Grey shale with ironstone bands.	18	65-44
	Dark grey shale.	7	82-34
	(COAL.		810-46
WINTER.	(Dirt.		910-24
	(COAL.		20-06
	(Dirt.		20-05
	(COAL.		40-1
	(Dirt.		910-23
	(COAL.		60-15
	Grey clunch.	3	30-99
	Grey siltstone.	2	60-76
	Strong dark siltstone.	2	00-61
	COAL.		10-83
KILNHURST	Carbonaceous shale.		30-08
	Grey clunch.		30-08
	Banded siltstone.	1	110-58
	Grey siltstone.	16	04-88
	Grey shale.	5	91-75
	Black shale.		90-23
	(COAL.		3-0-03
	(Soft dark grey clunch.		100-25
	(COAL.		2-0-01
	Grey clunch.		60-15
BRAMSHAW	Stone clunch.	3	20-97
	Grey siltstone.	15	04-57
	Grey shale with ironstone band.	2	90-24
	Dark grey shale.		
	COAL.	2	40-71
	Soft grey clunch.	3	41-01
	Dark grey shaly clunch with COAL streaks.		20-05
	Grey clunch.	2	20-64
	Grey siltstone.	2	30-69
	Grey shale.	1	00-3
KENTS THIN.	Dark shaly clunch with COAL streaks.	1	20-86
	Grey clunch with ironstone nodules.	4	101-47
	Grey siltstone.	5	01-52
	Shale and COAL.	1	100-56
	Grey siltstone.	15	04-57
	Banded siltstone.	3	101-17
	Grey shale.		30-08
	(CANAL.		510-44
	(COAL.		1-4-10-42
	Hard grey clunch.	3	10-93
	Banded siltstone.	5	81-73
	Grey sandstone.	4	61-87
	Banded siltstone.	5	71-70
			1137
			1141
			1146
			1151
			1156
			1157
			1161
			1166
			1171
			1176
			1181
			1186
			1191
			1196
			1201
			1206
			1211
			1216
			1221
			1226
			1231
			1236
			1241
			1246
			1251
			1256
			1261
			1266
			1271
			1276
			1281
			1286
			1291
			1296
			1301
			1306
			1311
			1316
			1321
			1326
			1331
			1336
			1341
			1346
			1351
			1356
			1361
			1366
			1371
			1376
			1381
			1386
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18 SE 31 SE/3

Description of Strata.		Thickness.	Depth.
Grey shale.		30.01	1157 0252.45
Carbonaceous shale.		10.43	1157 1352.68
Hard grey clunch with ironstone nodules.	3	00.49	1160 1353.59
Grey sandstone.	7	11.2.41	1168 0354.01
Banded siltstone.	2	80.81	1170 8354.82
Grey sandstone.	23	37.09	1193 11368.91
Grey siltstone.	5	71.70	1199 6365.41
Grey shale.	3	30.99	1202 9366.6
Black shale with muscels.		40.16	1203 2366.7
COAL	2	80.81	1205 9367.51
Soft grey clunch.	6	87.03	1212 5369.35
Banded siltstone.	11	73.33	1224 0373.08
Grey siltstone.	24	47.42	1248 4380.49
Grey shale with ironstone bands.	2	20.46	1250 6381.15
COAL		20.05	1250 8381.20
Shale clunch with COAL streaks.	1	00.3	1251 8381.51
Grey siltstone.	3	41.01	1255 0382.52
Grey shale with ironstone bands and muscels.	15	64.72	1270 6387.15
Hard grey clunch.	3	00.41	1273 6387.16
Grey sandstone.	3	00.41	1276 6389.08
Banded siltstone with ironstone bands.	2	00.61	1278 6389.69
Grey sandstone.	3	00.41	1281 6390.40
Grey siltstone.	5	61.68	1286 0392.28
Banded siltstone.	2	40.71	1289 4392.99
Grey sandstone.	2	60.46	1291 10393.75
Banded siltstone.	1	11.05	1293 9394.84
COAL		30.08	1294 0394.41
Grey clunch.	7	02.13	1301 0396.54
Grey sandstone.	1	60.46	1302 6397.00
Grey siltstone.	4	01.22	1306 6398.22
Grey sandstone.	2	00.61	1308 6398.83
Grey siltstone.	29	69.99	1338 0407.82
Grey shale.	13	03.46	1351 0411.78
Dark grey shale.	2	50.74	1353 5412.52
Black shale.	2	10.43	1355 6413.14
Grey shaly clunch.	1	100.56	1357 4413.71
COAL	40.1		
Dirt.	60.15		
COAL	1 - 40.41		
Grey clunch.	1	20.36	1360 8414.73
Inferior COAL and shale.		30.08	1360 11414.81
Grey clunch.	2	70.79	1363 6415.59
Grey siltstone.	11	63.51	1375 0419.1
Grey shale with plants.	3	01.83	1381 0420.93
COAL		10.03	1381 1420.95
Grey shale with plants.	1	90.33	1382 10421.49
Coaly shale.		40.70	1383 2421.69
Dark shale with plants.	1	30.38	1384 5421.97
COAL	4	14.24	1388 6423.21
Grey clunch.	3	71.09	1392 1424.31
Grey siltstone with plants.	27	18.25	1419 2432.56
Grey shale with plants.	1	10.33	1420 3432.89
COAL	5	11.55	1425 4434.44
Stone clunch.	4	21.27	1429 6435.71
Hard grey shale.	15	44.67	1444 10440.38
Dark shale.		50.13	1445 3440.51
COAL	61 0.16		
COAL and shale.	5 0.13		
Black shaly clunch.		11.20.29	1446 2440.8
Hard grey clunch.	1	75.0.19	1446 10440.99
Grey siltstone.	10	60.46	1448 4441.45
COAL.		13.07	1458 5444.53
Soft clunch.	1	100.35	1459 3444.78
		60.46	1460 9445.24

KENTS THICK.

BARNSELY RIDER

'TOP SOFTS'

LOW BARNSELY

Description of Strata.		Thickness.	Depth.
7 DWSIL.	Grey siltstone with ironstone nodules and plants.	11 33.43	1472 0448.67
	Hard grey shale.	4 01.22	1476 0449.89
	Dark grey shale.	1 40.41	1477 4450.30
	COAL.	1 70.48	1478 11450.77
	Grey clunch.	3 10.93	1482 0451.71
	COAL.	1 10.05	1482 1451.76
	Hard clunch.	110.28	1483 0452.02
	Grey siltstone.	3 61.07	1486 6453.09
	Banded siltstone.	11 13.30	1517 7454.39
	Grey siltstone with plants.	110.28	1518 6456.67
	Black shale.	2 110.99	1521 5458.66
	Hard grey shale.	1 00.3	1522 5458.96
	COAL.	4) 0.1	
	Soft clunch.	7) 0.12	1 60.46 1523 11464.49
	COAL.	7) 0.12	
SWALLOW WOOD.	Hard grey clunch.	5 11.55	1529 0466.04
	Grey siltstone.	2 00.6	1531 0466.65
	Grey sandstone.	3 00.91	1534 0467.56
	Grey shale with ironstone bands and scattered mussels.	9 62.9	1543 6470.46
	Hard black shale.	50.43	1543 11470.59
	COAL.	90.23	1544 8470.82
	Grey clunch.	1 40.41	1546 0471.22
	Grey siltstone.	6 01.82	1552 0473.05
	COAL.	10.02	1552 1473.07
	Hard grey clunch.	1 110.28	1554 0473.64
	Grey siltstone with ironstone.	10 03.05	1564 0476.71
	Grey shale with ironstone bands.	7 02.11	1571 0478.82
	Dark shale.	3 00.77	1574 0479.59
	Hard black shale.	1 20.36	1575 2480.95
	COAL.	1 40.41	1576 6481.36
	Grey clunch.	2 60.76	1579 0482.12
	Shaly clunch.	1 10.34	1580 1483.46
	Hard grey clunch.	2 50.74	1582 6484.20
	Grey sandstone.	2 80.81	1585 2485.01
	Banded siltstone.	100.25	1586 0486.26
	Pale grey sandstone.	1 60.46	1587 6486.72
	Grey siltstone.	2 60.76	1590 0487.48
	Pale grey sandstone.	10 43.15	1600 4488.63
	Dark shaly clunch.	2 10.68	1602 5489.31
	COAL.	20.05	1602 7489.36
	Dark grey clunch.	1 20.36	1603 9489.72
	COAL.	20.05	1603 11489.77
	Hard grey clunch.	2 40.71	1606 3490.48

SE 3755 1198

87 SE 3755 1198
48SECTION OF New Monckton Colliery at 7/8 mile NE of Ryston Church.
Monckton Main of W. map.

Maps: One-inch 87 Six-inch 263 SW County Yorkshire

Height above O.D. 200 ft. Latitude 53° 36' 20" Longitude 1° 26' 0" W

Communicated by "Sec. Strata Ybs. QfA" 1927, p. 240 Date of Sinking 1875

Made by Dip of Strata 1 in 12 E. 1 in 9 NE

SE 31 SE/14

Summary of Published Record:

		Thickness		Depth from Surface.	
Drift	Drift	4	-	4	-
	Yellows Sandstone	24	5	28	5
	Measures with various thin coals.	530	8	559	1
	P. Oaks Rock. Rock + sandstone with brind	121	-	680	1
	Measures with thin coals.	133	5	813	6
	Sandstone (water)	2	6	816	-
	Bands of stone brind + sandstone	9	-	825	-
	Woodley Edge Rock Sandstone with floors	42	6	867	6
	Brind + stone brind	14	4	881	10
	Sandstone with coal + brinds	14	9	896	7
Carboniferous	Sandstone with conglomerate + iron brinds	24	4	910	11
	Blue brind	13	7	924	6
	Meltonfield Coal	3	-	927	6
	Royston Coal	2	-	937	4
	Abby or Winton Coal	5	8	1033	10
	Coal	4	8	1068	9
	Kent's Thin Coal	1	7	1138	8
	Finsley Sandstone	8	10	1147	6
	Rock	4	1	1151	7
	Brind	5	10	1157	5
Intervening beds named coal measures.	Dirt + Coal brinds	-	5	1157	10
	Finsley	3	-	1160	10
	Kent's Rock Rock with floors	32	7	1193	5
	Brind	9	9	1202	2
	Kent's Thick	2	8	1205	10
	Seam of Coal	3	1	1359	2
	Barnsley Seam (Top Soft)	7	2	1389	6
	Barnsley Seam (Bottom)	5	3	1425	7

(48 West phalium C to exposure including 500 feet)



British
Geological Survey

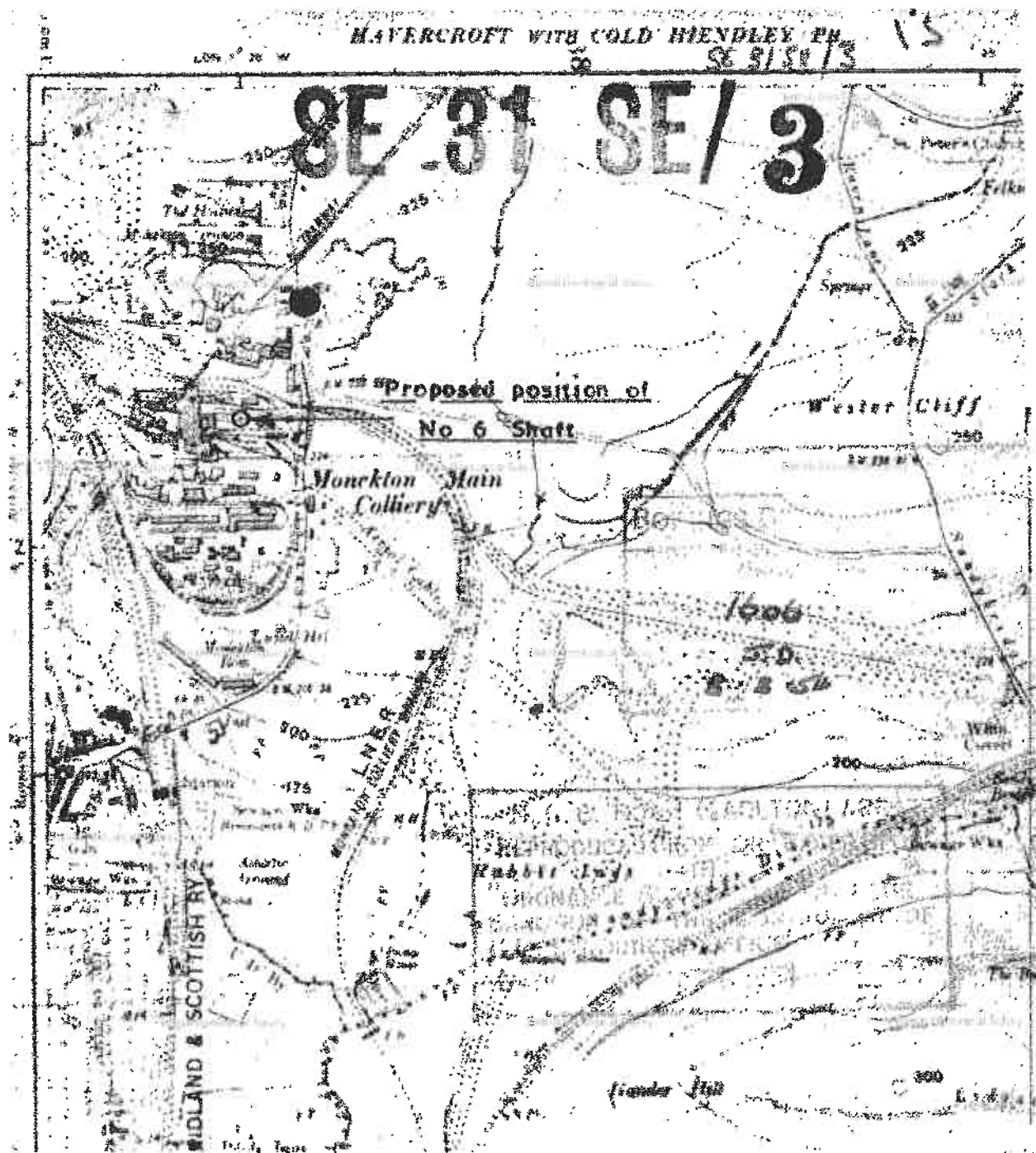
NATURAL ENVIRONMENT RESEARCH COUNCIL

Version 2.0.6

BGS ID: 85642 : BGS Reference: SE31SE3
British National Grid (27700) : 437496,412193

Report an issue with this borehole

<< < Prev Page 1 of 8 ▾ Next > >>



SE 31 SE/5
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SE 31 5/5
BWL SK 373 948

SK 373 948

NEW MONKTON COLLIERIES - No. 4 Underground Borehole

1 inch Geological Map: 87

6 inch Map: Yorks 263 S.W.

Site: Lat. $53^{\circ} 26' 20''$ Long. $1^{\circ} 26' 2''$

Borehole commenced at the floor of BARNESLEY
seam at 1207.16 ft. below O.D.

Borers: Messrs. Graefius Limited

Date: 1953-54

Cores, other than coal, examined by R.F. Goossens

<u>Description of Strata</u>	<u>Thickness</u>	<u>Depth</u>
Grey clunch	3.05 10 0	10 03.05
Grey siltstone	4.50 14 9	24 97.64
Dark grey shale	0.08 3	25 07.62
Grey clunch	0.46 1 6	26 68.08
Carbonaceous clunch	0.15 6	27 08.23
Grey clunch with rootlets and ironstone nodules	0.81 2 0	29 08.84
Grey siltstone	2.74 9 0	38 011.58
Banded siltstone	1.22 4 0	42 012.80
Grey siltstone	0.38 1 3	43 313.18
Grey clunch with rootlets and ironstone nodules	1.07 3 6	46 94.25
Grey siltstone with scattered rootlets	2.06 6 9	53 616.31
Grey shale	0.91 3 0	56 617.22
Dark grey shale	0.08 3	56 917.30
Carbonaceous shale	0.10 4	57 117.40
COAL	0.13 5	57 617.53
Hard grey clunch with rootlets	0.46 1 6	59 017.99
Grey siltstone	0.91 3 0	62 018.90
Grey clunch with rootlets	0.38 1 3	63 319.28
Grey siltstone	2.97 9 9	73 022.25
Banded siltstone	0.61 2 0	75 022.86
Grey siltstone	1.30 4 3	79 324.16
Fine grey sandstone with black streaks in lower part	4.72 15 6	94 928.88
Grey siltstone	0.30 1 0	95 929.18
COAL	0.10 1	96 729.44
Carbonaceous shale	0.05 2	
Inferior COAL	0.10 4	
Carbonaceous shale	0.05 2	96 929.49
Dark grey shaly clunch with plant remains	0.20 1 0	97 929.79
Grey siltstone	0.61 2 0	99 930.40
Black shale with mussels	0.23 9	100 630.63
Grey shale	0.76 2 6	103 031.39
Dark grey shale	0.08 3	103 331.47
COAL	0.30 1 0	104 931.93
Dark grey clunch	0.03 1	
COAL	0.13 5	
Hard grey clunch with rootlets	0.61 2 0	106 932.54
Banded siltstone	2.82 9 3	116 035.36
Grey siltstone	0.38 1 3	117 335.74

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SE 31 SE/5

- 2 -

	Description of Strata	Thickness	Depth
	Grey shale with ironstone bands and scattered mussels	1.755 9	123 0 37.49
	Dark grey shale with mussels and <u>Spirorbis</u>	0.083	123 3 37.57
	Shelly ironstone	0.031	123 4 37.59
	Dark grey shale with abundant mussels	0.135	123 9 37.72
	Grey shale with scattered mussels	0.381 3	125 0 38.10
	Black silty shale with mussels	0.208	125 8 38.30
	Grey clunch with rootlets and ironstone nodules	0.561 10	127 6 38.86
	Pale grey sandstone	1.685 6	133 0 40.54
	Grey siltstone	0.581 3	134 3 40.92
	Grey clunch with rootlets	0.301 0	135 3 41.22
	Banded siltstone	1.605 3	140 6 42.82
	Grey siltstone	1.304 3	144 9 44.12
	Grey shale with ironstone bands and occasional mussels	2.829 3	154 0 46.94
	Dark grey shale with scattered mussels	0.239	154 9 47.17
	Black silty shale with scattered mussels and <u>Spirorbis</u>	0.461 6	156 3 47.62
	No core recovered	0.612 0	158 3 48.23
SWALLOW	COAL	0.083	158 6 48.31
WOOD	Carbonaceous shale	0.031	158 7 48.34
	Dark grey clunch	0.052	158 9 48.39
	Carbonaceous shale	0.083	159 0 48.46
	Inferior COAL	0.104	159 4 48.56
	Grey clunch with rootlets and ironstone nodules	0.735 8	165 0 49.29
	Pale grey sandstone	1.525 0	170 0 50.82
	Banded siltstone	0.612 0	172 0 51.43
	Pale grey sandstone	1.986 6	178 6 54.41
	Grey siltstone	0.461 6	180 0 54.86
	Black shale	0.301 0	181 0 55.17
	Dark grey shale	0.281 3	182 3 55.55
	Inferior COAL	0.083	182 6 55.63
	Dark grey clunch	0.381 3	183 9 56.01
	Banded siltstone	1.605 3	189 0 57.61
	Grey siltstone	0.762 6	191 6 58.37
	Grey shale	0.461 6	193 0 58.83
	Dark grey shale	0.156	193 6 58.98
	Carrolloid shale	0.156	194 0 59.13
	Black silty shale	0.083	194 3 59.21
	Inferior COAL	0.156	194 6 59.36
	Grey clunch with rootlets	0.381 3	196 0 59.74
HAIGH MOOR	(Banded siltstone)	1.073 6	199 6 60.81
ROCK (34')	(Pale grey sandstone)	9.3030 6	230 0 70.10
	Grey shale	0.461 6	231 6 70.56
	Dark grey shale	0.110 4	231 10 70.66
TOP HAIGH MOOR	(COAL 0.70 2 3 1/2) (Dirt and inferior COAL 0.5 1 1/2 8)	1.224 0	235 10 71.78
	Dark grey shaly clunch with ironstone nodules	1.765 9	241 7 73.68
LOW HAIGH MOOR	COAL	0.892 11	244 6 74.52
	Grey clunch with rootlets	0.411 4	245 10 74.93
	COAL	0.052	246 0 74.98
	Hard grey clunch with rootlets	0.156	246 6 75.13
	Banded sandstone	1.525 0	251 6 76.66
	Grey siltstone	1.986 6	258 0 78.64
	Grey shale with ironstone bands and scattered mussels	1.143 9	261 9 79.78

