

Our Reference: 4046-G-L038

Date: 7<sup>th</sup> August 2024

Mr Matt Davis  
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Dear Mr Davis,

**App. Ref. 4/24/2240/DOC – Land to the West of Valley View Road, Whitehaven**

We understand that the Coal Authority have requested *“confirmation of the implementation of the required shallow mine workings remediation works. You will recall that the Geoenvironmental Appraisal (December 2012), which accompanied the planning application, confirmed the works as necessary”*.

We assume that the date December 2012 is quoted in error as IDG Report reference 4046-G-R024 was issued in December 2021. Report 4046-G-R024 presented the findings of a supplementary mining investigation which concluded that shallow workings were present beneath the site which in the eastern third of the site could potentially affect stability of development. However, the findings of this report were superseded by IDG letter report 4046-G-L020 which presents the findings of a further phase of supplementary drilling carried out during June 2022.

The purpose of the 2022 investigation was to refine the geological model, refine understanding of the extent of mineworkings and depth of the untreated shaft reference 297515-008. Letter 4046-G-L020 includes a detailed review of previous investigations carried out in 2020 and 2021. A copy of correspondence reference 4046-G-L020 is presented in Appendix B.

The 2022 investigation confirmed that shallow workings were present within the Slaty Coal and that these workings potentially influenced a portion in the east of the site (section: Phase 4 Ground Stability Risks). The risk to surface stability assumed that site levels would remain as existing, although stated that any reduction in levels could bring areas further west within influencing distance. 4046-G-L020 concluded that comparison of the zone of influence with Story Homes 2022 development layout 66D-EHP4 Rev K indicated that several plots in the east of the development were potentially within the zone of influence of workings within the Slaty Coal (IDG Drawing 4046-G-D055 Rev D) and remediation was recommended at the positions of selected plots.

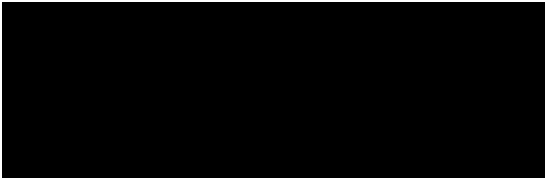
However, following further revisions and consideration of final site levels, the approved Story Homes layout (drawing No. VER 006 Rev D), does not have any plots located within the shallow mineworkings zone of influence. Furthermore, site levels have been increased in the east of Phase 4 and consequently original site levels have been maintained beneath the engineered fill.

Drawing VER 006 Rev D is reproduced within IDG drawing no. 4046-G-D055 Rev E presented in Appendix B. Drawing No 4046-G-D055 Rev E confirms that the approved layout lies outside of the zone of influence of shallow mineworkings and that remediation measures (i.e. grouting) are therefore no longer required.

Furthermore, we have visited site during preparatory works (topsoil strip, earthworks and excavation of service trenches) to assess for the presence of unrecorded shafts and adits and have not identified any evidence of surface disturbance.

We trust that this confirmation is satisfactory for the Coal Authority and Cumberland Council Planning Authority to discharge Condition 12.

Yours faithfully,



**Nick Ward BSc (Hons), FGS.**  
**for and on behalf of**  
**iD GEOENVIRONMENTAL LIMITED**

**Enclosed:**

**Appendix A: Correspondence 4046-G-L020**

**Appendix B: Drawing No. 4046-G-D055 Rev E.**

## APPENDIX A

Our Ref: 4046-G-L020

Date: 16<sup>th</sup> June 2022

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Dear Mr Davis,

**Supplementary Rotary Probehole Investigation – Phase 4, Edgehill Park, Whitehaven– Findings & Recommendations**

We are pleased to present the findings of the supplementary mining investigation at the above site. IDG have previously issued the following reports in respect of shallow mineworkings at the Phase 4 site:

- Preliminary Geoenvironmental Investigation & Coal Mining Risk Assessment, Edgehill Park Whitehaven, Reference 4046-G-R015, dated October 2020.
- Hazardous Ground Gas Risk Assessment- Phase 4, Edgehill Park, Whitehaven, Cumbria, dated December 2020.
- Geoenvironmental Appraisal of land at Phase 4 Edgehill Park, Whitehaven, dated December 2021

**Summary of Previous Report Findings**

The site has recently been used for grazing. However, there is evidence of shallow clay pitting and potentially coal excavation in the northwest/west of the site. Historical OS maps show that a brickfield encroached into the west of the site and a pond (presumed to have been a clay pit) was present across the site's western boundary.