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Description of Strata	Thickness	Depth
COAL	0.15 5	262 3 79.93
Dark grey shaly clunch	0.15 6	262 9 80.09
Hard grey clunch with rootlets	0.61 2 0	264 9 80.70
Banded siltstone	0.84 2 9	267 6 81.53
Grey siltstone with scattered rootlets	1.22 4 0	271 6 82.75
Dark grey silty shale with mussels	0.76 2 6	274 0 83.52
COAL	0.08 3	274 3 83.60
Dark grey clunch	0.23 9	275 0 83.83
Hard grey clunch with rootlets	0.46 1 6	276 6 84.29
Grey siltstone	1.00 5 3	281 9 85.28
Grey shale with ironstone bands and scattered mussels	0.99 3 3	285 0 86.27
Black shale with abundant mussels	0.03 1	285 1 86.30
Dark grey shale with mussels	0.28 11	286 0 87.17
Canneloid shale	0.08 3	286 3 87.95
Dark grey clunch		286 6 87.83
Banded siltstone	3.43 11 3	297 9 90.45
Pale grey sandstone	2.08 6 9	304 6 92.81
Grey siltstone	1.37 4 6	309 0 94.18
Grey shale with occasional mussels	0.61 2 0	311 0 94.79
Dark grey shale with ironstone bands and mussels	2.74 9 0	320 0 97.54
Black shale with mussels	0.08 3	320 3 97.61
Hard black silty shale	0.69 2 3	322 6 98.30
Black shale, canneloid in lower part	0.46 1 6	324 0 98.76
Inferior COAL	0.20 3	325 6 99.21
Carbonaceous shale	0.08 3	
Inferior COAL	0.18 7	
Carbonaceous clunch	0.08 3	325 9 99.29
Dark grey clunch with ironstone nodules	1.30 4 3	330 0 100.58
COAL	0.84 2 9	334 1 101.83
Carbonaceous clunch and very inferior COAL	1.24 4 1	
COAL	0.21 8	
Carbonaceous clunch with coal streaks	0.05 2	334 3 101.88
Hard dark grey clunch	0.53 1 9	336 0 102.41
Grey siltstone	5.94 19 6	355 6 108.36
Banded siltstone	2.21 7 3	362 9 110.57
Pale grey sandstone	2.74 9 0	371 9 113.31
Grey siltstone	0.69 2 3	374 0 114.00
Pale grey sandstone		376 3 114.68
Banded siltstone	0.53 1 9	378 0 115.21
Pale grey sandstone	1.07 3 6	381 6 116.28
Black silty shale with scattered mussels	0.87 1 3	382 9 116.66
Banded siltstone	0.46 1 6	384 3 117.12
Hard dark grey silty shale with mussels	1.80 1 0	385 3 117.42
Shally ironstone	0.08 3	385 6 117.50
Hard black silty shale with mussels and Spirorbis	1.75 5 9	391 3 119.25
Grey shale	0.84 2 9	394 0 120.09
Black shale with mussels and ostracods	0.46 1 6	395 6 120.55
Dark grey shale	1 6	397 0 121.01
Black shale with mussels, Spirorbis and ostracods	0.16 6	397 6 121.16
Grey siltstone	0.30 1 0	398 6 121.46
Pale grey sandstone	2.13 7 0	405 6 123.60
Hard grey siltstone	0.61 2 0	407 6 124.21
Pale grey sandstone	3.81 12 6	420 0 128.02
Grey shale with ironstone bands	7.32 24 0	444 0 135.33

	Description of Strata	Thickness	Depth
CLAY CROSS MARINE BAND	Dark grey shale	0.612 0	446 0135.74
	Black shale with scattered mussels	0.23 9	446 9136.17
	Hard black silty shale with ironstone bands, mussels and <u>Spirorbis</u>	2.67 8 9	455 6138.84
	Hard black silty shale with <u>Idngula</u>	0.15 6	456 0138.79
	COAL 0.031		
	Dark grey clunch 0.05 2		
	COAL 0.083		
	Carbonaceous clunch with coal streaks 0.23 9	0.84 2 9	458 9139.83
	Inferior COAL 0.461 6		
	carbonaceous shale		
JOAN	Dark grey clunch with rootlets	0.612 0	460 9140.44
	Black shale with mussels	0.15 6	461 3140.59
	Dark grey shale with mussels	0.08 3	461 9140.74
	Black shale with mussels	0.08 3	462 0140.82
	Grey shaly clunch with rootlets	0.612 0	464 0141.43
	Banded siltstone	2.51 8 3	472 3142.94
	Grey siltstone	1.07 3 6	475 9145.01
	Grey shale	3 6	479 3146.08
	Black shale with abundant mussels	0.15 6	479 9146.23
	Shelly ironstone	6	480 3146.38
	Black shale with abundant mussels	0.08 3	480 6146.46
	Hard grey clunch with rootlets	0.301 0	481 6146.76
	Banded siltstone	1.07 3 6	485 0147.83
	Grey siltstone	0.531 9	486 9148.36
	Grey shale	0.99 3 3	490 0149.35
	Dark grey shale with scattered mussels and <u>Spirorbis</u>	0.672 3	492 3150.04
	Black shale with mussels	0.08 3	492 6150.11
	Shelly ironstone	3	492 9150.19
	Black shale	0.23 9	493 6150.42
	Shelly ironstone	0.05 2	493 8150.47
	Black shale with mussels	0.612 0	495 8151.08
	Shelly ironstone	0.05 2	495 10151.13
	Black shale with mussels	0.431 5	497 3151.56
	Grey shale with ironstone bands	1.75 5 9	503 0153.31
	Grey siltstone	0.612 0	505 0153.92
	Grey shale with ironstone bands and scattered mussels	0.913 0	508 0154.84
	Dark grey shale with ironstone bands and scattered mussels	0.461 6	509 6155.30
	Black shale with ironstone bands, ostracods and abundant mussels	1.68 5 6	515 0156.94
	Inferior CANNEL	0.23 9	515 9157.20
	Canneloid shale with mussels and ostracods	0.08 3	516 0157.28
	Grey siltstone	2.44 8 0	524 0159.72
FLOCKTON THICK	Grey shale with scattered mussels and <u>Spirorbis</u>	0.30 1 0	525 0160.02
	COAL 0.083		525 3160.10
	Carbonaceous clunch with rootlets	0.23 9	526 0160.32
	Grey clunch with rootlets	0.531 9	527 9160.86
	Grey siltstone	2.73 12 3	540 0164.89
	Grey shale with scattered mussels	0.69 2 3	542 3165.25
	Inferior CANNEL with mussels and ostracods	0.15 6	542 9165.43
	Canneloid shale with mussels and ostracods	0.08 3	543 0165.51
	Hard black silty shale	0.031	543 1165.53
	Grey shale	0.05 2	543 3165.58
	Banded siltstone	2.217 3	550 6167.79
	Grey siltstone	6.40 21 0	571 6174.19

27 SE 31 SE/5

- 5 -

Description of Strata		Thickness	Depth
Grey shale with scattered mussels	0.083	571	9 174.27
Black shale with ostracods and abundant mussels	0.30 1 0	572	9 174.57
Grey shale with scattered mussels	1.07 3 6	576	3 175.64
Grey siltstone	1.45 4 9	581	0 177.09
Grey shale	0.38 1 1	582	1 177.42
Black shale with mussels and ostracods	0.28 11	583	0 177.70
Grey shale with ironstone bands	0.33 1 1	584	1 178.08
Black shale with mussels and ostracods	0.63 1 9	585	10 178.86
Grey shale with mussels	0.81 2 8	588	6 179.87
Black shale with mussels, <u>Spirorbis</u> and abundant ostracods	0.51 1 8	590	2 179.88
Grey shale with ironstone bands and occasional mussels	3.88 11 1	601	3 183.26
Black shale with mussels and abundant ostracods	0.30 1 0	602	3 183.67
Grey shale	0.15 6	602	9 183.72
Black shale with mussels and ostracods	0.08 3	603	0 183.79
Grey shale with ironstone bands and scattered mussels	1.22 4 0	607	0 185.01
Dark grey shale with scattered mussels	0.80 1 0	608	0 185.82
Black shale	0.05 2	608	2 185.87
COAL	0.43 1 5	609	7 185.80
Dark grey clunch with coal streaks	0.05 2	609	9 185.85
Hard grey clunch with rootlets	0.46 1 6	611	5 186.31
Grey siltstone with scattered rootlets	0.66 2 2	613	5 186.97
Dark grey shale with plant remains	0.05 2	613	7 187.02
COAL	0.01 1 1/2	613	7 187.03
Black shaly clunch with coal streaks	0.29 1 1 1/2	614	7 187.32
COAL	0.28 11	615	6 187.60
Grey clunch with rootlets	0.84 2 9	618	3 188.44
Grey siltstone	0.84 2 9	621	0 189.28
Grey shale with ironstone bands and plant remains	0.46 1 6	622	6 189.74
Dark grey shale with plant remains	0.30 1 0	623	6 190.04
Grey siltstone	1.60 5 3	628	9 191.64
Grey shale with occasional mussels	0.43 1 5	630	2 192.07
Black shale with mussels, <u>Spirorbis</u> and abundant ostracods	0.08 3	630	5 192.15
Grey shale with ironstone bands	0.33 1 1	631	6 192.48
Dark grey shale with mussels and ostracods	0.20 8	632	2 192.68
CANAL with mussels and ostracods	0.05 2		
COAL	0.08 3		
Dark grey clunch	0.18 5	634	1 193.27
Inferior COAL	0.33 1 1		
Carbonaceous shale	0.05 2	634	3 193.32
Grey clunch with rootlets and ironstone nodules	1.30 4 3	638	6 194.6)
Dark grey shale with plant remains and ironstone nodules	1.75 5 9	644	3 196.37
COAL	0.81 2 8		
Dark grey clunch	0.13 5		
Very inferior COAL	0.16 6		
Carbonaceous clunch	0.06 2		
Inferior COAL	0.12 1		
Dark grey clunch	0.04 1		
COAL	0.25 10		
	1.57 5 2	649	5 197.94

FLORISSON
THIN

BENTON

SE 31 SE/ 5

- 6 -

Description of Strata		Thickness	Depth
Grey clunch		0.742 5	651 10 198.68
Inferior COAL	5 } 0.13		
Carbonaceous clunch	1 } 0.03	0.25 10	652 8 198.73
Inferior COAL	4 } 0.10		
Carbonaceous clunch		0.03 1	652 9 198.76
Grey clunch		0.023	653 0 199.08
Hard grey clunch with rootlets and ironstone nodules		0.99 3 3	656 32 00.02
Grey siltstone		1.45 4 9	661 02 01.47
Grey shale with ironstone nodules and occasional mussels		1.83 6 0	667 02 03.30
Black shale		0.03 1	667 02 03.33
Hard grey clunch with rootlets and ironstone nodules		0.89 2 11	670 02 04.22
Grey siltstone with scattered plant remains		4.80 15 9	685 02 09.02
(Pale grey sandstone		0.99 3 3	689 02 10.01
(Banded siltstone		3.05 10 0	699 02 13.06
(Pale grey sandstone		3 3	702 02 14.05
(Banded siltstone		3 3	706 02 15.06
(Pale grey sandstone		0.30 1 0	706 02 15.34
(Grey siltstone		0.84 2 9	709 02 16.18
(Banded sandstone		0.99 3 3	712 02 17.17
(Grey siltstone		0.23 9	713 02 17.40
(Pale grey sandstone		1.14 3 9	717 02 18.54
COAL		0.20 1 0	718 02 18.85
Grey clunch with rootlets		2.06 6 9	724 02 20.90
Grey siltstone		0.99 3 3	728 02 21.89
Pale grey sandstone		0.91 3 0	731 02 22.81
Grey siltstone		0.69 2 3	733 02 23.49
Pale grey sandstone		0.15 6	733 02 23.65
Grey siltstone		0.20 1 0	734 02 23.95
Canneloid shale		0.08 3	735 02 24.03
Hard dark grey clunch		0.15 6	735 02 24.18
Canneloid shale		0.30 1 0	736 02 24.47
Dark grey shale		0.23 9	737 02 24.71
Black shale with mussels		0.08 3	737 02 24.79
Grey shale		0.15 6	738 02 24.94
Inferior COAL		0.02 3	738 02 25.02
Hard, dark, grey clunch with rootlets		0.30 1 0	739 02 25.33
Hard grey clunch with rootlets		1 0	740 02 25.43
Grey siltstone		3.81 12 6	752 02 29.94
Hard grey silty shale with occasional mussels		0.08 3	753 02 29.51
Carbonaceous shale		0.03 1	753 02 29.54
Grey siltstone		3.17 10 5	763 02 32.71
Hard grey silty shale		0.08 3	763 02 32.79
Grey shale with ironstone bands and mussels		0.28 1 3	765 02 33.17
Black shale with mussels and ostracods		0.15 6	765 02 33.32
Hard black silty shale		0.02 3	765 02 33.40
Grey clunch		3	766 02 33.48
Banded sandstone		0.41 2 0	768 02 34.09
Grey siltstone with scattered rootlets		0.24 2 9	770 02 34.92
Grey shale with ironstone bands and scattered mussels		0.76 2 6	773 02 35.69
Black shale with mussels and ostracods		0.15 6	773 02 35.84
Dark grey shale with mussels		0.38 1 3	775 02 36.22
Black shale with mussels		0.15 6	775 02 36.37
Hard grey clunch with rootlets		0.38 1 3	776 02 36.75

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SE 31 SE/5

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Description of Strata		Thickness	Depth
Grey siltstone	0.99 3 3	780	0237.74
Grey shale with ironstone nodules and scattered mussels	0.61 2 0	782	0238.36
Dark grey shale	0.08 3	782	0238.43
Dark grey clunch	0.30 1 0	783	0238.73
Grey siltstone	0.91 3 0	786	0239.65
Banded sandstone	0.24 2 9	789	0240.49
Grey siltstone	3.05 10 0	799	0243.54
Grey shale with ironstone bands and scattered mussels	1.75 5 9	804	0245.29
Dark grey shale	0.05 2	804	0245.34
Black shale with mussels and scattered ostracods at top	0.30 1 0	805	0245.64
Dark grey ironstone	0.03 1	806	0245.67
COAL	0.48 1 7	807	0246.15
Grey clunch with rootlets and ironstone nodules	1.04 3 5	811	0247.19
Grey siltstone with scattered rootlets	1.52 5 0	816	0248.72
Dark grey clunch	0.23 9	816	0248.95
Carbonaceous shale	0.08 3	817	0249.02
Grey clunch with rootlets	0.53 1 9	818	0249.55
Grey siltstone	1.75 5 9	821	0251.31
Grey clunch with ironstone nodules	1.22 4 0	823	0252.43
Grey siltstone	3.73 12 3	826	0256.26
Grey clunch with rootlets	0.38 1 3	827	0256.64
Dark grey clunch	0.53 1 9	828	0257.17
Carbonaceous clunch with coal streaks	0.15 6	829	0257.33
Grey clunch with rootlets	0.69 2 3	830	0258.01
Dark grey clunch with coal streaks	1.22 4 0	830	0259.23
Grey clunch with rootlets	0.23 9	831	0259.46
Grey siltstone with scattered rootlets	1.60 5 3	836	0261.06
Carbonaceous shale with coal streaks	0.08 3	836	0261.14
Grey clunch	0.23 9	837	0261.37
Dark grey clunch with coal streaks	0.15 6	838	0261.52
Grey clunch with rootlets	0.21 3 0	861	0262.43
Grey siltstone with scattered plant remains	5.26 17 3	878	0267.69
Dark grey clunch with rootlets	0.15 6	878	0267.84
Carbonaceous clunch with coal streaks	0.23 9	879	0268.07
Inferior COAL	0.15 6	880	0268.22
Carbonaceous clunch	0.08 3	880	0268.30
Hard dark grey clunch with rootlets	0.38 1 3	881	0268.68
Banded siltstone	0.76 2 6	884	0269.44
Dark grey siltstone	1.04 3 5	887	0270.48
COAL	0.68 2 2	889	0271.15
Black shaly clunch	0.13 5	890	0271.27
Dark grey clunch with rootlets	0.69 2 3	892	0271.96
Banded siltstone	1.14 3 9	896	0273.10
Grey shale with ironstone bands	0.76 2 6	898	0278.86
Dark grey shale	0.15 6	899	0279.02
Black shale	0.15 6	899	0279.17
Dark grey shale	0.38 1 3	900	0279.55
Black shale	0.69 2 3	903	0279.93
Black clunch	0.08 3	903	0279.31
Hard grey clunch with rootlets and ironstone nodules	0.38 1 3	904	0279.69
Grey siltstone	0.69 2 3	905	0279.88
Grey shale with ironstone bands	0.20 1 0	907	0279.68
Dark grey shale	0.15 6	908	0279.83
Black shale	0.15 6	908	0279.99

SILTSTONE
FOURFOOT

30

SE 31 SE/5

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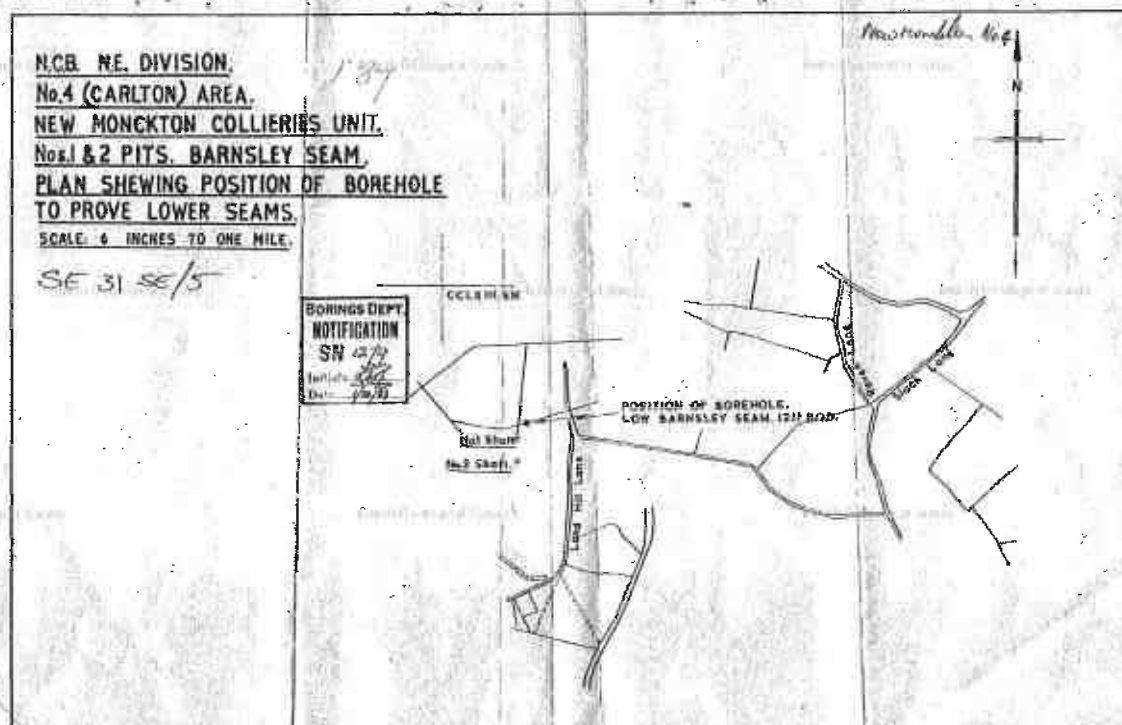
Description of Strata		Thickness	Depth
COAL		0.08 3	909 0277.06
Grey clunch with rootlets		0.23 9	910 0277.29
Grey siltstone with scattered rootlets		7.16 23 6	911 0278.45
Banded siltstone		7.85 25 9	912 0279.30
Grey siltstone		2.44 8 0	917 0279.74
Banded siltstone		1.14 3 9	970 0279.88
Banded sandstone		1.75 5 9	976 0279.64
Grey siltstone		0.61 2 0	978 0279.25
Dark grey shale with ironstone bands		0.61 2 0	980 0279.86
Black silty shale		0.46 1 6	982 0279.81
Black shale		0.71 2 4	984 0280.02
Inferior COAL		0.10 4	984 0280.13
Hard dark grey clunch with rootlets		0.74 2 5	987 0280.86
Inferior COAL		0.08 3	987 0280.94
Hard dark grey clunch with rootlets		0.51 1 8	988 0281.45
Dark grey siltstone with scattered rootlets		5.25 0	994 0282.97
Hard dark grey silty shale with plant remains		0.81 2 8	996 0283.78
Grey shale with scattered rootlets		0.08 3	996 0283.86
SILTSTONE COAL, inferior in part		0.71 2 4	999 0284.57
Grey clunch with rootlets		0.69 2 3	1001 0285.26
Grey siltstone with scattered rootlets		1.82 4 0	1005 0286.58
Pale grey sandstone		0.84 2 9	1008 0287.31
Grey siltstone		2.51 8 3	1016 0289.83
Banded siltstone		1.30 4 3	1020 0291.12
Grey siltstone		1.90 6 3	1027 0293.03
Hard grey silty shale		1.52 5 0	1032 0294.55
LOW "ESTHERIA" BAND	(Grey shale with ironstone bands and scattered "Estheria")	0.99 3 3	1035 0295.54
	(Dark grey shale with scattered "Estheria")	0.28 9	1036 0295.77
	Hard black silty shale	0.23 9	1036 0296.00
	COAL	0.15 6	1037 0296.15
	Hard dark grey clunch with rootlets		1038 0296.35

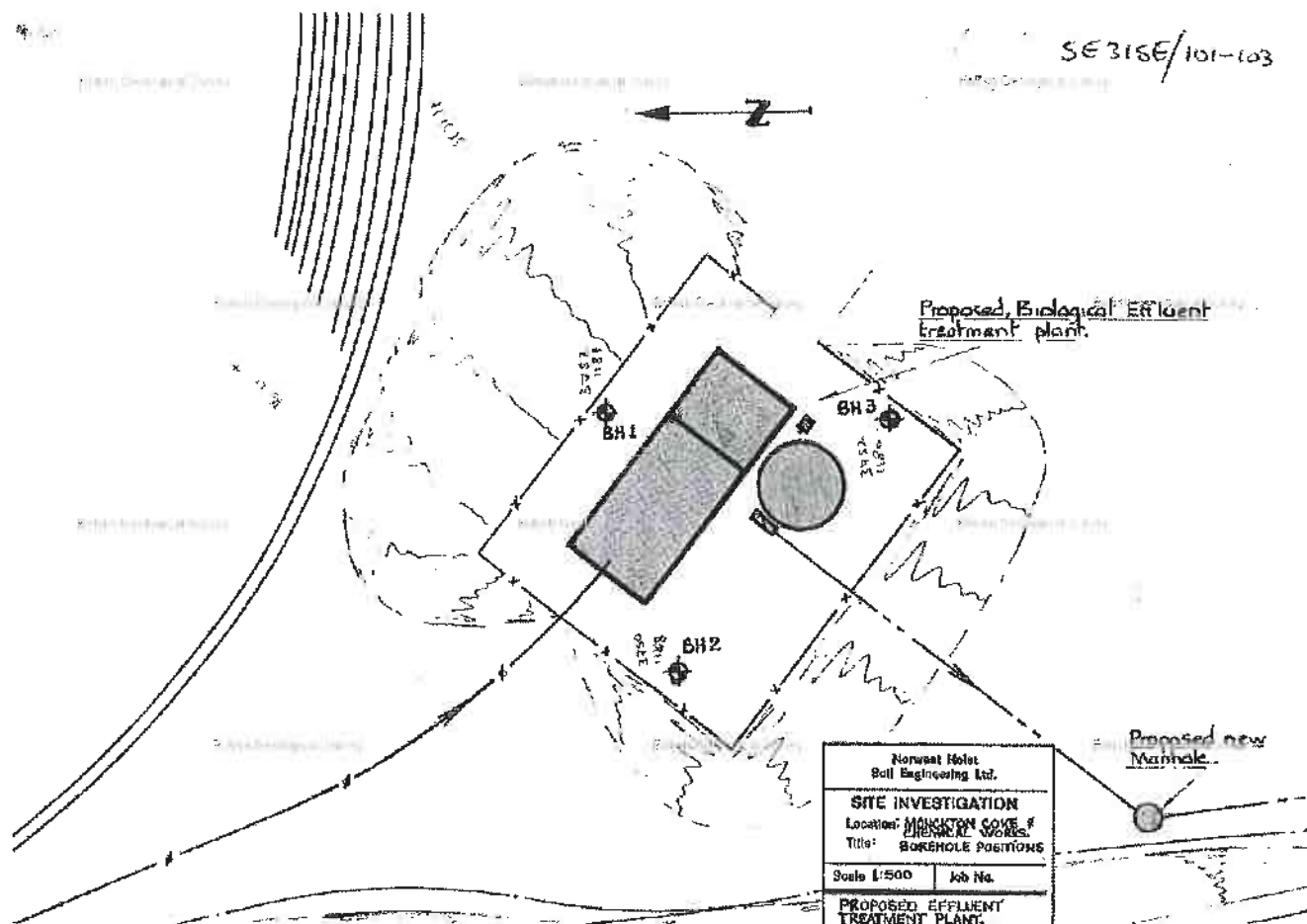


Version 2.0.6

BGS ID: 85644 : BGS Reference: SE31SE5
British National Grid (27700) : 437462,412260

Report an issue with this borehole





Norwest Holst Soil Engineering Ltd.
BOREHOLE LOG

Borehole No.

1

Contract No. F4154
Location Barnsley Coke and Chemical Works
Client Robert Walpole and Campion
Method of Boring Percussion
Diameter of Borehole 12.20m

Sheet 1 of 1
Chainage
Ground Level
Date 19/1/79

Description of Strata	Legend	Depth Below G.L. (m)	Thickness of Strata (m)	Type of sample	C kN/m ²	φ deg	m.c. %	γ Mg/m ³	N
MADEGROUND: Ash, brick and sandstone		1.10	1.10	0.50 					9
Stiff brown mottled silty stony CLAY		3.50	2.40	1.50 3.00 	165	12	18	2.16	
Highly weathered brown sandy MUDSTONE		5.00		4.50 	115	0	13	2.12	109

Key

□ Undisturbed Sample φ Angle of Friction

○ Disturbed Sample m.c. Moisture Content

△ Water Sample γ Bulk Density

1 Penetration Test N S.P.T. Value

 C Apparent Cohesion

Remarks (Observations of Ground Water etc.)

Borehole dry

Water levels are subject to seasonal or tidal variations and should not be taken as constant

NCR 3740 1188

Borehole No.

Sheet 1 of 1
Chainage
Ground Level
Date 20/1/79

Description of Strata	Legend	Depth Below G.L. (m)	Thickness of Strata(m)	Type of sample	C kN/m ²	ϕ deg.	m.c. %	γ Mg/m ³	N
MADEGROUND: ash and brick rubble	[Cross-hatched pattern]	1.40	1.40	1.00 					11
Stiff yellow/brown mottled silty CLAY	[Horizontal wavy lines]	3.20	1.80	2.00 [Box] 3.00 [Box]	75 64	0 7	25 20	2.07 2.16	
Highly weathered brown MUDSTONE	[Vertical hatching]	4.80		4.50 					96for 275mm
Key □ Undisturbed Sample ϕ Angle of Friction ○ Disturbed Sample m.c. Moisture Content △ Water Sample γ Bulk Density I Penetration Test N S.P.T. Value C Apparent Cohesion		Remarks (Observations of Ground Water etc.) Borehole dry Water levels are subject to seasonal or tidal variations and should not be taken as constant							

COMMERCIAL IN CONFIDENCE

SE 31 SE 12

131 DEC 1971

Section of LUND HILL LANE Borehole

Purpose To prove the Sharlston Top Seam

Exact Site O.S. N.G.R. SE/37579/11734

Level at which ^{start} bore commenced relative to O.D. 196.46 ^{more} A.O.D.

Date of sinking or boring May 1971

Sinker or borer National Coal Board
Cores, other than coal, examined by W. J. Smith.

2-INCH MAP	R.M. BEGGING
Yorks. 263 SW	
(County, Sheet and Qtr.)	
SE 31 SE	
(Nat. Grid, Sheet & Qtr.)	
Attach tracing from a map or sketch map if possible	

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS		DEPTH
		Feet	Metres	
	OPEN HOLE - NO CORE	65	1	65
	Light grey sandstone with carbonaceous micaceous partings	10.50	0	66
	Grey siltstone with plant debris	31.02	4	69
	Grey silty mudstone with plant debris	20.63	1	70
	Finely laminated sandstone and siltstone	0.15	6	72
	Grey siltstone with contorted sandy layers	10.30	0	73
	Laminated sandstone and siltstone with carbonaceous micaceous partings	0.13	5	73
	Grey sandstone with carbonaceous micaceous partings	10.41	4	74
	Grey silty mudstone with plant debris and occasional sandy streaks	10.46	6	76
	Grey siltstone with plant debris and sandy layers	0.23	9	77
	Grey silty mudstone with plant remains	10.80	0	78
	Grey siltstone with plant remains	10.66	6	79
	Grey silty mudstone	20.84	9	82
	Grey siltstone	10.41	4	83
	Finely laminated sandstone and siltstone with carbonaceous micaceous partings	0.18	7	84
	Grey siltstone	0.15	6	85
	Grey slightly silty mudstone, occasional muds	20.71	4	87
	Grey mudstone with muds fragments and occasional ironstone bands	31.02	4	90
	Dark grey shale with Meladites	0.80	8	91
	COAL	3 1/2"		91 1/2
	Carbonaceous mudstone and dull coal	1 1/2"		93
	Inferior COAL	0 1/2"		93 1/2
	COAL	2 1/2"		94
	Inferior COAL	1 1/2"		95 1/2
	Mudstone-seatearth	1 1/2"		97
	Inferior COAL	3 1/2"		98 1/2
	Carbonaceous mudstone-seatearth	1 1/2"		100
	Inferior COAL	2 1/2"		101 1/2
	Carbonaceous mudstone with coal streaks	0.05	0	102
	Weak dark grey mudstone-seatearth	0.04	1	102 1/2
	Grey mudstone-seatearth	0.52	1	103 1/2
	Siltstone-seatearth with rootlets	0.25	10	104 1/2
	Weak grey/brown mudstone-seatearth	0.61	2	105 1/2
	Sphaeroiderite band	0.10	4	106 1/2
	Brown/grey mudstone-seatearth	0.46	1	107 1/2
	BOTTOM OF BOREHOLE			

SHARLSTON TOP

APPENDIX D

Coal Mining Report

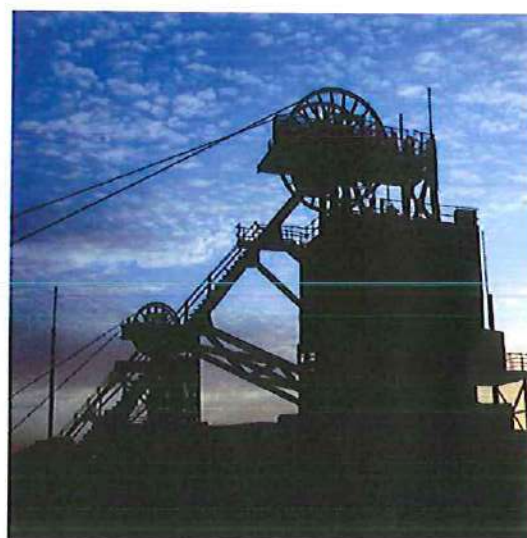


The Coal
Authority

Resolving the **impacts** of mining

CON29M Non-Residential Mining Report

MONCKTON SITE
LUND HILL LANE
BARNESLEY
SOUTH YORKSHIRE



Date of enquiry:	10 November 2017
Date enquiry received:	10 November 2017
Issue date:	22 November 2017

Our reference:	51001695159001
Your reference:	001365 JH quote only red areas

CON29M Non-Residential Mining Report

This report is based on, and limited to, the records held by the Coal Authority and the Cheshire Brine Subsidence Compensation Board's records, at the time we answer the search.

Client name

TM PROPERTY SEARCHES LIMITED

Enquiry address

MONCKTON SITE, LUND HILL LANE, BARNSELY,
SOUTH YORKSHIRE

How to contact us

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

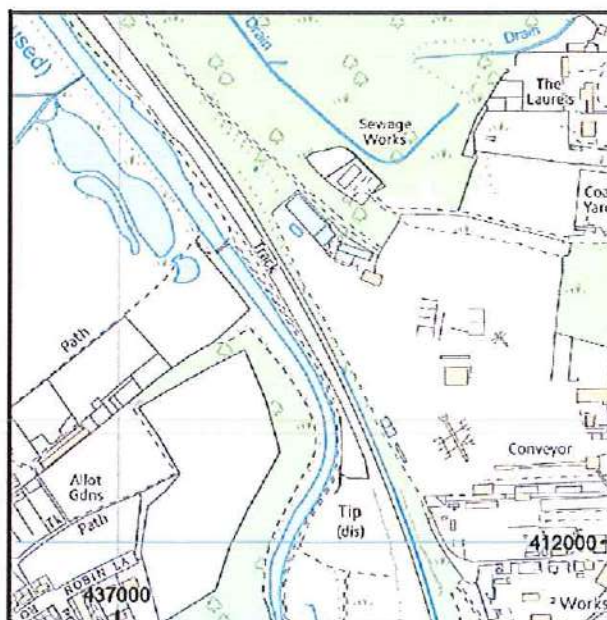
200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

www.groundstability.com

 /company/the-coal-authority

 /thecoalauthority

 /coalauthority



Approximate position of property



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Summary

Has the search report highlighted evidence or potential of		
1	Past underground coal mining	Yes
2	Present underground coal mining	No
3	Future underground coal mining	Yes
4	Mine entries	Yes
5	Coal mining geology	No
6	Past opencast coal mining	No
7	Present opencast coal mining	No
8	Future opencast coal mining	No
9	Coal mining subsidence	No
10	Mine gas	No
11	Hazards related to coal mining	No
12	Withdrawal of support	Yes
13	Working facilities order	No
14	Payments to owners of former copyhold land	No
15	Information from the Cheshire Brine Subsidence Compensation Board	No

Further recommended reports

Mine entry interpretive report

Mine entry plan and data sheets

For detailed findings, please go to page 4.

Detailed findings

1. Past underground coal mining

The property is in a surface area that could be affected by underground mining in 12 seams of coal at 90m to 510m depth, and last worked in 1981.

Any movement in the ground due to coal mining activity should have stopped.

In addition the property is in an area where the Coal Authority believe there is coal at or close to the surface. This coal may have been worked at some time in the past. The potential presence of coal workings at or close to the surface should be considered prior to any site works or future development activity. Your attention is drawn to the Comments on the Coal Authority information section of the report.

2. Present underground coal mining

The property is not within a surface area that could be affected by present underground mining.

3. Future underground coal mining

The property is not in an area where the Coal Authority has plans to grant a licence to remove coal using underground methods.

The property is not in an area where a licence has been granted to remove or otherwise work coal using underground methods.

The property is not in an area likely to be affected from any planned future underground coal mining.

However, reserves of coal exist in the local area which could be worked at some time in the future.

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

4. Mine entries

Within, or within 20 metres of, the boundary of the property there are 3 mine entries, the approximate positions of which are shown on the enquiry boundary plot.

Our records disclose the following information:

437412-003. has been filled to the surface and capped (15m x 15m x 1.2m reinforced concrete) by British Coal.

437412-001. has been filled to the surface and capped (12m x 12m x 1m reinforced concrete) by British Coal.

437412-002. was filled to the surface and capped (12m x 12m x 1m reinforced concrete) by British Coal in February 1989.

There may however be mine entries/additional mine entries in the local area which the Coal Authority has no knowledge of.

For an additional fee, the Coal Authority can provide a Mine Entry Interpretive Report. The report will provide a separate assessment for the mine entry/entries referred to in this report. It gives an opinion on the likelihood of mining subsidence damage caused from ground movement as a consequence of the mine entry/entries. It also gives details of the remedies available for subsidence damage where the mine entry was sunk in connection with coal mining.

Please note that it may not be possible to produce a report if the main building to the property cannot be identified from Coal Authority plans (ie for development sites and new build).

For further advice on how to order this additional information please visit www.groundstability.com.

5. Coal mining geology

The Coal Authority is not aware of any damage due to geological faults or other lines of weakness that have been affected by coal mining.

6. Past opencast coal mining

The property is not within the boundary of an opencast site from which coal has been removed by opencast methods.

7. Present opencast coal mining

The property does not lie within 200 metres of the boundary of an opencast site from which coal is being removed by opencast methods.

8. Future opencast coal mining

There are no licence requests outstanding to remove coal by opencast methods within 800 metres of the boundary.

The property is not within 800 metres of the boundary of an opencast site for which a licence to remove coal by opencast methods has been granted.

9. Coal mining subsidence

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

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

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

10. Mine gas

The Coal Authority has no record of a mine gas emission requiring action.

11. Hazards related to coal mining

The property has not been subject to remedial works, by or on behalf of the Authority, under its Emergency Surface Hazard Call Out procedures.

12. Withdrawal of support

The property is in an area where notices to withdraw support were given in 1947, 1953 and 1957.

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

13. Working facilities order

The property is not in an area where an order has been made, under the provisions of the Mines (Working Facilities and Support) Acts 1923 and 1966 or any statutory modification or amendment thereof.

14. Payments to owners of former copyhold land

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

15. Information from the Cheshire Brine Subsidence Compensation Board

The property lies outside the Cheshire Brine Compensation District.

Comments on the Coal Authority information

The Coal Authority own the copyright in this report and the information used is protected by our database right.

The boundary plot shows the approximate location of the disused mine entry/entries referred to in this report. For reasons of clarity, mine entry symbols may not be drawn to the same scale as the plan.

Property owners have the benefit of statutory protection (under the Coal Mining Subsidence Act 1991*). This contains provision for the making good, to the reasonable satisfaction of the owner, of physical damage from disused coal mine workings including disused coal mine entries. A leaflet setting out the rights and obligations of either the Coal Authority or other responsible persons under the 1991 Act can be obtained by visiting www.groundstability.com.

If you wish to discuss the relevance of any of the information contained in this report, you should seek the advice of a qualified mining engineer or surveyor. If you or your advisor wish to examine the source plans from which the information has been taken, these are available to view, free of charge, at our Head Office in Mansfield. To book an appointment please ring 01623 637225. Should you or your advisor wish to carry out a physical investigation that may enter, disturb or interfere with any disused mine entry, prior permission of the owner must be sought. For coal mine entries, the owner will normally be the Coal Authority.

The Coal Authority, regardless of responsibility and in conjunction with other public bodies, provide an emergency call out facility in coalfield areas to assess the public safety implications of mining features (including disused mine entries). Our emergency telephone number is 01623 646333.

*Note, this Act does not apply where coal was worked or gotten by virtue of the grant of a gale in the Forest of Dean, or any other part of the Hundred of St. Briavels in the county of Gloucester.

In view of the mining circumstances a prudent developer would seek appropriate technical advice before any works are undertaken.

Therefore if development proposals are being considered, technical advice relating to both the investigation of coal and former coal mines and their treatment should be obtained before

beginning work on site. All proposals should apply good engineering practice developed for mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or mines of coal without the permission of the Coal Authority. Developers should be aware that the investigation of coal seams/former mines of coal may have the potential to generate and/or displace underground gases and these risks both under and adjacent to the development should be fully considered in developing any proposals. The need for effective measures to prevent gases entering into public properties either during investigation or after development also needs to be assessed and properly addressed. This is necessary due to the public safety implications of any development in these circumstances.

Additional remarks

Information provided by the Coal Authority in this report is compiled in response to the Law Society's Con29M Coal Mining and Brine Subsidence Claim enquiries. The said enquiries are protected by copyright owned by the Law Society of 113 Chancery Lane, London WC2A 1PL. Please note that Brine Subsidence Claim enquiries are only relevant for England and Wales. This report is prepared in accordance with the Law Society's Guidance Notes 2006, the User Guide 2006 and the Coal Authority and Cheshire Brine Board's Terms and Conditions applicable at the time the report was produced.

Disclaimer

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Alternative formats

If you would like this report in an alternative format, please contact our communications team.

Enquiry boundary

The map image is too large for this page and will be sent in a separate document

How to contact us

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

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

www.groundstability.com

 /company/the-coal-authority

 /thecoalauthority

 /coalauthority

APPENDIX E

Coal Authority Shaft Records

Issued by:

The Coal Authority, Property Search Services, 200 Lichfield Lane, Berry Hill, Mansfield, Nottinghamshire, NG18 4RG
Website: www.groundstability.com Phone: 0845 762 6848 DX 716176 MANSFIELD 5

**RSK
GREYSTONES
CROOK
KENDAL
CUMBRIA
LA8 8JZ**

Our reference:	51000695382001
Your reference:	321789
Date of your enquiry:	19 November 2014
Date we received your enquiry:	19 November 2014
Date of issue:	20 November 2014

This report is for the property described in the address below and the attached plan.

Shaft Plan and Data Sheets

**MONCKTON COKE AND CHEMICAL LIMITED, LUND HILL LANE, ROYSTON, SOUTH
YORKSHIRE,**

I refer to the enquiry dated 19 November 2014, received 19 November 2014, in connection with the above.

As requested I enclose the mine entry data sheet(s) held for the mine entry/entries referred to.

Mine Entry Data

Shaft/adit:	Shaft
Reference:	437412-002
Source:	OS:1/2500 Scale 263/9 1st 2nd 4th ed Ab plans NE545 NE920 NE197 NE190/6 NE547 NE577 NE157 NE224 S75 Geol:1/10560 263SW 2nd ed
Colliery name:	Unknown
Entry name:	New Monckton Colliery No.2 Shaft
Date abandoned:	5-Dec-1965
Depth of superficial deposits (m):	Unknown
Depth of shaft (m):	446.2
Diameter of shaft (m):	5.28
Probable adit azimuth:	Not Applicable
Treatment details:	was filled to the surface and capped (12m x 12m x 1m reinforced concrete) by British Coal in February 1989
Conveyance:	Not Applicable
Easting:	437433
Northing:	412149
Other information:	Yes

Mine Entry Data (continued)

Shaft/adit:	Shaft
Reference:	437412-003
Source:	Ab Plan:NE545 NE920 NE197 NE190/6 NE547 NE577 NE224
Colliery name:	Unknown
Entry name:	New Monckton Colliery No.6 Shaft
Date abandoned:	5-Dec-1965
Depth of superficial deposits (m):	Unknown
Depth of shaft (m):	489.2
Diameter of shaft (m):	7.32
Probable adit azimuth:	Not Applicable
Treatment details:	has been filled to the surface and capped (15m x 15m x 1.2m reinforced concrete) by British Coal
Conveyance:	Not Applicable
Easting:	437505
Northing:	412185
Other information:	Yes

Mine Entry Data (continued)

Shaft/adit:	Shaft
Reference:	437412-001
Source:	OS:1/2500 Scale 263/9 1st 2nd 4th ed Ab plans NE545 NE920 NE197 NE190/6 NE449 NE547 NE577 NE157 NE224 S75 Geol:1/10560 263SW 2nd ed
Colliery name:	Unknown
Entry name:	New Monckton Colliery No.1 Shaft
Date abandoned:	5-Dec-1965
Depth of superficial deposits (m):	Unknown
Depth of shaft (m):	450.8
Diameter of shaft (m):	5.28
Probable adit azimuth:	Not Applicable
Treatment details:	has been filled to the surface and capped (12m x 12m x 1m reinforced concrete) by British Coal
Conveyance:	Not Applicable
Easting:	437431
Northing:	412216
Other information:	Yes

Issued by:	The Coal Authority, 200 Lichfield Lane, Mansfield, Nottinghamshire, NG18 4RG
Tax Point Date:	19 November 2014
Issued to:	RSK GREYSTONES CROOK KENDAL CUMBRIA LA8 8JZ
Property Search for:	MONCKTON COKE AND CHEMICAL LIMITED, LUND HILL LANE, ROYSTON, SOUTH YORKSHIRE,
Reference Number:	51000695382001
Date of Issue:	20 November 2014
Cost:	£35.00
VAT @ 20%:	£7.00
Total Received:	£42.00
VAT Registration	598 5850 68

Location map

Approximate position of enquiry



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This plan shows the approximate location of the disused mine entry / entries referred to in the attached mining report. For reasons of clarity, mine entry symbols may not be drawn to the same scale as the plan.