The Coal Authority record a mine shaft (297515-008) in the southwest of the site, of 2m diameter, however the depth is not recorded. The position of the shaft has been established by Story Homes and position depicted on a Topographic Survey. An off-site shaft (297515-007) is depicted within 20m of the south-eastern site boundary and two off-site shafts (reference 297515-002 & 297515-003) are depicted within 20m of the northern boundary which correspond with the BGS recorded locations of Watson Pit, Bank Pit and Baxter Pit respectively.

The Coal Authority viewer also depicts "Development High Risk Zones" which correspond with the outcrop and shallow westerly dip of the Black Metal and Slaty Coal seams outcropping respectively beneath and immediately to the east of the site.

The Coal Authority Consultants Report states that abandoned mineworkings are present within the Main Coal at 69m depth and that workings dip at 4.4 degrees to the west.

IDG carried out an exploratory phase of rotary drilling during 2020 to establish depths and dip of shallow coal seams and potential for influence of shallow mineworkings. Six rotary probeholes (PH630-PH635) were drilled up to 33m bgl. Evidence of shallow mining was proven between 26.6m & 27.8m bgl in PH630 within the Slaty Coal seam which was predicted to become shallow and outcrop immediately east of the site. Further rotary probing took place during August 2021 when probeholes PH901-916 were drilled to further assess risks. Broken ground and void indicative of shallow mineworkings was proven in PH902, PH904, PH905, PH907 & PH909 between depths of 18.3m & 24.0m bgl in the north-eastern quarter of the site

which corresponded with a coal seam of between 0.6m and 1.3m in thickness interpreted to be the Slaty Coal. A summary of the 2020-21 probehole findings is summarised in Table 1.

Table 1: Summary of Exploratory Records

Hole ID (Collar elevation mAOD)	Final Depth (m bgl)	Depth to Rockhead (m bgl)	Depth to Coal (m bgl)	Coal Thickness (m)	Probable workings (m bgl)	Top of Coal/workings (m AOD)	Influencing Distance of surface? (m bgl)
PH630 (90.5)	28.8	1.5	1.8 17.8 18.5	0.2 0.5 0.5	- - - <b>26.6-27.8</b>	88.7 72.7 72.0 63.9	Yes No No No
PH631 (83.0)	4.5	0.5	-	-	-	-	-
PH632 (83.7)	30.0	0.8	7.0 7.6 16.0	0.3 0.4 1.0	- - -	76.7 76.1 67.7	No No No
PH633 (92.0)	33.0	0.8	7.3 22.6 30.8	0.4 0.5 1.0	- - -	84.7 69.4 61.2	No No No
PH634 (88.5)	24.0	1.0	5.5 6.1 14.4	0.4 0.3 0.9	- - -	83.0 82.4 74.1	No No No
PH635 (86.9)	21.0	1.0	9.2 10.6 18.5	0.3 0.2 1.0	- - -	77.7 76.3 68.4	No No No
PH901 (90.5)	30.00	0.3	1.0 18.0 25.5	0.5 0.3 1.3	- - -	91.95 74.95 67.45	Yes No No
PH902 (91.0)	24.00	0.3	12.4 13.0	0.1 0.1	- - <b>18.4 – 21.4</b>	79.27 78.67 73.27	No No Yes
PH903 (87.0)	24.00	0.3	6.5 15.00	0.1 0.5		81.7 73.2	No No
PH904 (89.8)	21.0	0.3	11.5 12.1	0.1 0.1	<b>18.5 – 19.8</b>	78.5 77.9 71.5	No No No
PH905 (91.4)	42.0	0.3	15.0 39.5	0.1 1.0	<b>23.0 – 24.4</b>	79.25 68.75 52.25	No No No
PH906 (87.1)	24.0	0.3	6.5 7.4 15.5	0.1 0.1 0.6		81.74 80.84 72.74	No No No
PH907 (89.7)	21.0	0.3	10.2 10.8	0.2 0.1	<b>18.3 – 19.5</b>	79.67 78.87 71.37	No No No
PH908 (87.0)	34.0	0.3	7.2 8.0 16.0 31.1	0.1 0.1 0.6 1.8		79.8 79.0 71.0 55.9	No No No No
PH909 (89.3)	24.0	0.3	12.0 12.6	0.1 0.1	<b>20.0 – 21.5</b>	77.85 77.25 69.85	No No No
PH910 (88.4)	21.0	0.3	9.7 10.5 18.5	0.1 0.1 0.8		78.6 77.8 69.8	No No No
PH911 (87.0)	18.0	0.3	5.9 6.5	0.1 0.1		80.82 80.22	No No