Property owners have the benefit of statutory protection (under the Coal Mining Subsidence Act 1991). This contains provision for the making good, to the reasonable satisfaction of the owner, of physical damage from disused coal mine workings including disused coal mine entries. A DTI leaflet setting out the rights and obligations of either the Coal Authority or other responsible persons under the 1991 Act can be obtained by telephoning 0845 762 6848.

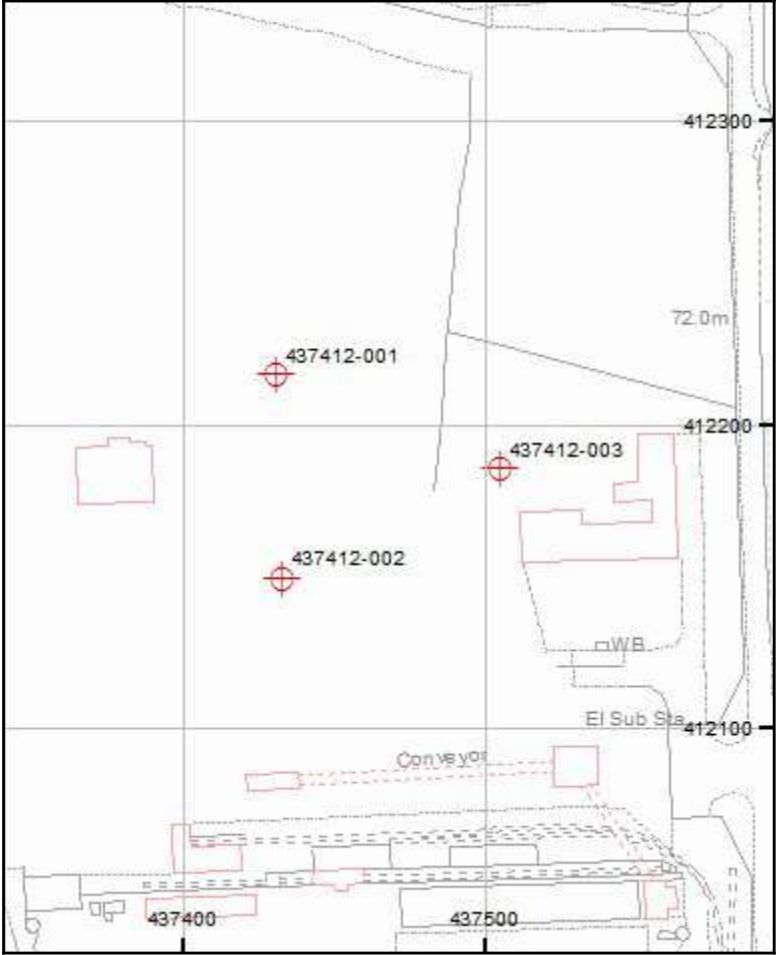
If you wish to discuss the relevance of any of the information contained in the attached report you should seek the advice of a qualified mining engineer or surveyor. If you or your advisor wish to examine the source plans from which the information has been taken these are available at our Mansfield office, free of charge by prior appointment, telephone 01623 637235. Should you or your advisor wish to carry out any physical investigations that may enter, disturb or interfere with any disused mine entry the prior permission of the owner must be sought. For coal mine entries the owner will normally be the Coal Authority.

The Coal Authority, regardless of responsibility and in conjunction with other public bodies, provide an emergency call out facility in coalfield areas to assess the public safety implications of mining features (including disused mine entries).

Our emergency telephone number at all times is 01623 646333.

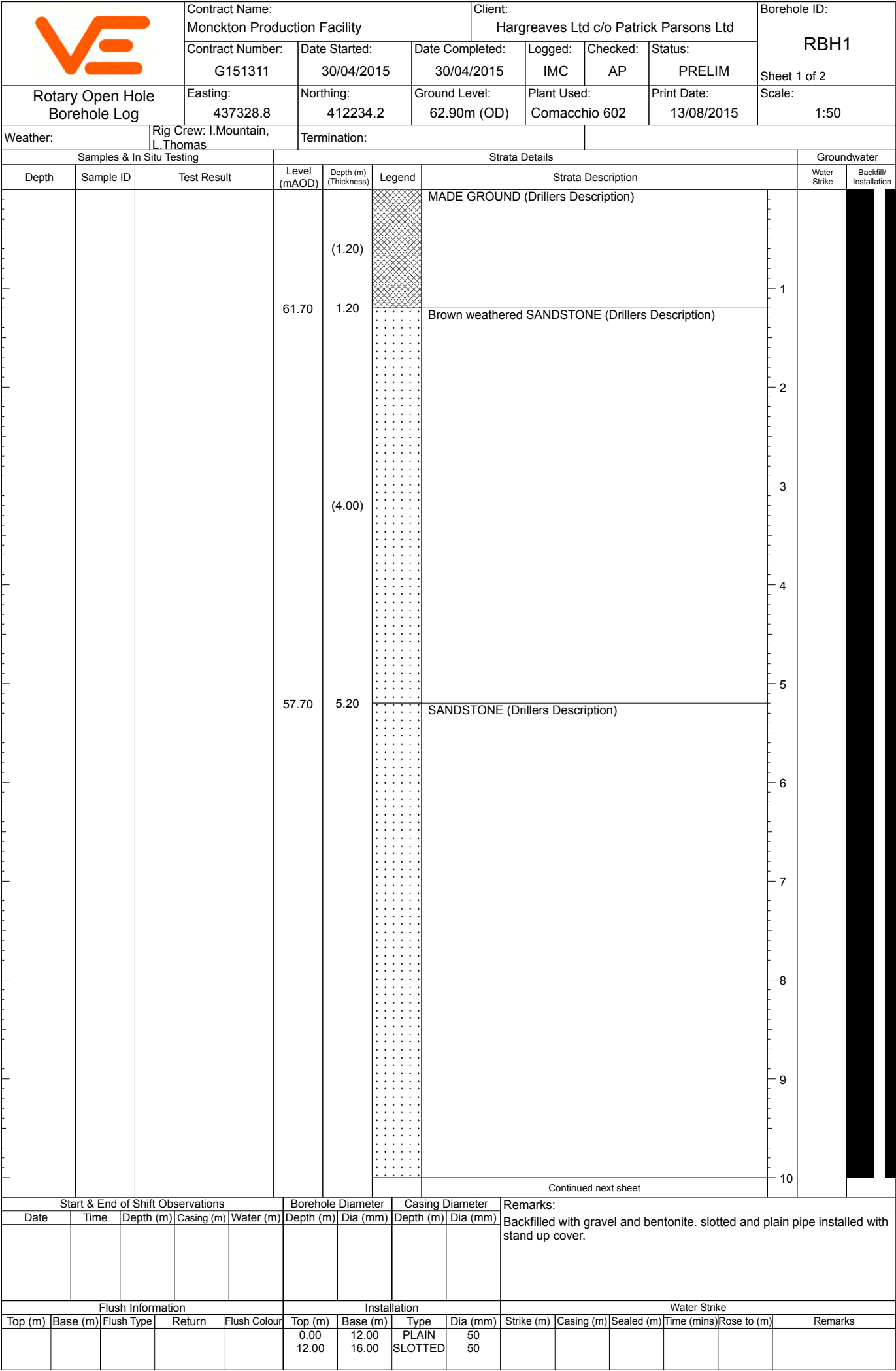
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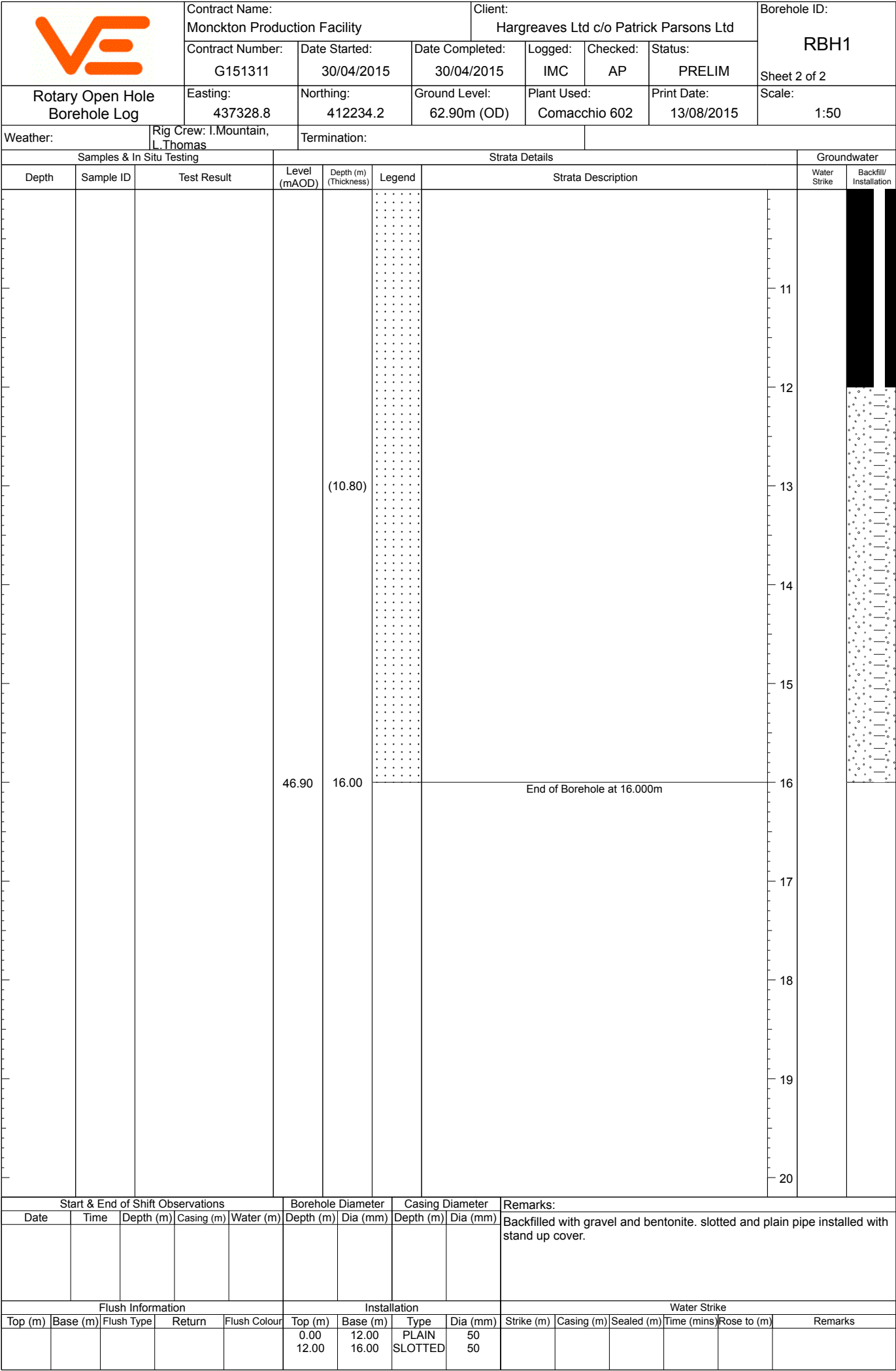
Disused Adit or Mineshaft



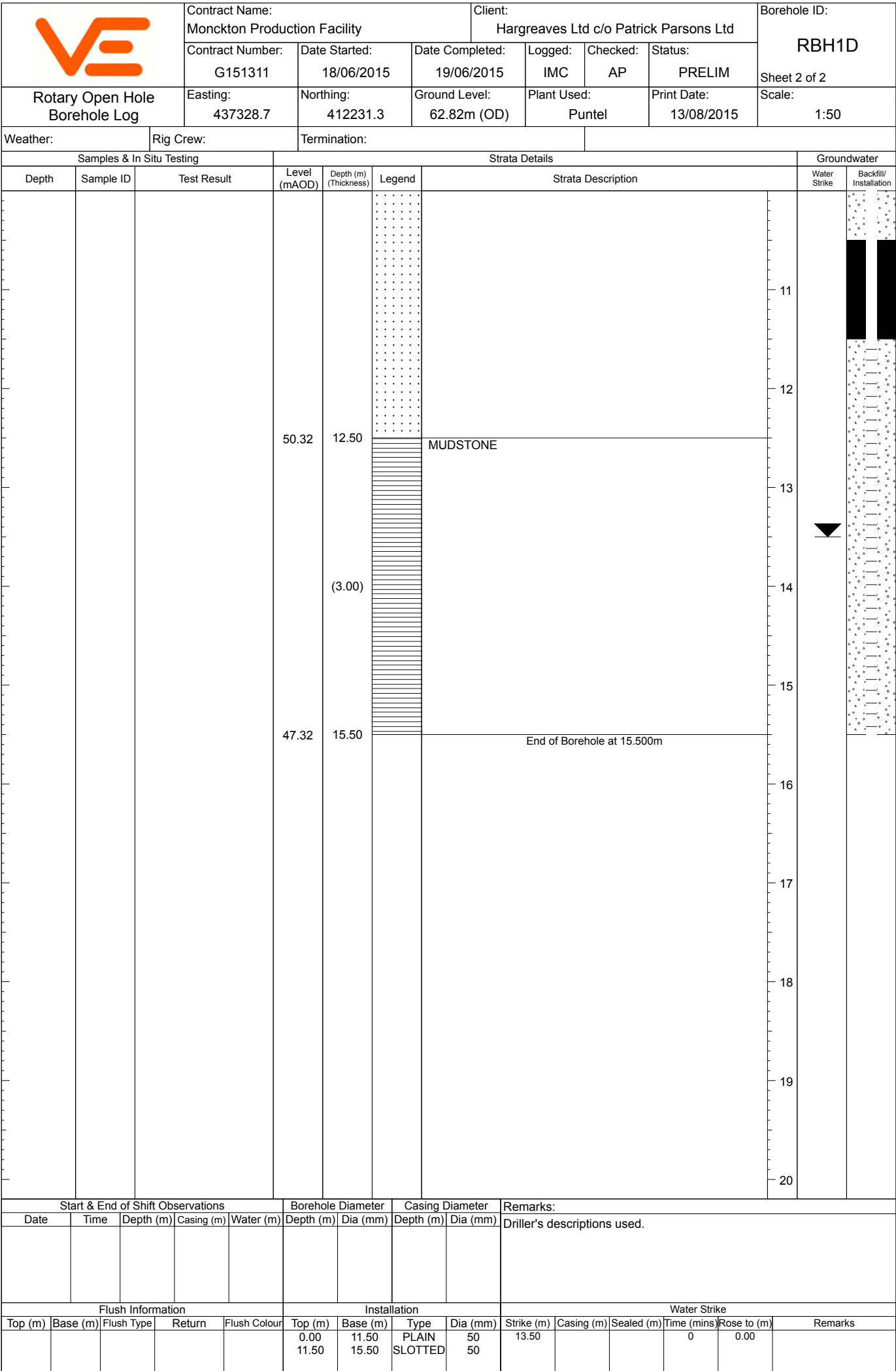
APPENDIX F

Patrick Parsons Borehole Records 2015

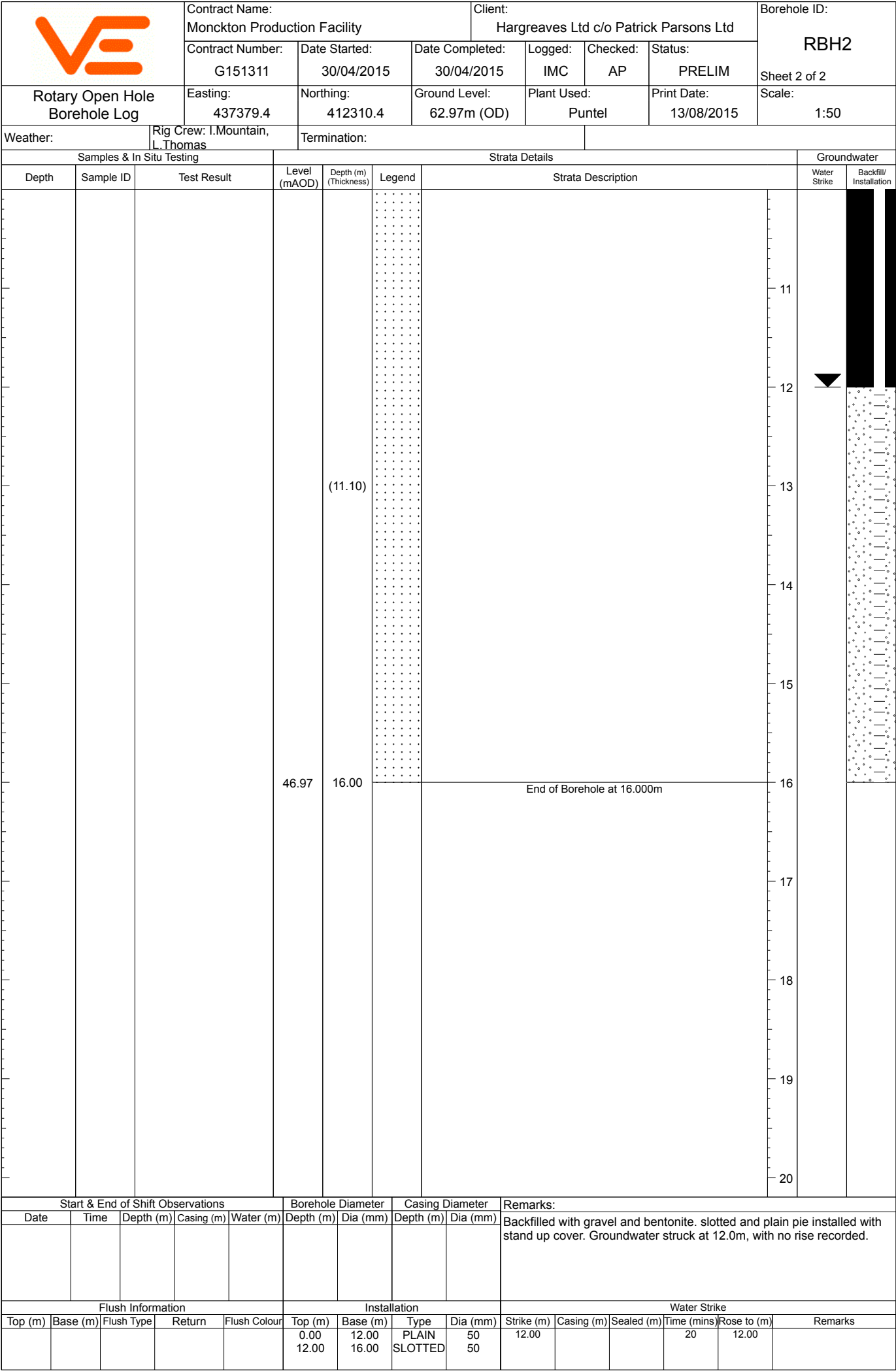




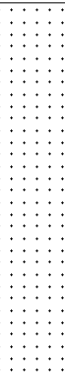
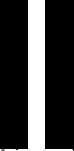
	Contract Name: Monckton Production Facility			Client: Hargreaves Ltd c/o Patrick Parsons Ltd			Borehole ID: RBH1D							
	Contract Number: G151311	Date Started: 18/06/2015	Date Completed: 19/06/2015	Logged: IMC	Checked: AP	Status: PRELIM								
Rotary Open Hole Borehole Log	Easting: 437328.7	Northing: 412231.3	Ground Level: 62.82m (OD)	Plant Used: Puntel	Print Date: 13/08/2015	Sheet 1 of 2								
	Weather:			Rig Crew:	Termination:	Scale: 1:50								
Samples & In Situ Testing			Strata Details				Groundwater							
Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/Installation						
				(0.50)		MADE GROUND - Coke/coal fill.								
			62.32 62.22	0.50 0.60		MADE GROUND - Concrete.								
				(0.50)		MADE GROUND								
			61.72	1.10		Brown CLAY.	1							
			61.32	(0.40)										
				1.50		Broken SANDSTONE.								
				(1.10)			2							
			60.22	2.60		NO RECOVERY.								
			59.82	(0.40)										
				3.00		Hard, red SANDSTONE.	3							
							4							
							5							
							6							
							7							
							8							
							9							
							10							
						Continued next sheet								
Start & End of Shift Observations					Borehole Diameter		Casing Diameter		Remarks:					
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Driller's descriptions used.					
Flush Information					Installation				Water Strike					
Top (m)	Base (m)	Flush Type	Return	Flush Colour	Top (m)	Base (m)	Type	Dia (mm)	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
					0.00 11.50	11.50 15.50	PLAIN SLOTTED	50 50	13.50			0	0.00	

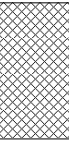
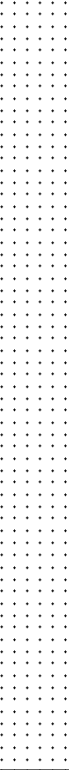


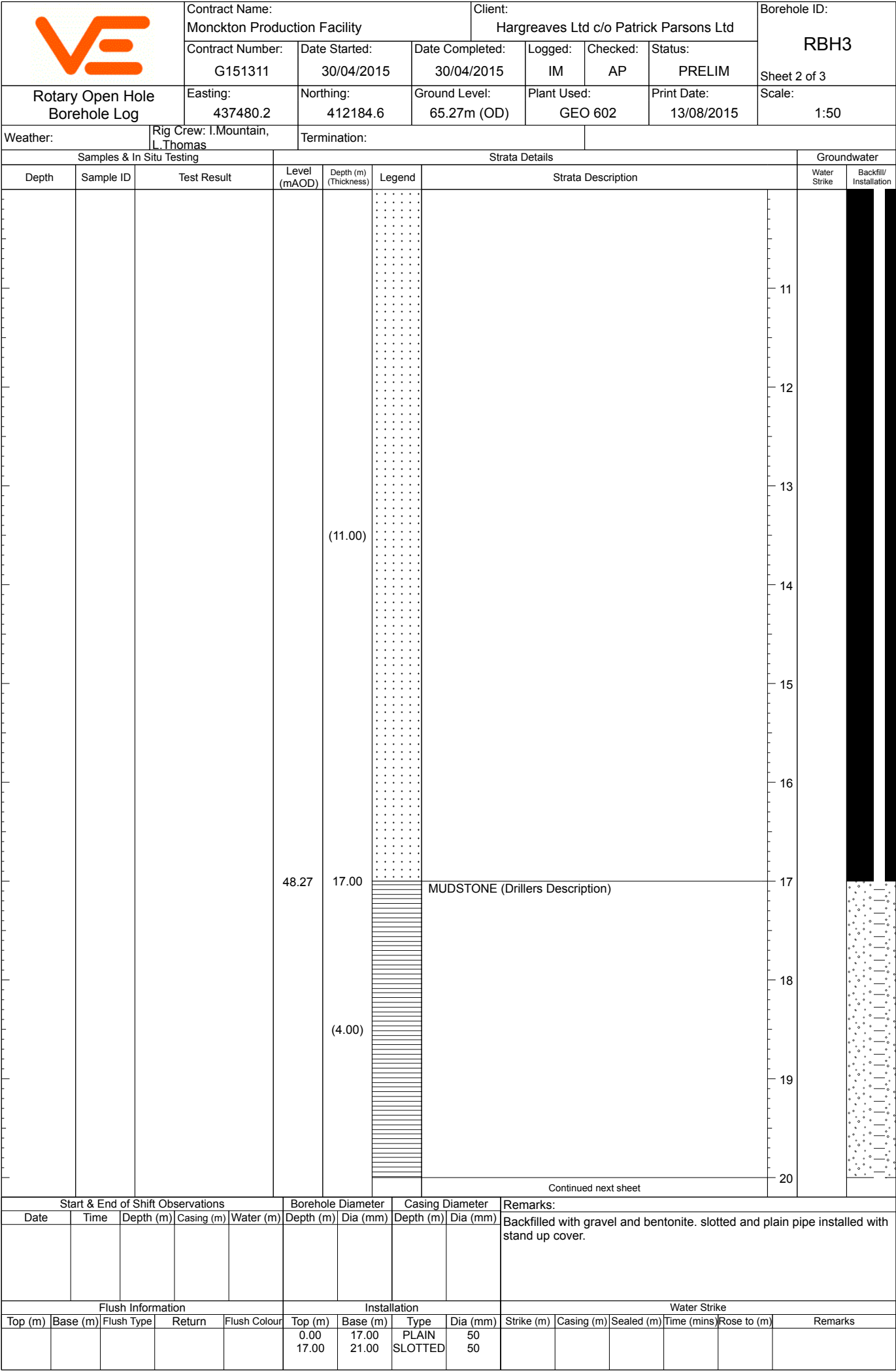
	Contract Name: Monckton Production Facility				Client: Hargreaves Ltd c/o Patrick Parsons Ltd			Borehole ID: RBH2						
	Contract Number: G151311	Date Started: 30/04/2015	Date Completed: 30/04/2015	Logged: IMC	Checked: AP	Status: PRELIM								
Rotary Open Hole Borehole Log	Easting: 437379.4	Northing: 412310.4	Ground Level: 62.97m (OD)	Plant Used: Puntel	Print Date: 13/08/2015	Scale: 1:50								
	Weather:		Rig Crew: I.Mountain, L.Thomas	Termination:										
Samples & In Situ Testing			Strata Details					Groundwater						
Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		Water Strike	Backfill/ Installation					
						MADE GROUND (Drillers Description)								
			61.87	(1.10)										
				1.10		Brown weathered SANDSTONE		1						
				(2.00)				2						
			59.87	3.10		MUDSTONE (Drillers Description)		3						
				(1.80)				4						
			58.07	4.90		SANDSTONE (Drillers Description)		5						
								6						
								7						
								8						
								9						
								10						
						Continued next sheet								
Start & End of Shift Observations					Borehole Diameter		Casing Diameter		Remarks:					
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Backfilled with gravel and bentonite. slotted and plain pie installed with stand up cover. Groundwater struck at 12.0m, with no rise recorded.					
Flush Information					Installation				Water Strike					
Top (m)	Base (m)	Flush Type	Return	Flush Colour	Top (m)	Base (m)	Type	Dia (mm)	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
					0.00	12.00	PLAIN	50	12.00			20	12.00	
					12.00	16.00	SLOTTED	50						

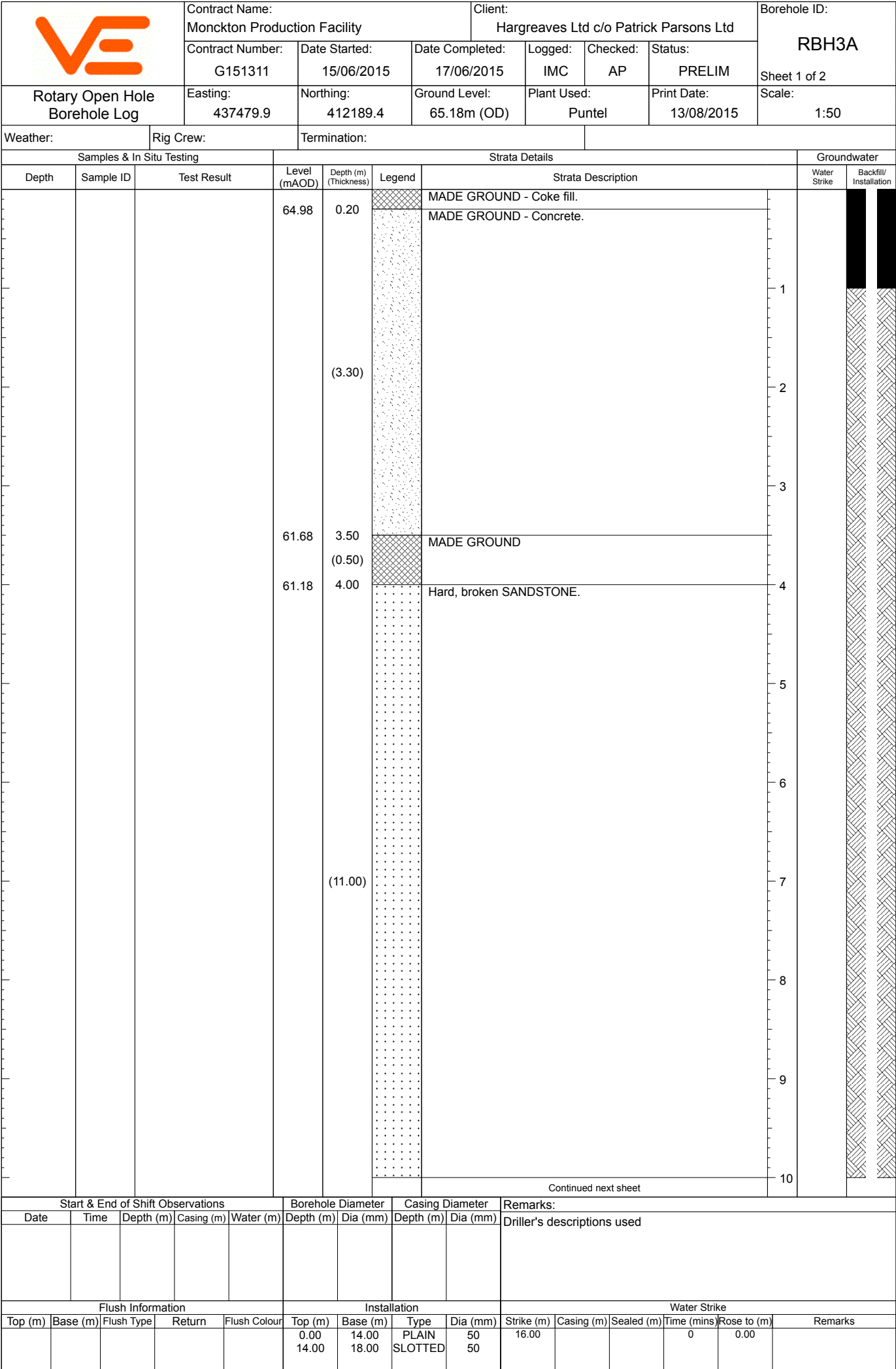


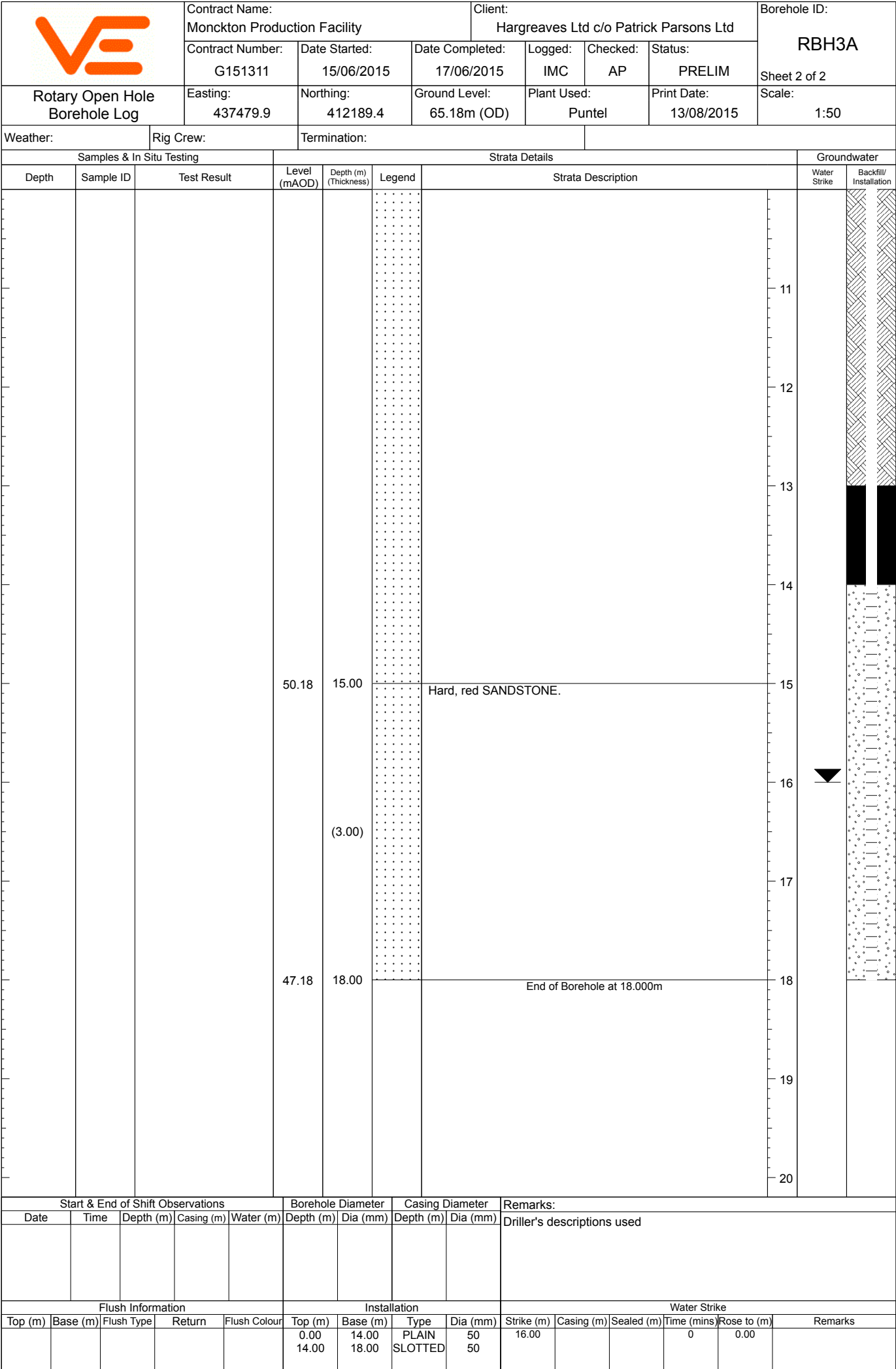
	Contract Name: Monckton Production Facility			Client: Hargreaves Ltd c/o Patrick Parsons Ltd			Borehole ID: RBH2A							
	Contract Number: G151311	Date Started: 16/06/2015	Date Completed: 16/06/2015	Logged: IMC	Checked: AP	Status: PRELIM								
Rotary Open Hole Borehole Log	Easting: 437381.8		Northing: 412310.7		Ground Level: 62.98m (OD)		Plant Used:		Print Date: 13/08/2015		Scale: 1:50			
	Weather:		Rig Crew:		Termination:									
Samples & In Situ Testing				Strata Details							Groundwater			
Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description					Water Strike	Backfill/ Installation		
				(0.50)		MADE GROUND - Coke/coal fill.								
			62.48	0.50		MADE GROUND - Black clay.								
			62.28	0.70		Red/brown CLAY.								
											1			
				(2.60)							2			
											3			
			59.68	3.30		Hard, grey SANDSTONE.					4			
											5			
											6			
				(9.20)							7			
											8			
											9			
											10			
Start & End of Shift Observations			Borehole Diameter		Casing Diameter		Remarks:							
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Driller's descriptions used.					
Flush Information					Installation				Water Strike					
Top (m)	Base (m)	Flush Type	Return	Flush Colour	Top (m)	Base (m)	Type	Dia (mm)	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
					0.00	13.00	PLAIN	50	15.00			0	0.00	
					13.00	17.00	SLOTTED	50						

	Contract Name: Monckton Production Facility				Client: Hargreaves Ltd c/o Patrick Parsons Ltd			Borehole ID: RBH2A						
	Contract Number: G151311	Date Started: 16/06/2015	Date Completed: 16/06/2015	Logged: IMC	Checked: AP	Status: PRELIM								
Rotary Open Hole Borehole Log	Easting: 437381.8	Northing: 412310.7	Ground Level: 62.98m (OD)	Plant Used:	Print Date: 13/08/2015	Sheet 2 of 2 Scale: 1:50								
	Weather:		Rig Crew:		Termination:									
Samples & In Situ Testing			Strata Details					Groundwater						
Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		Water Strike	Backfill/ Installation					
			50.48	12.50		MUDSTONE		11						
				(4.50)				12						
						End of Borehole at 17.000m		13						
								14						
								15						
								16						
			45.98	17.00				17						
								18						
								19						
								20						
Start & End of Shift Observations					Borehole Diameter		Casing Diameter		Remarks:					
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Driller's descriptions used.					
Flush Information					Installation				Water Strike					
Top (m)	Base (m)	Flush Type	Return	Flush Colour	Top (m)	Base (m)	Type	Dia (mm)	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
					0.00	13.00	PLAIN	50	15.00			0	0.00	
					13.00	17.00	SLOTTED	50						

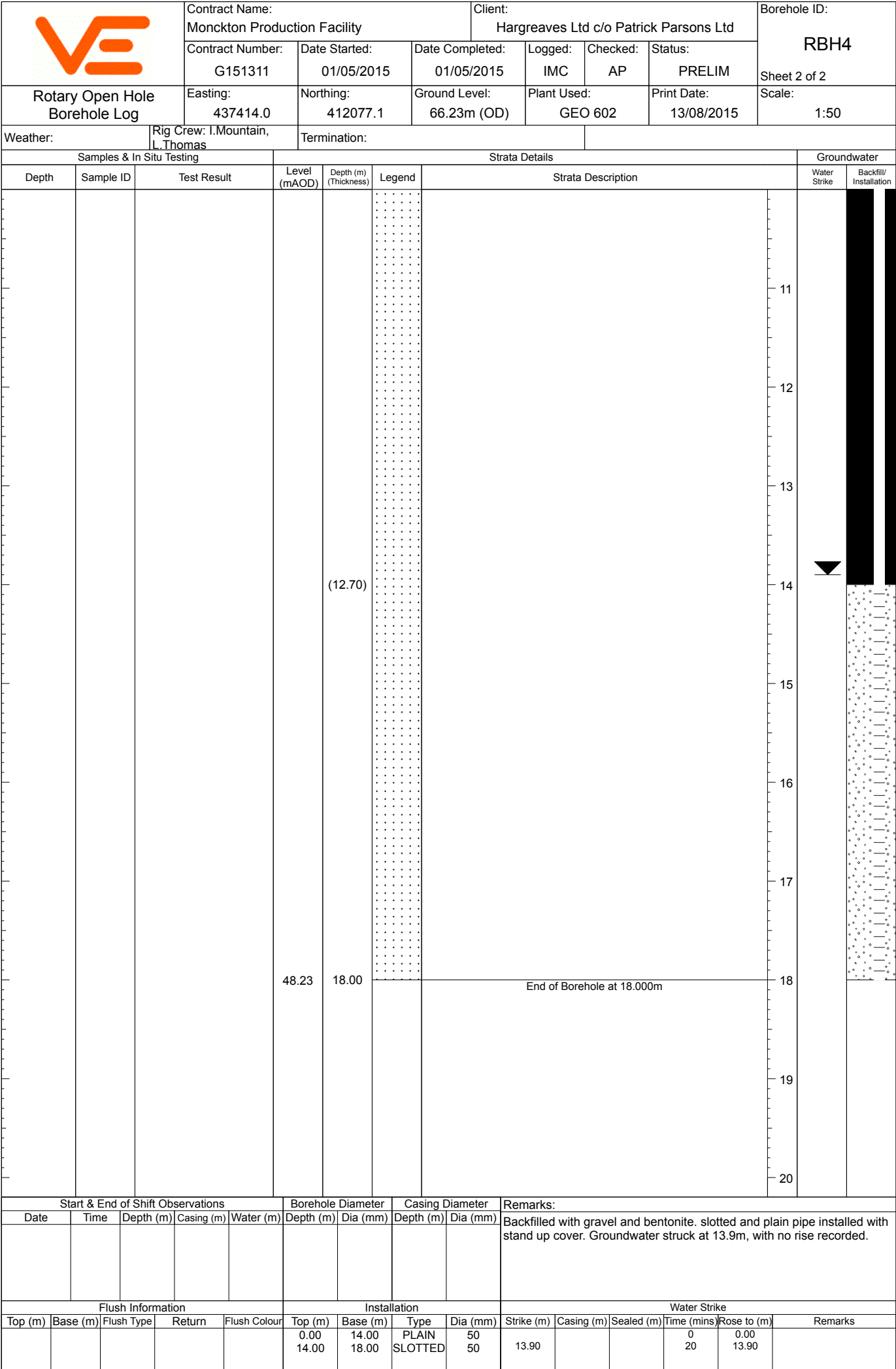
	Contract Name: Monckton Production Facility				Client: Hargreaves Ltd c/o Patrick Parsons Ltd			Borehole ID: RBH3						
	Contract Number: G151311	Date Started: 30/04/2015	Date Completed: 30/04/2015	Logged: IM	Checked: AP	Status: PRELIM								
Rotary Open Hole Borehole Log	Easting: 437480.2	Northing: 412184.6	Ground Level: 65.27m (OD)	Plant Used: GEO 602	Print Date: 13/08/2015	Sheet 1 of 3								
	Weather:		Rig Crew: I.Mountain, L.Thomas	Termination:		Scale: 1:50								
Samples & In Situ Testing			Strata Details					Groundwater						
Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		Water Strike	Backfill/ Installation					
			64.37	(0.90) 0.90		MADE GROUND (Drillers Description)								
						SANDSTONE with gravel bands (Drillers Description)		1						
								2						
								3						
								4						
								5						
								6						
			59.27	(5.10) 6.00		SANDSTONE (Drillers Description)								
								7						
								8						
								9						
								10						
						Continued next sheet								
Start & End of Shift Observations					Borehole Diameter		Casing Diameter		Remarks:					
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Backfilled with gravel and bentonite. slotted and plain pipe installed with stand up cover.					
Flush Information					Installation				Water Strike					
Top (m)	Base (m)	Flush Type	Return	Flush Colour	Top (m)	Base (m)	Type	Dia (mm)	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
					0.00	17.00	PLAIN	50						
					17.00	21.00	SLOTTED	50						