Hole ID (Collar elevation mAOD)	Final Depth (m bgl)	Depth to Rockhead (m bgl)	Depth to Coal (m bgl)	Coal Thickness (m)	Probable workings (m bgl)	Top of Coal/workings (m AOD)	Influencing Distance of surface? (m bgl)
			14.7	0.7		72.02	No
PH912 (86.7)	33.0	0.3	6.5	0.1		79.65	No
			7.1	0.1		79.05	No
			15.3	0.6		70.85	No
			30.3	1.7		55.85	No
PH 913 (87.6)	24.0	0.3	10.7	0.2		77.6	No
			11.8	0.1		76.5	No
			19.5	0.8		68.8	No
PH914 (85.6)	18.0	0.3	6.5	0.1		78.7	No
			7.1	0.2		78.1	No
			15.2	0.8		70.0	No
PH915 (86.9)	24.0	0.3	12.0	0.1		73.5	No
			12.6	0.2		72.9	No
			20.8	0.7		64.7	No
PH916 (-)	27.0	0.3	14.8	0.1		74.45	No
			15.5	0.2		73.75	No
			23.6	0.8		65.85	No

A development risk zone was established in the east of the site based upon a maximum thickness of 1.3m, assuming 1.0m of weathered bedrock and mitigation comprising 10x seam thickness of bedrock.

Four shallow gas monitoring wells were installed including monitoring wells within the Black Metal Coal where this was close to outcrop during 2020. Four gas monitoring visits did not identify a significant risk from hazardous ground gas. A further two deep monitoring wells (PH902 & 907) were installed during 2021 to monitor the gas regime within the worked seam and abandoned workings.

Further discussion of gas monitoring to date is presented in the Hazardous Ground Gas Section later in this letter.

Subsequent to issue of the 2021 findings Story Homes have issued several revised development layouts extending beyond the extents of the previous rotary probing investigations culminating in Drawing reference 66D EHP4 Rev K issued to IDG on 5<sup>th</sup> June 2022. Further investigation to assess the potential for abandoned shallow mineworkings within the Slaty Coal seam and to establish the depth of the onsite mineshaft 297515-008 was recommended.

### Scope of Works

The shallow mining investigation scope of works allowed for twenty three rotary probeholes to be drilled within Phase 4 to establish risks associated with shallow mineworkings in respect of the revised development boundaries.

The site location and positions of the exploratory locations are depicted on Exploratory Hole Location Plan Drawing No. 4046-G-D040 Rev D presented in Appendix A. A summary of our findings is presented below.