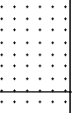
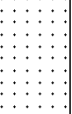






	Contract Name: Monckton Production Facility			Client: Hargreaves Ltd c/o Patrick Parsons Ltd			Borehole ID: RBH4							
	Contract Number: G151311	Date Started: 01/05/2015	Date Completed: 01/05/2015	Logged: IMC	Checked: AP	Status: PRELIM								
Rotary Open Hole Borehole Log	Easting: 437414.0	Northing: 412077.1	Ground Level: 66.23m (OD)	Plant Used: GEO 602		Print Date: 13/08/2015	Scale: 1:50							
	Weather:		Rig Crew: I.Mountain, L.Thomas		Termination:									
Samples & In Situ Testing			Strata Details					Groundwater						
Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		Water Strike	Backfill/ Installation					
						MADE GROUND (Drillers Description)								
				(3.40)				1						
								2						
								3						
			62.83	3.40		Brown weathered SANDSTONE (Drillers Description)		4						
				(1.90)				5						
			60.93	5.30		SANDSTONE (Drillers Description)		6						
								7						
								8						
								9						
								10						
						Continued next sheet								
Start & End of Shift Observations					Borehole Diameter		Casing Diameter		Remarks:					
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Backfilled with gravel and bentonite. slotted and plain pipe installed with stand up cover. Groundwater struck at 13.9m, with no rise recorded.					
Flush Information					Installation				Water Strike					
Top (m)	Base (m)	Flush Type	Return	Flush Colour	Top (m)	Base (m)	Type	Dia (mm)	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
					0.00	14.00	PLAIN	50	13.90			0	0.00	
					14.00	18.00	SLOTTED	50				20	13.90	



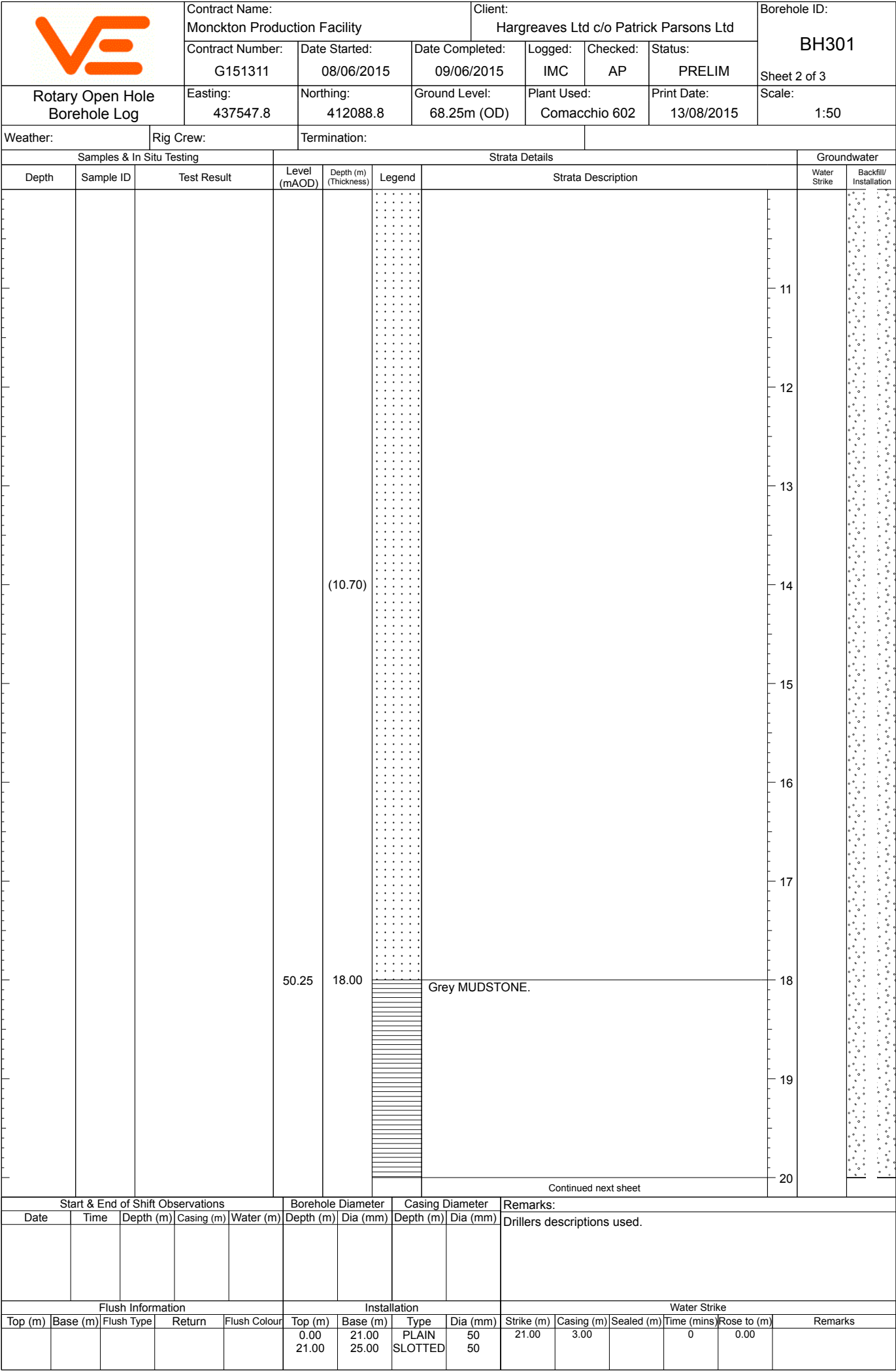
	Contract Name: Monckton Production Facility				Client: Hargreaves Ltd c/o Patrick Parsons Ltd			Borehole ID: RBH4A						
	Contract Number: G151311	Date Started: 18/06/2015	Date Completed: 18/06/2015	Logged: IMC	Checked: AP	Status: PRELIM								
Rotary Open Hole Borehole Log	Easting: 437412.9	Northing: 412076.5	Ground Level: 66.16m (OD)	Plant Used: Puntel	Print Date: 13/08/2015	Sheet 1 of 2								
	Weather:		Rig Crew:	Termination:	Scale: 1:50									
Samples & In Situ Testing			Strata Details					Groundwater						
Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation						
			65.66	(0.50)		MADE GROUND								
				0.50			Brown CLAY.							
			64.86	(0.80)				1						
				1.30		Red SANDSTONE.								
			63.56	(1.30)			2							
				2.60		Grey SANDSTONE.								
							3							
							4							
							5							
				(7.20)										
							6							
							7							
							8							
			56.36	9.80		Very hard, grey SANDSTONE.								
							9							
						Continued next sheet								
							10							
Start & End of Shift Observations					Borehole Diameter		Casing Diameter		Remarks:					
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Driller's descriptions used.					
Flush Information					Installation				Water Strike					
Top (m)	Base (m)	Flush Type	Return	Flush Colour	Top (m)	Base (m)	Type	Dia (mm)	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
					0.00	14.50	PLAIN	50	16.50			0	0.00	
					14.50	19.50	SLOTTED	50						

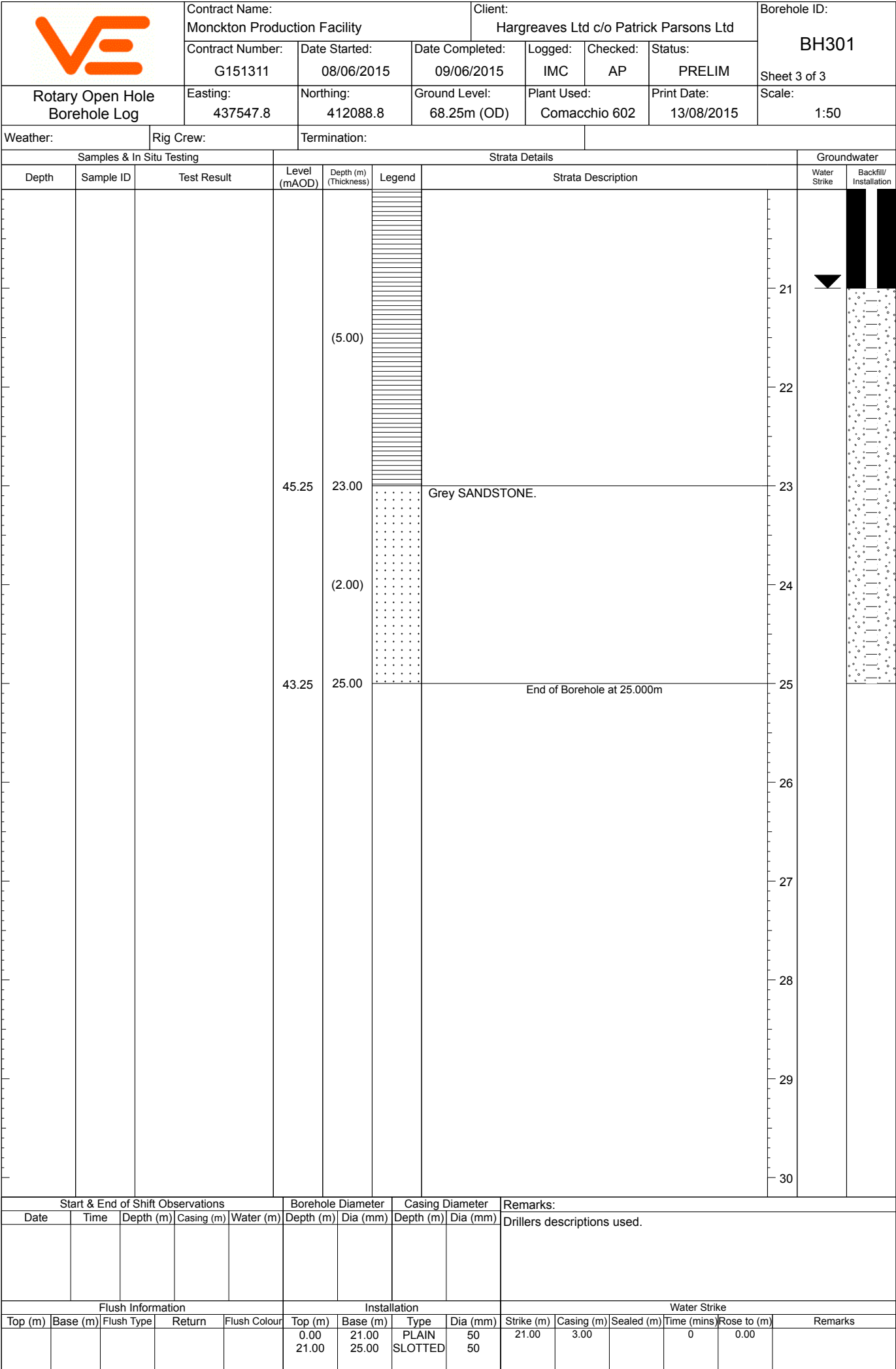
	Contract Name: Monckton Production Facility				Client: Hargreaves Ltd c/o Patrick Parsons Ltd			Borehole ID: RBH4A						
	Contract Number: G151311	Date Started: 18/06/2015	Date Completed: 18/06/2015	Logged: IMC	Checked: AP	Status: PRELIM								
Rotary Open Hole Borehole Log	Easting: 437412.9	Northing: 412076.5	Ground Level: 66.16m (OD)	Plant Used: Puntel		Print Date: 13/08/2015		Sheet 2 of 2						
							Scale: 1:50							
Weather:		Rig Crew:		Termination:										
Samples & In Situ Testing				Strata Details				Groundwater						
Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		Water Strike	Backfill/ Installation					
				(5.70)				11						
								12						
								13						
								14						
			50.66	15.50		Grey MUDSTONE.		15						
								16						
				(4.00)				17						
								18						
			46.66	19.50				19						
						End of Borehole at 19.500m		20						
Start & End of Shift Observations			Borehole Diameter		Casing Diameter		Remarks:							
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Driller's descriptions used.					
Flush Information					Installation				Water Strike					
Top (m)	Base (m)	Flush Type	Return	Flush Colour	Top (m)	Base (m)	Type	Dia (mm)	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
					0.00	14.50	PLAIN	50	16.50			0	0.00	
					14.50	19.50	SLOTTED	50						

	Contract Name: Monckton Production Facility			Client: Hargreaves Ltd c/o Patrick Parsons Ltd			Borehole ID: RBH5							
	Contract Number: G151311	Date Started: 12/06/2015	Date Completed: 12/06/2015	Logged: IMC	Checked: AP	Status: PRELIM								
Rotary Open Hole Borehole Log	Easting: 437471.1	Northing: 411825.9	Ground Level: 62.18m (OD)	Plant Used: Comacchio 305	Print Date: 13/08/2015	Sheet 1 of 2								
	Weather:			Rig Crew:	Termination:	Scale: 1:50								
Samples & In Situ Testing			Strata Details					Groundwater						
Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		Water Strike	Backfill/ Installation					
			61.98	0.20		TOPSOIL								
			61.78	0.40 (0.30)		CONCRETE								
			61.48	0.70		Brown CLAY.								
						Brown MUDSTONE.								
								1						
								2						
								3						
								4						
								5						
								6						
								7						
								8						
								9						
			52.68	9.50 (0.50)		Black shaley MUDSTONE.								
			52.18	10.00				10						
			Continued next sheet											
Start & End of Shift Observations					Borehole Diameter		Casing Diameter		Remarks:					
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Driller's descriptions used.					
Flush Information					Installation				Water Strike					
Top (m)	Base (m)	Flush Type	Return	Flush Colour	Top (m)	Base (m)	Type	Dia (mm)	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
					0.00	12.00	PLAIN	50	14.00	13.00		0	0.00	
					12.00	16.00	SLOTTED	50						

	Contract Name: Monckton Production Facility			Client: Hargreaves Ltd c/o Patrick Parsons Ltd			Borehole ID: RBH5							
	Contract Number: G151311	Date Started: 12/06/2015	Date Completed: 12/06/2015	Logged: IMC	Checked: AP	Status: PRELIM								
Rotary Open Hole Borehole Log	Easting: 437471.1		Northing: 411825.9		Ground Level: 62.18m (OD)		Plant Used: Comacchio 305		Print Date: 13/08/2015		Scale: 1:50			
	Weather:		Rig Crew:		Termination:									
Samples & In Situ Testing					Strata Details					Groundwater				
Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description					Water Strike	Backfill/ Installation		
				(2.00)		Grey SANDSTONE.					11			
			50.18	12.00		Grey MUDSTONE.					12			
				(4.00)							13			
											14			
											15			
			46.18	16.00		End of Borehole at 16.000m					16			
											17			
											18			
											19			
											20			
Start & End of Shift Observations					Borehole Diameter		Casing Diameter		Remarks:					
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Driller's descriptions used.					
Flush Information					Installation				Water Strike					
Top (m)	Base (m)	Flush Type	Return	Flush Colour	Top (m)	Base (m)	Type	Dia (mm)	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
					0.00	12.00	PLAIN	50	14.00	13.00		0	0.00	
					12.00	16.00	SLOTTED	50						

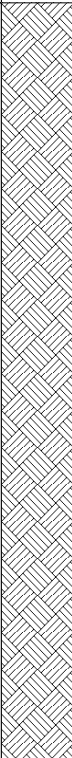
	Contract Name: Monckton Production Facility				Client: Hargreaves Ltd c/o Patrick Parsons Ltd			Borehole ID: BH301						
	Contract Number: G151311	Date Started: 08/06/2015	Date Completed: 09/06/2015	Logged: IMC	Checked: AP	Status: PRELIM								
Rotary Open Hole Borehole Log	Easting: 437547.8	Northing: 412088.8	Ground Level: 68.25m (OD)	Plant Used: Comacchio 602	Print Date: 13/08/2015	Sheet 1 of 3								
	Weather:		Rig Crew:	Termination:	Scale: 1:50									
Samples & In Situ Testing			Strata Details					Groundwater						
Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation						
			67.85	(0.40) 0.40		CONCRETE								
						SAND and GRAVEL.								
				(2.30)			1							
							2							
			65.55	2.70		Brown SANDSTONE.								
							3							
							4							
				(4.60)			5							
							6							
							7							
			60.95	7.30		Grey SANDSTONE.								
							8							
							9							
							10							
						Continued next sheet								
Start & End of Shift Observations					Borehole Diameter		Casing Diameter		Remarks:					
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Drillers descriptions used.					
Flush Information					Installation				Water Strike					
Top (m)	Base (m)	Flush Type	Return	Flush Colour	Top (m)	Base (m)	Type	Dia (mm)	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
					0.00 21.00	21.00 25.00	PLAIN SLOTTED	50 50	21.00	3.00		0	0.00	



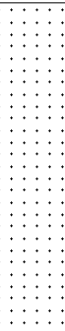
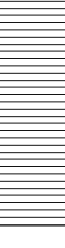


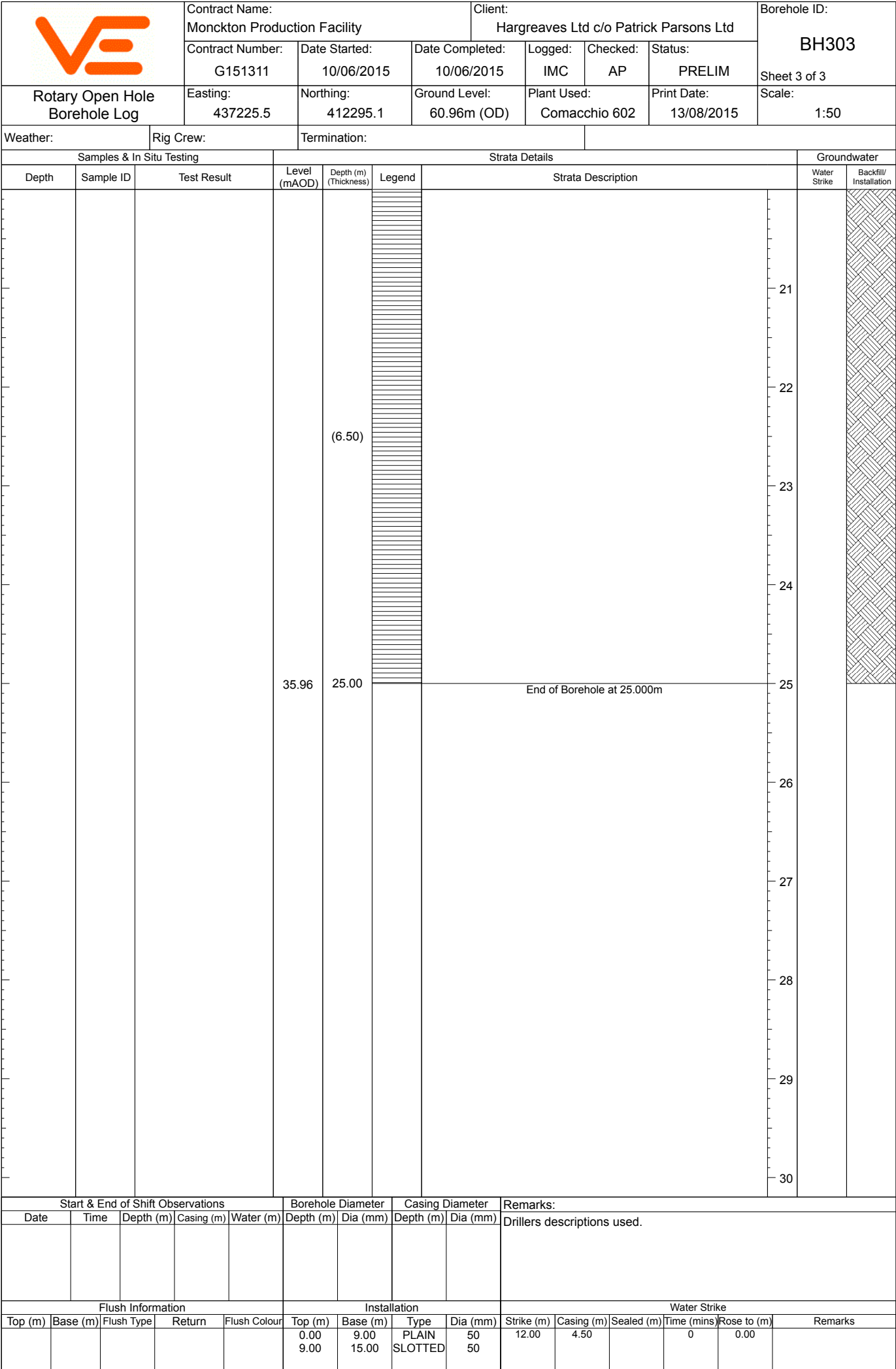
	Contract Name: Monckton Production Facility			Client: Hargreaves Ltd c/o Patrick Parsons Ltd			Borehole ID: BH302							
	Contract Number: G151311	Date Started: 09/06/2015	Date Completed: 09/06/2015	Logged: IMC	Checked: AP	Status: PRELIM	Sheet 1 of 3							
Rotary Open Hole Borehole Log	Easting: 437556.3	Northing: 412202.8	Ground Level: 65.95m (OD)	Plant Used: Comacchio 602		Print Date: 13/08/2015	Scale: 1:50							
	Weather:		Rig Crew:		Termination:									
Samples & In Situ Testing			Strata Details					Groundwater						
Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		Water Strike	Backfill/ Installation					
			65.75	0.20		MADE GROUND - Concrete.								
				(1.80)		SAND and GRAVEL.								
			63.95	2.00		Brown SANDSTONE.		2						
								3						
								4						
								5						
								6						
				(7.00)			7							
							8							
							9							
			56.95	9.00		Grey SANDSTONE.		9						
								10						
						Continued next sheet								
Start & End of Shift Observations					Borehole Diameter		Casing Diameter		Remarks:					
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Drillers descriptions used.					
Flush Information					Installation				Water Strike		Remarks			
Top (m)	Base (m)	Flush Type	Return	Flush Colour	Top (m)	Base (m)	Type	Dia (mm)	Strike (m)	Casing (m)		Sealed (m)	Time (mins)	Rose to (m)
					0.00	12.00	PLAIN	50	15.00	2.00		0	0.00	
					12.00	18.00	SLOTTED	50						

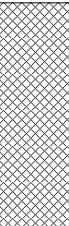
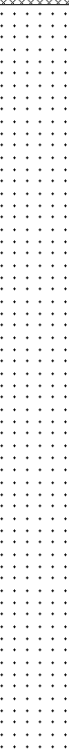
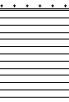
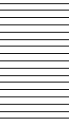
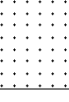
	Contract Name: Monckton Production Facility				Client: Hargreaves Ltd c/o Patrick Parsons Ltd			Borehole ID: BH302						
	Contract Number: G151311	Date Started: 09/06/2015	Date Completed: 09/06/2015	Logged: IMC	Checked: AP	Status: PRELIM								
Rotary Open Hole Borehole Log	Easting: 437556.3	Northing: 412202.8	Ground Level: 65.95m (OD)	Plant Used: Comacchio 602	Print Date: 13/08/2015	Scale: 1:50								
	Weather:		Rig Crew:		Termination:									
Samples & In Situ Testing			Strata Details					Groundwater						
Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		Water Strike	Backfill/ Installation					
				(6.50)				11						
								12						
								13						
								14						
								15						
			50.45	15.50		Brown SANDSTONE.		16						
								17						
				(5.50)				18						
								19						
								20						
						Continued next sheet								
Start & End of Shift Observations					Borehole Diameter		Casing Diameter		Remarks:					
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Drillers descriptions used.					
Flush Information					Installation				Water Strike					
Top (m)	Base (m)	Flush Type	Return	Flush Colour	Top (m)	Base (m)	Type	Dia (mm)	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
					0.00	12.00	PLAIN	50	15.00	2.00		0	0.00	
					12.00	18.00	SLOTTED	50						

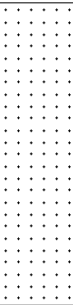
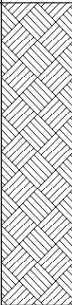
	Contract Name: Monckton Production Facility				Client: Hargreaves Ltd c/o Patrick Parsons Ltd			Borehole ID: BH302 Sheet 3 of 3						
	Contract Number: G151311	Date Started: 09/06/2015	Date Completed: 09/06/2015	Logged: IMC	Checked: AP	Status: PRELIM								
Rotary Open Hole Borehole Log	Easting: 437556.3	Northing: 412202.8	Ground Level: 65.95m (OD)	Plant Used: Comacchio 602	Print Date: 13/08/2015	Scale: 1:50								
	Weather:		Rig Crew:		Termination:									
Samples & In Situ Testing			Strata Details					Groundwater						
Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		Water Strike	Backfill/ Installation					
			44.95	21.00		Grey MUDSTONE.		21						
								22						
				(4.00)				23						
								24						
			40.95	25.00		End of Borehole at 25.000m		25						
								26						
								27						
								28						
								29						
								30						
Start & End of Shift Observations					Borehole Diameter		Casing Diameter		Remarks:					
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Drillers descriptions used.					
Flush Information					Installation				Water Strike					
Top (m)	Base (m)	Flush Type	Return	Flush Colour	Top (m)	Base (m)	Type	Dia (mm)	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
					0.00 12.00	12.00 18.00	PLAIN SLOTTED	50 50	15.00	2.00		0	0.00	

	Contract Name: Monckton Production Facility			Client: Hargreaves Ltd c/o Patrick Parsons Ltd			Borehole ID: BH303							
	Contract Number: G151311	Date Started: 10/06/2015	Date Completed: 10/06/2015	Logged: IMC	Checked: AP	Status: PRELIM								
Rotary Open Hole Borehole Log	Easting: 437225.5		Northing: 412295.1		Ground Level: 60.96m (OD)		Plant Used: Comacchio 602		Print Date: 13/08/2015		Scale: 1:50			
	Weather:		Rig Crew:		Termination:									
Samples & In Situ Testing				Strata Details						Groundwater				
Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description				Water Strike	Backfill/ Installation			
						MADE GROUND - Ash fill.								
				(3.00)						1				
										2				
			57.96	3.00		SAND and GRAVEL.				3				
				(1.50)						4				
			56.46	4.50		Brown SANDSTONE.				5				
										6				
										7				
				(7.70)						8				
										9				
										10				
						Continued next sheet								
Start & End of Shift Observations					Borehole Diameter		Casing Diameter		Remarks:					
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Drillers descriptions used.					
Flush Information					Installation				Water Strike					
Top (m)	Base (m)	Flush Type	Return	Flush Colour	Top (m)	Base (m)	Type	Dia (mm)	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
					0.00	9.00	PLAIN	50	12.00	4.50		0	0.00	
					9.00	15.00	SLOTTED	50						

	Contract Name: Monckton Production Facility				Client: Hargreaves Ltd c/o Patrick Parsons Ltd			Borehole ID: BH303					
	Contract Number: G151311	Date Started: 10/06/2015	Date Completed: 10/06/2015	Logged: IMC	Checked: AP	Status: PRELIM							
Rotary Open Hole Borehole Log	Easting: 437225.5	Northing: 412295.1	Ground Level: 60.96m (OD)	Plant Used: Comacchio 602	Print Date: 13/08/2015	Sheet 2 of 3 Scale: 1:50							
	Weather:		Rig Crew:	Termination:									
Samples & In Situ Testing			Strata Details					Groundwater					
Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		Water Strike	Backfill/ Installation				
			48.76	12.20		Grey SANDSTONE.		11					
								12					
								13					
								14					
								15					
								16					
								17					
								18					
								19					
								20					
			42.46	18.50		Grey MUDSTONE.							
Continued next sheet													
Start & End of Shift Observations					Borehole Diameter		Casing Diameter		Remarks:				
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Drillers descriptions used.				
Flush Information					Installation				Water Strike		Remarks		
Top (m)	Base (m)	Flush Type	Return	Flush Colour	Top (m)	Base (m)	Type	Dia (mm)	Strike (m)	Casing (m)		Sealed (m)	Time (mins)
					0.00	9.00	PLAIN	50	12.00	4.50		0	0.00
					9.00	15.00	SLOTTED	50					

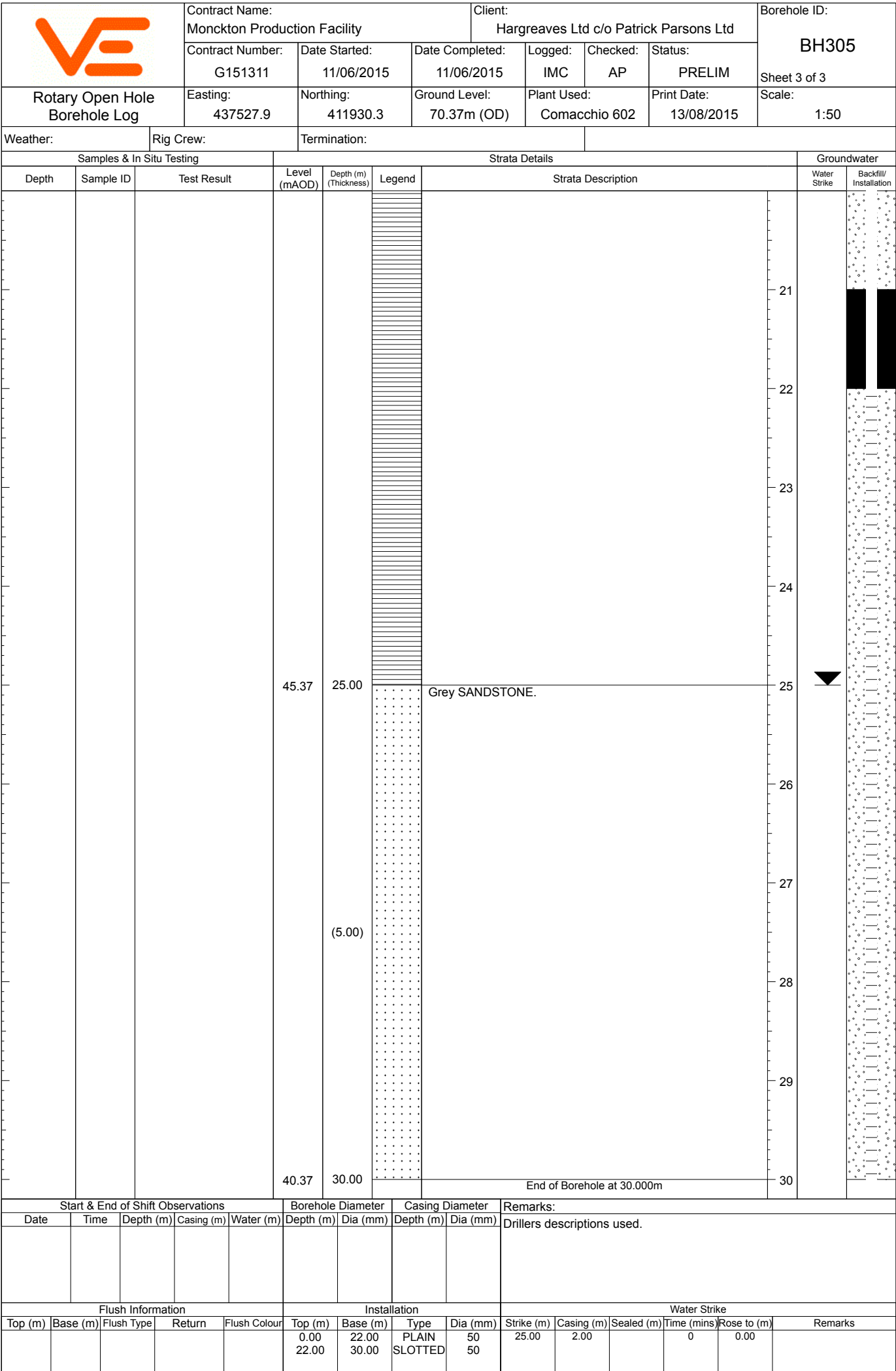


	Contract Name: Monckton Production Facility			Client: Hargreaves Ltd c/o Patrick Parsons Ltd			Borehole ID: BH304		
	Contract Number: G151311	Date Started: 11/06/2015	Date Completed: 11/06/2015	Logged: IMC	Checked: AP	Status: PRELIM	Sheet 1 of 2		
Rotary Open Hole Borehole Log	Easting: 437373.9	Northing: 412054.7	Ground Level: 65.51m (OD)	Plant Used: Comacchio 602		Print Date: 13/08/2015	Scale: 1:50		
	Weather:		Rig Crew:		Termination:				
Samples & In Situ Testing			Strata Details					Groundwater	
Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description	Water Strike	Backfill/ Installation	
			64.01	(1.50)		MADE GROUND - Ash fill.			
				1.50		Brown SANDSTONE.			
			59.01	(5.00)					
				6.50		Brown MUDSTONE.			
			57.51	(1.50)					
				8.00		Brown SANDSTONE.			
				(4.00)					
						Continued next sheet			
Start & End of Shift Observations			Borehole Diameter		Casing Diameter		Remarks:		
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	
Flush Information			Installation		Water Strike				
Top (m)	Base (m)	Flush Type	Return	Flush Colour	Top (m)	Base (m)	Type	Dia (mm)	
					0.00	1.50	PLAIN	50	
					1.50	6.50	SLOTTED	50	
					Strike (m)	Casing (m)	Sealed (m)	Time (mins)	
					4.00	1.50		0	
					Rose to (m)	Remarks			
					0.00				

	Contract Name: Monckton Production Facility			Client: Hargreaves Ltd c/o Patrick Parsons Ltd			Borehole ID: BH304							
	Contract Number: G151311	Date Started: 11/06/2015	Date Completed: 11/06/2015	Logged: IMC	Checked: AP	Status: PRELIM								
Rotary Open Hole Borehole Log	Easting: 437373.9		Northing: 412054.7		Ground Level: 65.51m (OD)		Plant Used: Comacchio 602		Print Date: 13/08/2015		Scale: 1:50			
	Weather:		Rig Crew:		Termination:									
Samples & In Situ Testing				Strata Details						Groundwater				
Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description					Water Strike	Backfill/ Installation		
			53.51	12.00		End of Borehole at 12.000m					11			
											12			
										13				
										14				
										15				
										16				
										17				
										18				
										19				
										20				
Start & End of Shift Observations			Borehole Diameter		Casing Diameter		Remarks:							
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Drillers descriptions used.					
Flush Information					Installation				Water Strike					
Top (m)	Base (m)	Flush Type	Return	Flush Colour	Top (m)	Base (m)	Type	Dia (mm)	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
					0.00	1.50	PLAIN	50	4.00	1.50		0	0.00	
					1.50	6.50	SLOTTED	50						

	Contract Name: Monckton Production Facility				Client: Hargreaves Ltd c/o Patrick Parsons Ltd			Borehole ID: BH305						
	Contract Number: G151311	Date Started: 11/06/2015	Date Completed: 11/06/2015	Logged: IMC	Checked: AP	Status: PRELIM								
Rotary Open Hole Borehole Log	Easting: 437527.9	Northing: 411930.3	Ground Level: 70.37m (OD)	Plant Used: Comacchio 602	Print Date: 13/08/2015	Scale: 1:50								
	Weather:		Rig Crew:		Termination:									
Samples & In Situ Testing			Strata Details					Groundwater						
Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		Water Strike	Backfill/ Installation					
			70.07	(0.30) 0.30		MADE GROUND - Concrete.								
						SAND and GRAVEL.								
				(1.70)				1						
			68.37	2.00		Brown SANDSTONE.		2						
								3						
								4						
								5						
				(7.00)				6						
								7						
								8						
								9						
			61.37	9.00		Grey MUDSTONE.		10						
				(1.30)										
						Continued next sheet								
Start & End of Shift Observations					Borehole Diameter		Casing Diameter		Remarks:					
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Drillers descriptions used.					
Flush Information					Installation				Water Strike					
Top (m)	Base (m)	Flush Type	Return	Flush Colour	Top (m)	Base (m)	Type	Dia (mm)	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
					0.00	22.00	PLAIN	50	25.00	2.00		0	0.00	
					22.00	30.00	SLOTTED	50						

	Contract Name: Monckton Production Facility			Client: Hargreaves Ltd c/o Patrick Parsons Ltd			Borehole ID: BH305							
	Contract Number: G151311	Date Started: 11/06/2015	Date Completed: 11/06/2015	Logged: IMC	Checked: AP	Status: PRELIM	Sheet 2 of 3							
Rotary Open Hole Borehole Log	Easting: 437527.9	Northing: 411930.3	Ground Level: 70.37m (OD)	Plant Used: Comacchio 602		Print Date: 13/08/2015	Scale: 1:50							
	Weather:		Rig Crew:		Termination:									
Samples & In Situ Testing			Strata Details					Groundwater						
Depth	Sample ID	Test Result	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description		Water Strike	Backfill/ Installation					
			60.07	10.30		Grey SANDSTONE.								
				(2.20)				11						
								12						
			57.87	12.50		Brown SANDSTONE.								
				(2.50)				13						
								14						
			55.37	15.00		Grey MUDSTONE.								
				(10.00)				15						
								16						
								17						
								18						
								19						
								20						
						Continued next sheet								
Start & End of Shift Observations					Borehole Diameter		Casing Diameter		Remarks:					
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Drillers descriptions used.					
Flush Information					Installation				Water Strike					
Top (m)	Base (m)	Flush Type	Return	Flush Colour	Top (m)	Base (m)	Type	Dia (mm)	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
					0.00	22.00	PLAIN	50	25.00	2.00		0	0.00	
					22.00	30.00	SLOTTED	50						



APPENDIX G

Ground Stability Report



The Coal
Authority

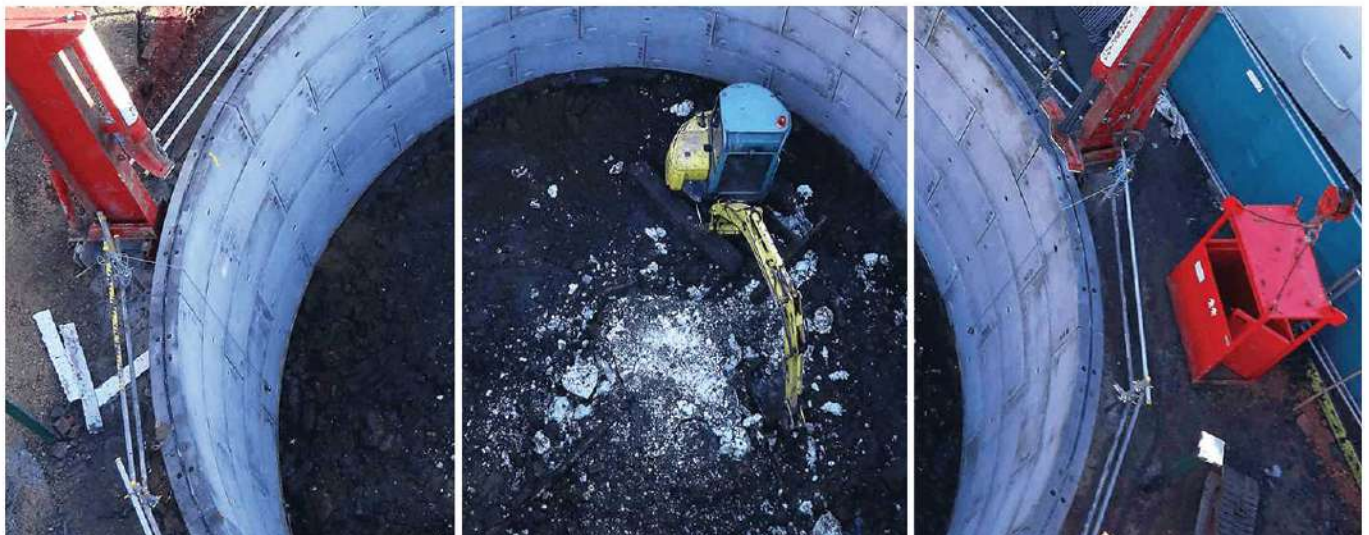
Resolving the **impacts** of mining



British
Geological Survey

NATURAL ENVIRONMENT RESEARCH COUNCIL

Ground Stability Non-Residential Report



MONCKTON SITE, LUND HILL LANE, BARNSELY,
SOUTH YORKSHIRE

Date of enquiry:	10 November 2017
Date enquiry received:	10 November 2017
Issue date:	22 November 2017

Our reference:	51001688129001
Your reference:	001365 JH quote only red areas

Ground Stability Non-Residential Report

This report is based on and limited to the records held by the Coal Authority; the records and geological interpretation of the British Geological Survey (BGS) and the records of the Cheshire Brine Subsidence Compensation Board, at the time the report was produced.

Client name

TM PROPERTY SEARCHES LIMITED

Enquiry address

MONCKTON SITE, LUND HILL LANE, BARNSELY,
SOUTH YORKSHIRE

How to contact us

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

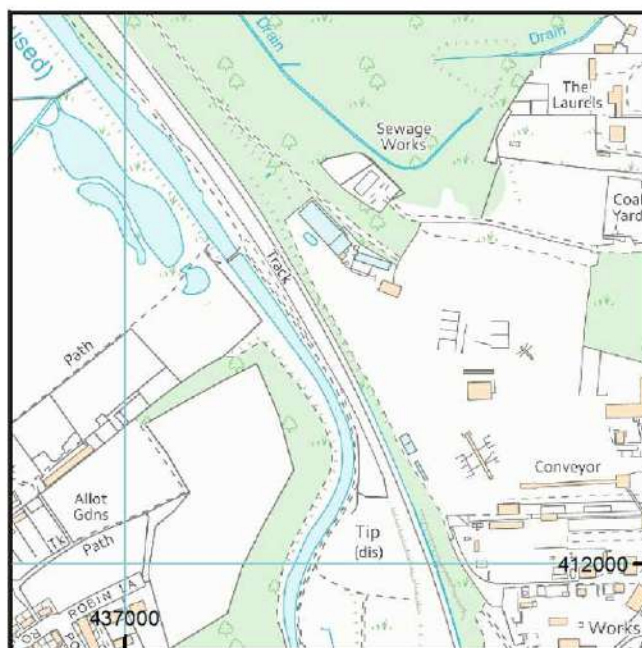
200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

www.groundstability.com

 /company/the-coal-authority

 /thecoalauthority

 /coalauthority



Approximate position of property



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Coal Authority Summary

Has the search report highlighted evidence or potential of		
1	Past underground coal mining	Yes
2	Present underground coal mining	No
3	Future underground coal mining	Yes
4	Mine entries	Yes
5	Coal mining geology	No
6	Past opencast coal mining	No
7	Present opencast coal mining	No
8	Future opencast coal mining	No
9	Coal mining subsidence	No
10	Mine gas	No
11	Hazards related to coal mining	No
12	Withdrawal of support	Yes
13	Working facilities order	No
14	Payments to owners of former copyhold land	No
15	Information from the Cheshire Brine Subsidence Compensation Board	No

Further recommended reports	
Mine entry interpretive report	
Mine entry plan and data sheets	

BGS Summary

Has the search report highlighted evidence or potential of		
1	Shrinkable clay	Yes
2	Running sand	Yes
3	Deposits which could compress	Yes
4	Deposits which could collapse	No
5	Natural landslide activity	Yes
6	Soluble rocks	No

Detailed findings from the Coal Authority

1. Past underground coal mining

The property is in a surface area that could be affected by underground mining in 12 seams of coal at 100m to 510m depth, and last worked in 1981.