### Supplementary Shallow Mining Investigation 2022

The supplementary intrusive investigation undertaken during June 2022, comprised twenty-three exploratory rotary probeholes (PH1001 to PH1023), drilled to a maximum depth of 42m using air and water flush and probeholes 271515-800 BH01 drilled to prove the base of the shaft. Copies of the probehole logs are presented in Appendix B. Hole locations are depicted on Drawing 4046-G-D055 Rev C in Appendix A.

The probehole records are summarised in Table 2 overleaf.

**Table 2: Summary of Exploratory Records**

Hole ID (Collar elevation mAOD)	Final Depth (m bgl)	Depth to Rockhead (m bgl)	Depth to Coal (m bgl)	Coal Thickness (m)	Probable workings (m bgl)	Top of Coal/workings (m AOD)	Influencing Distance of surface? (m bgl)
PH1001 (90.8)	24.0	1.0	12.1 12.9	0.3 0.2	- - <b>20.0-21.6</b>	78.7 77.9 70.8	No No No
PH1002 (92.8)	30.0	0.9	3.0 19.6 27.5	0.4 0.3 0.8	- - -	89.8 73.2 65.3	<b>Yes</b> No No
PH1003 (91.0)	42.0	0.7	10.0 25.5 34.6	0.3 1..5 0.4	- - -	81.0 65.5 56.4	No No No
PH1004 (89.6)	30.0	1.5	10.1	0.4	-	79.5	No
PH1005 (90.8)	30.0	0.9	10.3 10.7 19.8	0.1 0.3 0.7	- - -	78.9 78.5 70.3	No No No
PH1006 (89.2)	33.0	1.0	9.7 10.6 18.5	0.4 0.2 1.0	- - -	75.9 76.3 68.4	No No No
PH1007 (85.4)	21.0	0.3	1.0-1.3 9.5	0.3 0.5	- -	84.1 75.9	<b>Yes</b> No
PH1008 (87.6)	21.00	2.0	7.5 8.3 16.4	0.2 0.2 0.8	- - -	80.1 79.3 71.2	<b>No</b> No No
PH1009 (84.0)	18.00	0.3	5.0 9.0	0.2 0.2	- -	79.0 75.0	<b>No</b> No
PH1010 (89.8)	30.0	0.2	6.6 7.2 16.0	0.2 0.2 0.5	- - -	80.2 79.6 70.8	<b>No</b> <b>No</b> <b>No</b>
PH1011 (89.4)	30.0	1.0	13.8 14.4 22.7	0.2 0.2 1.0	- - -	75.6 75.0 66.6	<b>No</b> <b>No</b> <b>No</b>
PH1012 (88.8)	30.0	1.5	2.5 18.0 18.6	0.4 0.2 0.2	- - - <b>24.5 – 27.4</b>	86.3 70.8 70.2 64.3	Yes <b>No</b> <b>No</b> <b>No</b>
PH1013 (89.7)	30.0	0.9	9.0 26.0	0.2 1.0	- -	79.3 62.3	<b>No</b> <b>No</b>
PH1014 (87.0)	27.0	2.0	14.5 15.4 23.0	0.2 0.2 1.0	- - -	72.5 71.6 64.0	<b>No</b> <b>No</b> <b>No</b>
PH1015 (87.1)	30.0	0.3	3.0 19.0 28.0	0.2 1.0 0.7	- - -	84.1 68.1 59.1	<b>No</b> <b>No</b> <b>No</b>
PH1016 (86.4)	30.0	1.0	8.0 25.0	0.3 0.9	- -	78.8 61.4	<b>No</b> <b>No</b>
PH1017 (84.5)	30.0	2.0	3.0 18.4 19.3 27.9	0.2 0.2 0.2 0.6	- - - -	81.5 66.1 65.2 56.6	<b>No</b> <b>No</b> <b>No</b> <b>No</b>
PH1018 (84.2)	36.0	2.7	11.8 12.5 21.0	0.2 0.2 0.6	- - -	72.4 71.7 63.2	<b>No</b> <b>No</b> <b>No</b>

Hole ID (Collar elevation mAOD)	Final Depth (m bgl)	Depth to Rockhead (m bgl)	Depth to Coal (m bgl)	Coal Thickness (m)	Probable workings (m bgl)	Top of Coal/workings (m AOD)	Influencing Distance of surface? (m bgl)
PH1019 (81.6)	24.0	2.0	12.4	0.2	-	69.2	No
			13.0	0.2	-	68.6	No
			21.4	1.0	-	60.2	No
PH1020 (81.7)	21.0	1.0	6.0	0.1	-	75.7	No
			6.5	0.2	-	75.2	No
			15.1	0.7	-	66.6	No
PH1021 (86.9)	27.0	1.0	8.6	0.7	-	71.4	No
			24.2	0.8	-	55.8	No
			25.2	0.4	-	55.0	No
PH1022 (78.9)	24.0	0.3	3.6	0.9	-	75.3	Yes
			19.5	1.0	-	59.4	No
PH1023 (89.8)	30.0	0.7	10.3	0.4	-	79.5	No
			25.6	1.4	-	64.2	No

Table 2 shows that up to four seams of coal (PH1012 & PH1017) have been proven between depths of 2.5m and 34.6m bgl, although coal and clay encountered between 0.5 & 1.3m in PH1017 is considered indicative of the remains of a coal seam at outcrop.

A total of four seams have been proven during drilling, including two seams proven in the majority of probeholes which correlate with the BGS stratigraphic column. These seams are indicated to dip at approximately 7-8 degrees to the West-South West. These coal seams are summarised as follows:

**Black Metal Coal:** the stratigraphically upper/shallowest named coal typically comprises two split seams of coal with a mudstone parting or one seam incorporating a very organic mudstone. The Black Metal seam was proven from 6.0m bgl (PH1020). While most often recognisable as two thin coals seams & parting this seam is also considered (based upon modelling) to be represented by 0.9m thick coal proven at 25.0m bgl in PH1016 and a 1.5m thick coal and organic mudstone encountered in PH1003 at 25.5m bgl.

**Slaty Coal:** The next deeper/lower coal (identified as being between 8.0-9.0m below the Black Metal Coal) of between 0.7 – 1.3m thickness is interpreted to be the Slaty Coal seam. Broken ground indicative of abandoned shallow mineworkings was encountered in PH1001 (20-21.6m) and PH1012 (24.5 – 27.4m).

A deeper coal seam which is typically 14.0-15.0m deeper than the Slaty Coal was proven at depths of 19.5m (PH1022) and 24.2m (PH1021) in the east of the site where it would be anticipated to be shallowest is interpreted to be the Ten Quarters Coal.

A thin seam of coal has also been encountered at shallow depth in PH1002, PH1012, PH1015 & PH1017 of between 0.2-0.4m thickness which dips beneath the western half of the site. This seam has been proven in a total of eight holes. However, no evidence of mine working has been encountered during drilling or is apparent as surface workings.

## Discussion

The exploratory records, Table 1 & Table 2 indicate that abandoned coal mineworkings are present within one seam of coal of up to 1.3m in thickness which is interpreted to be the Slaty Coal. Evidence of abandoned workings has been encountered at eight locations (PH1001, PH1012, PH902, PH904, PH905 & PH907, PH909 & PH630), between depths of 18.3m bgl (PH907) and 27.8m bgl (PH630). Comparison of Table 1 & Table 2 with the Mining Influence Plan 4046-G-D055 Rev C indicates that evidence of workings within this seam predominate in the northeast of the investigation area, although probable workings were also proven in PH1012 southwest of the site's centre.

The Black Metal Coal has been proven numerous times during all three Phases of drilling: Despite evidence of locally thick expressions detailed above (PH1003), there has been no evidence encountered during any of the 3 phases of drilling which indicates this seam has been worked.



A seam interpreted to be the Ten Quarters Coal seam was proven in PH1022 and PH1021 in the south east of the site where the seam is shallowest, which was also proven in PH912 between 30.3 and 32.0m bgl in 2021. No evidence of abandoned mineworkings has been encountered in this seam, although should any workings be present these would be mitigated by sufficient rock cover.