Any movement in the ground due to coal mining activity should have stopped.

In addition the property is in an area where the Coal Authority believe there is coal at or close to the surface. This coal may have been worked at some time in the past. The potential presence of coal workings at or close to the surface should be considered prior to any site works or future development activity. Your attention is drawn to the Comments on the Coal Authority information section of the report.

2. Present underground coal mining

The property is not within a surface area that could be affected by present underground mining.

3. Future underground coal mining

The property is not in an area where the Coal Authority has plans to grant a licence to remove coal using underground methods.

The property is not in an area where a licence has been granted to remove or otherwise work coal using underground methods.

The property is not in an area likely to be affected from any planned future underground coal mining.

However, reserves of coal exist in the local area which could be worked at some time in the future.

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

4. Mine entries

Within, or within 20 metres of, the boundary of the property there are 3 mine entries, the approximate positions of which are shown on the enquiry boundary plot.

Our records disclose the following information:

437412-003. has been filled to the surface and capped (15m x 15m x 1.2m reinforced concrete) by British Coal.

437412-001. has been filled to the surface and capped (12m x 12m x 1m reinforced concrete) by British Coal.

437412-002. was filled to the surface and capped (12m x 12m x 1m reinforced concrete) by British Coal in February 1989.

There may however be mine entries/additional mine entries in the local area which the Coal Authority has no knowledge of.

For an additional fee, the Coal Authority can provide a Mine Entry Interpretive Report. The report will provide a separate assessment for the mine entry/entries referred to in this report. It gives an opinion on the likelihood of mining subsidence damage caused from ground movement as a consequence of the mine entry/entries. It also gives details of the remedies available for subsidence damage where the mine entry was sunk in connection with coal mining.

Please note that it may not be possible to produce a report if the main building to the property cannot be identified from Coal Authority plans (ie for development sites and new build).

For further advice on how to order this additional information please visit www.groundstability.com.

5. Coal mining geology

The Coal Authority is not aware of any damage due to geological faults or other lines of weakness that have been affected by coal mining.

6. Past opencast coal mining

The property is not within the boundary of an opencast site from which coal has been removed by opencast methods.

7. Present opencast coal mining

The property does not lie within 200 metres of the boundary of an opencast site from which coal is being removed by opencast methods.

8. Future opencast coal mining

There are no licence requests outstanding to remove coal by opencast methods within 800 metres of the boundary.

The property is not within 800 metres of the boundary of an opencast site for which a licence to remove coal by opencast methods has been granted.

9. Coal mining subsidence

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

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

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

10. Mine gas

The Coal Authority has no record of a mine gas emission requiring action.

11. Hazards related to coal mining

The property has not been subject to remedial works, by or on behalf of the Authority, under its Emergency Surface Hazard Call Out procedures.

12. Withdrawal of support

The property is in an area where notices to withdraw support were given in 1947, 1953 and 1957.

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

13. Working facilities order

The property is not in an area where an order has been made, under the provisions of the Mines (Working Facilities and Support) Acts 1923 and 1966 or any statutory modification or amendment thereof.

14. Payments to owners of former copyhold land

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

15. Information from the Cheshire Brine Subsidence Compensation Board

The property lies outside the Cheshire Brine Compensation District.

Comments on the Coal Authority information

The Coal Authority own the copyright in this report and the information used is protected by our database right.

The boundary plot shows the approximate location of the disused mine entry/entries referred to in this report. For reasons of clarity, mine entry symbols may not be drawn to the same scale as the plan.

Property owners have the benefit of statutory protection (under the Coal Mining Subsidence Act 1991*). This contains provision for the making good, to the reasonable satisfaction of the owner, of physical damage from disused coal mine workings including disused coal mine entries. A leaflet setting out the rights and obligations of either the Coal Authority or other responsible persons under the 1991 Act can be obtained by visiting www.groundstability.com.

If you wish to discuss the relevance of any of the information contained in this report, you should seek the advice of a qualified mining engineer or surveyor. If you or your advisor wish to examine the source plans from which the information has been taken, these are available to view, free of charge, at our Head Office in Mansfield. To book an appointment please ring 01623 637225. Should you or your advisor wish to carry out a physical investigation that may enter, disturb or interfere with any disused mine entry, prior permission of the owner must be sought. For coal mine entries, the owner will normally be the Coal Authority.

The Coal Authority, regardless of responsibility and in conjunction with other public bodies, provide an emergency call out facility in coalfield areas to assess the public safety implications of mining features (including disused mine entries). Our emergency telephone number is 01623 646333.

*Note, this Act does not apply where coal was worked or gotten by virtue of the grant of a gale in the Forest of Dean, or any other part of the Hundred of St. Briavels in the county of Gloucester.

In view of the mining circumstances a prudent developer would seek appropriate technical advice before any works are undertaken.

Therefore if development proposals are being considered, technical advice relating to both the investigation of coal and former coal mines and their treatment should be obtained before

beginning work on site. All proposals should apply good engineering practice developed for mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or mines of coal without the permission of the Coal Authority. Developers should be aware that the investigation of coal seams/former mines of coal may have the potential to generate and/or displace underground gases and these risks both under and adjacent to the development should be fully considered in developing any proposals. The need for effective measures to prevent gases entering into public properties either during investigation or after development also needs to be assessed and properly addressed. This is necessary due to the public safety implications of any development in these circumstances.

Detailed findings from BGS

1. Shrinkable clay

The property is in an area underlain by clay. Clay can swell or shrink if the moisture content changes.

The clay deposits in this area are considered to be mainly of "medium plasticity". Movement is unlikely to occur unless changes are made to the ground and/or vegetation, including those caused by drought or excessively wet weather.

2. Running sand

The property is in an area underlain by sand. Some sands, if voids are present, may flow if they come into contact with water.

However, such movement is unlikely to occur unless substantial changes are made to the ground.

3. Deposits which could compress

The property is in an area underlain by natural compressible deposits. When this material is overloaded, or dries out, it can become unstable causing ground movement.

Because of these compressible deposits, ground movement could occur.

4. Deposits which could collapse

The property is not in an area underlain by deposits which could collapse and cause ground movement.

5. Natural landslide activity

The property is in an area where the local geology and steepness of slope could combine to create the likelihood of landslide activity.

Because of the nature of the geology in this area landslide activity could occur.

6. Soluble rocks

The property is not in an area underlain by soluble rocks.

Comments on the BGS information

These features should not necessarily give cause for concern.

Whether or not a property is affected by ground movement can depend on a number of factors such as its age, type of construction, and on its surroundings and such matters as drainage and nearby trees.

Since 1992 buildings should have been designed and constructed according to buildings regulations to ensure natural ground movement will not cause damage to a building.

However, you should consider the possible consequences before you:

- carry out any building or excavation work
- alter the ground surface or drainage of surface or ground water
- plant or remove large shrubs or trees

Ground movement can cause uneven damage or subsidence to a property.

Developers should always carry out an appropriate risk assessment before starting any work on, or around, a property.

If you own the property and it is damaged by ground movement: You should contact your insurance company and anyone else who has an interest in the property, for example, the mortgage lender.

If you are considering buying the property and BGS has identified that ground movement could occur you should tell your professional advisers.

Additional remarks

This report has been prepared in accordance with the Law Society's Guidance Notes 2006, the User Guide 2006 and the Coal Authority, British Geological Survey and Cheshire Brine Subsidence Compensation Board's Terms and Conditions applicable at the time the report was produced. The information provided by the Coal Authority has been compiled in response to the Law Society's CON29M Coal Mining and Brine Subsidence Claim enquiries and are protected by copyright owned by the Law Society of 113 Chancery Lane, London WC2A 1PL.

Disclaimer

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Alternative formats

If you would like this report in an alternative format, please contact our communications team.

Terms and conditions

Our full terms and conditions can be found on our website – www.groundstability.com.

Enquiry boundary

The map image is too large for this page and will be sent in a separate document

How to contact us

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

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

www.groundstability.com

 /company/the-coal-authority

 /thecoalauthority

 /coalauthority

General information

This report has been prepared by the Coal Authority using the information held by the Authority, together with information supplied by the British Geological Survey (BGS) and the Cheshire Brine Subsidence Compensation Board.

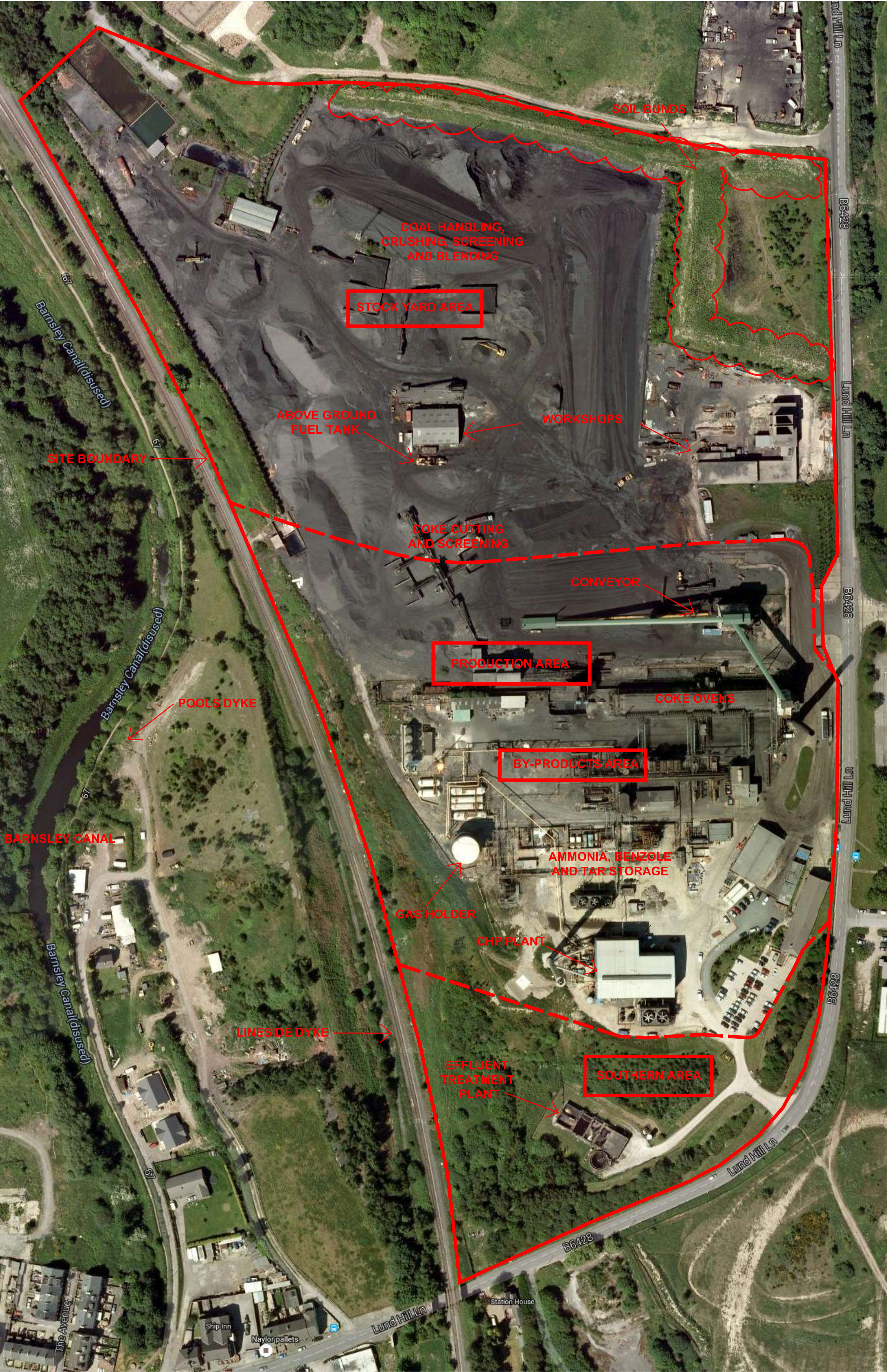
1. The Coal Authority, the Cheshire Brine Subsidence Compensation Board and the British Geological Survey (BGS) are referred to in the report as the suppliers.
2. This report is confidential and has been prepared specifically for the property and for use by the owner only. It should not be relied upon by any other property or by any other third party.
3. The report is based on and limited to:
 - a. the specific features identified in the report
 - b. each suppliers interpretation of the records it holds relating to the particular features for which the report states that the supplier is responsible at the time the report is prepared
4. The records used do not represent an exhaustive or comprehensive list of all the records that may exist or may be available for the property. No physical inspection of the property has or will be carried out in the preparation of this report.
5. Information from the Coal Authority is based on records in its possession relating to coal mining activity. There may be information held by others on historical coal mining, and information on other types of mining, which is not searched for as part of this report.
6. Information from BGS relates solely to the 6 natural ground stability hazards as described in this report. It does not cover any other geological hazards or man-made hazards (such as contaminated land). BGS may hold data on other geological hazards and features that may affect the property which are not searched for as part of this report. Consequently the report should not be taken as a guarantee that there are no other geological hazards or other issues affecting the property. For a more detailed interpretation please visit the BGS's website www.bgs.as.uk
7. Information from BGS is prepared using the BGS GeoSure database which is based on 1:10,000 scale geological mapping reduced to 1:50,000 scale.

8. The information from suppliers may be derived from records from a number of disparate sources which vary in age, quantity and quality. Such records may include material donated to the suppliers from third parties, which may not have been subject to any verifications or other quality control process.
9. Raw data used to prepare this report may have been transcribed from analogue to digital format, or may have been acquired by means of automated measuring techniques. Consequently, some data may have been processed without human intervention and may contain undetected errors.
10. The records available to the suppliers are constantly being updated. The suppliers cannot be held responsible for any changes in the information on which this report is based which occur after the date the report was produced.
11. If this report is for a residential property, insurance is included. This report includes a policy and key facts summary which outline the significant features, benefits and limitations of the cover provided. Full terms and conditions are shown in the policy document.
12. The report gives an indication of whether ground movement could occur at the property. This does not necessarily mean that the property is or will be affected by ground instability. Such an assessment can only be made by inspection of the property by a qualified professional, such as a surveyor or engineer. This report does not therefore –
 - include any information or warranty relating to the actual state, or the structural or other condition, of the property
 - determine the saleability or value, or the safety, of the property
 - indicate the suitability of the property for any particular purpose (including, without limitation, its suitability for development (within the meaning of section 55 of the Town and Country Planning Act 1990 as amended) or any building, excavation or landscaping work)
 - act as a substitute for any physical inspection, specialist interpretations and/or professional advice

APPENDIX H

Drawings & Figures

GENERAL NOTES
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Rev.	Amendments	Date	By
------	------------	------	----

Revisions



Orient House
16 McPhater Street
Glasgow
G4 0HW
United Kingdom
T. +44 (0)141 332 4095
E. info@patrickparsons.co.uk
W. www.patrikparsons.co.uk

Client
HARGREAVES (UK) SERVICES LTD

Project
MONCKTON, BARNSELY

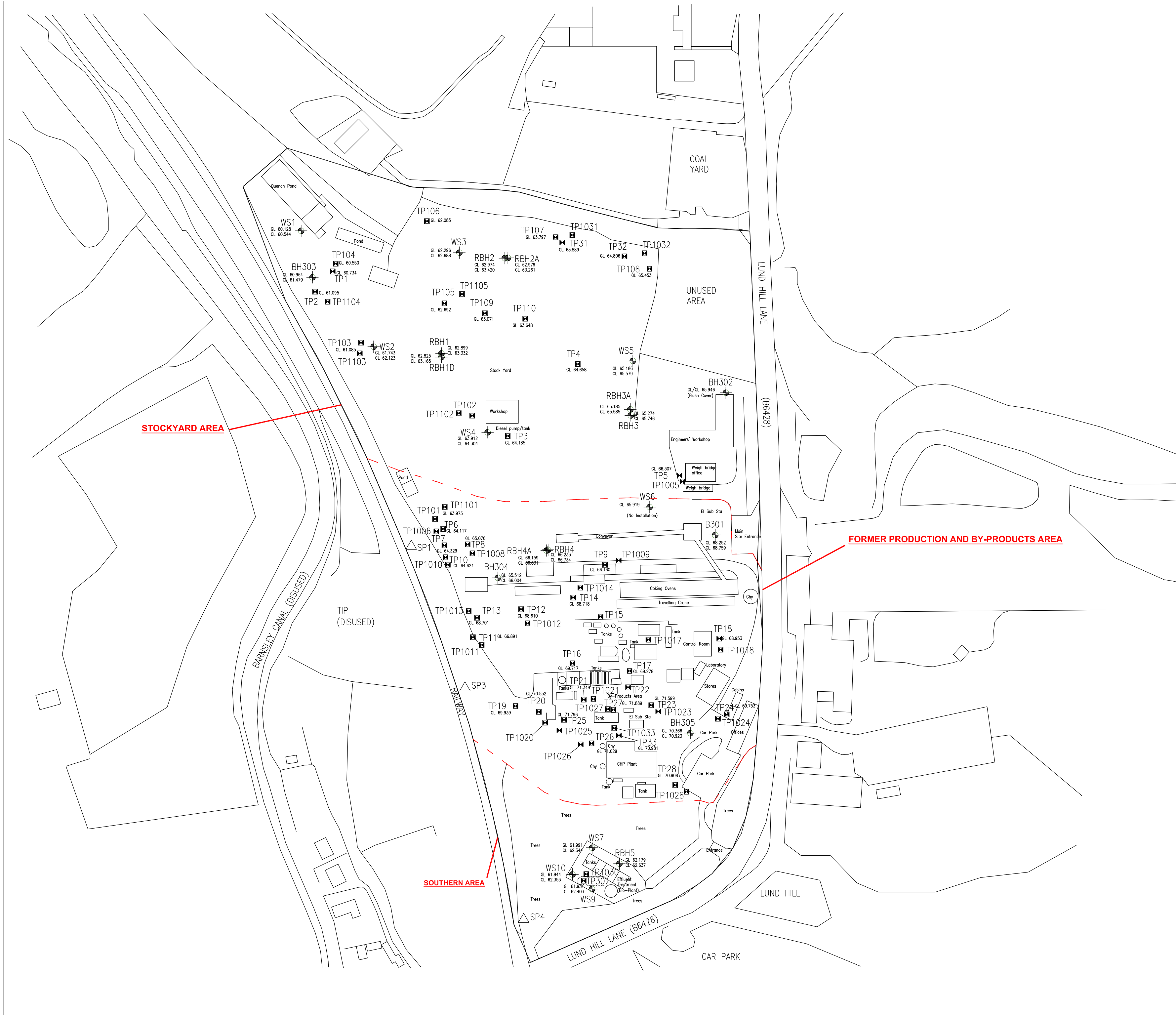
Drawing
SITE FEATURES AND ZONING PLAN

Scales NTS At original size A2

Drawn	AL	Checked	JH
Date	AUG '15		

Status **INFORMATION**

Drawing No. **G15009-700** Rev.



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LEGEND :

TP1 TRIAL PIT

RBH/BH1 ROTARY BOREHOLE

WS5 MINI PERCUSSIVE BOREHOLE

SP1 SURFACE WATER SAMPLE LOCATION

SITE BOUNDARY

ZONAL BOUNDARIES

C	NOTES AND CONSTRAINTS REMOVED.	03.05.16	JN
B	TP30 ADDED TO DRAWING	14.03.16	CR
A	REMEDIAL SOLUTIONS ADDED	10.11.15	RB
Rev.	Amendments	Date	By

Revisions

PATRICK PARSONS

Orient House
16 McPhater Street
Glasgow
G4 0HW
United Kingdom

T. +44 (0)141 332 4095
E. info@patrickparsons.co.uk
W. www.patrickparsons.co.uk

Client

HARGREAVES (UK) SERVICES LTD

Project

MONCKTON, BARNSELY

Drawing

EXPLORATORY HOLE LOCATION PLAN FOR ADDITIONAL SITE INVESTIGATION

Scales

At original size A2

Drawn	JCF	Checked	JH
Date	APR 2016		

Status

FINAL

Drawing No.

G15009_702

Rev.

C



THE ARLEY CONSULTING COMPANY LIMITED

Chorleian House
49-51 St Thomas's Road
Chorley, Lancashire, PR7 1JE

Tel: 01257 278300
Fax: 01257 268063
Email: mailbox@taccl.co.uk