A thin seam of coal has also been encountered at shallow depth (PH1002, PH1012 & PH1017) which is potentially within influencing distance of the site surface. The seam is of between 0.2-0.4m thickness and dips beneath the western half of the site. This seam has been proven in a total of eight holes in 2022 (PH1002, PH1003, PH1004, PH1012, PH1015, PH1016, PH1017 & PH1023) and was also proven in PH630 (1.8m) and PH633 (7.3m) in 2020. However, no evidence of mine working has been encountered during drilling or is apparent as surface workings.

#### ***Shaft 297515-008***

A platform was placed over the surveyed position of Coal Authority Shaft 297515-008 and BH01 drilled at the indicated centre. The base of the shaft was proven at 37.5m and 4.5m of solid rock was proven at the base of the shaft. Drilling within the shaft progressed without rotation and without significant returns (other than water blowing out at surface) indicating the fill materials to be very soft and saturated. The shaft is located adjacent to a surface water retention pond which has never filled or had cause to spill. It is likely that water is migrating into the shaft from the pond.

Shallow boreholes BH01/02-BH01/06 were drilled to a maximum of 9m at 0.5m centre's either side of BH01 to assess the shaft diameter. These encountered solid bedrock at 3.0m and indicate that the shaft is no more than 2.2m in diameter.

#### ***Phase 4 Ground Stability Risks***

It is generally accepted that void migration will not migrate upwards for a distance greater than approximately 10x the worked seam thickness (i.e. 13m based upon maximum recorded seam thickness). There are little or no superficial deposits present at the site, however the surface of the mudstone bedrock has weathered to clay and we have therefore assumed the upper 1.0m of weathered bedrock to have the properties of superficial deposits. On this basis a total of 14m of overburden is required to mitigate against void migration from the roof of the worked seam.

Structure contours based upon the relative elevation of the base of the Slaty Coal are depicted on Drawing reference 4046-G-D055 Rev C which indicate the seam dips at approximately 7-8 degrees towards the southwest.

The structure contours indicate that the worked seam coincides with the proven base of Shaft 297515-008 and it is therefore likely that this shaft was used to provide access to the workings within the Slaty Coal seam. While a number of probeholes have been drilled in the vicinity of the shaft none have encountered shallow mineworkings. However, the structure contours also indicate that while probeholes in the west of the site were drilled up to depths of 30.0m, this depth of investigation has not been sufficient to reach the worked seam and to categorically prove workings extend to the shaft bottom. Nonetheless, the structure contouring is considered sufficiently consistent to confirm that shaft base and worked seam coincide. While workings have not been proven in any of the probehole's drilled in the south and southeast of the site, the risk of workings within the Slaty Coal cannot be discounted.

The area of the site surface which is potentially within influencing distance of the worked seam is also shown hatched in orange on Drawing no. 4046-G-D055 Rev C in Appendix A. This zone assumes that site levels will remain as existing. However, cut and fill is likely to reduce levels locally and consequently where earthworks reduce site levels this may bring areas of the site further west within influencing distance of the worked seam.

Drawing 4046-G-D055 Rev D shows the zone of influence relative to the most recent layout 66D EHP4 Rev K. The drawing shows that Plots 61, 62, 63, 66-69 in the south-eastern site corner are within the zone of influence and plots 25-33 and 48-51 (terrace) on the east of the site are partially within the zone of influence.

Mineshaft reference 297515-008 is located between two pairs of semi-detached plots 85-86 & 87-88. Trial pitting carried out by Story to identify the shaft position has resulted in made ground backfill to at least 4.0m bgl. Furthermore, construction of the adjacent temporary surface water retention pond will result in further deposition of a significant thickness of Made Ground to re-instate ground levels. Construction of the shaft cap will therefore be lower (i.e. 4-5m) than the elevation of surrounding bedrock. The resultant zone of influence will therefore be correspondingly wider (based upon 45 degrees from the shaft cap) and this is likely to have implications for foundations of the adjacent plots.

Given the shallow depth to the abandoned workings (particularly in the east of the site) the likelihood of unrecorded shafts or adits is also high. Story Homes & their groundworks contractors should be **alert to the presence of any zones of darker, soft or unusual ground conditions** during site preparatory works. If in doubt IDG should be contacted at the earliest opportunity.

### Recommendations

Given that examples of localised artisanal workings have been encountered elsewhere within the Edgehill development and that the Slaty Coal is close to outcrop in the east of the site, it is considered there is a high risk of artisanal workings within the coal seam. It is recommended that rotary drilling and if necessary grouting be carried out within the footprint plots 62 and 66-69 (and any further plots which may move into the influence zone as a consequence of reduction in ground levels) to eliminate any uncertainty associated with unidentified workings. It is considered that a minimum of 2 probeholes be drilled beneath each plot to assess for the presence of workings. A treatment specification will be required to inform any grouting works which drilling highlights. All holes will require grouting to eliminate risks of migrating ground gas from the worked seam. The ground gas monitoring wells will also require demolition & remediation/grouting to eliminate ground gas migration risks.

Plots 25-33 and 48-51 (terrace) on the east of the site are partially within the zone of influence of the worked seam. Review of probeholes PH634, PH903, PH906, PH908, PH1008, PH635, PH911 & PH1010 indicates the Slaty Coal to be between 0.5m and 0.9m thick beneath these plots and there is therefore likely to be sufficient rock cover to mitigate against migration of crownholes. However, this assumes site levels will remain as existing. Further review is recommended once finished development levels are approved.

Treatment and capping of the Shaft 297515-008 will be required. As discussed above, the shaft cap should be constructed in competent bedrock. This will require excavation of the Made Ground generated by previous investigations and during construction of the adjacent surface water retention pond to expose the undisturbed bedrock. Further consideration of the implications that the depth of the excavation and cap construction is likely to have upon foundations of adjacent plots is recommended; it is likely that a bespoke foundation design will be required.

### Hazardous Ground Gas

Gas monitoring at deep wells (PH902 & PH907) and shallow wells (PH631A, PH633A & PH634A) has taken place since September 2021 to assess the potential for mines gases within the identified workings and assess whether there is evidence to indicate gas within the workings is migrating to surface and could represent a risk to the proposed development.

Monitoring visits have detected slightly elevated concentrations of methane (up to 4.3%) and carbon dioxide (up to 18%) accompanied by reduced oxygen concentrations and negligible flow rates. The highest methane and carbon dioxide concentrations have been detected at monitoring wells PH902 and PH907 which had response zones constructed in the abandoned mine workings, although it is notable that no significant positive gas flows have been detected. Generally, only very low carbon dioxide and no methane with no significant positive gas flow rates have been detected at shallow monitoring wells within bedrock which is anticipated as being founding strata.

Based upon the results, there is not a significant gas risk and the site should be classified as Characteristic Situation 1 (CS1). However, significantly elevated concentrations of up to 18.7% carbon dioxide have been

Copies of the monitoring well installations are shown on the borehole logs presented in Appendix B.

The topographic survey indicates the shallow excavations which deepen towards the site's northwest corner are between 1.5-2.0m below the surface of the site to the east. The 2021 geoenvironmental investigation identified thin deposits of both Granular and soft Cohesive Made Ground within the base of the excavation which are unsuitable as founding material. It is recommended that the Made Ground and any soft clay be removed and replaced with competent natural material sourced from cut and fill operations or imported clean natural material.

At this stage, adoption of the Rev K Development Layout reproduced in Drawing 4046-G-D055 Rev D assumes proof drilling and grouting will be required in the east of the site and that piled foundations will be required where Made Ground is likely to exceed 1.8m thickness. Bespoke foundations will be required for Plots 85-88 affected by Shaft 297515-008.

Please do not hesitate to contact us if you have any questions.

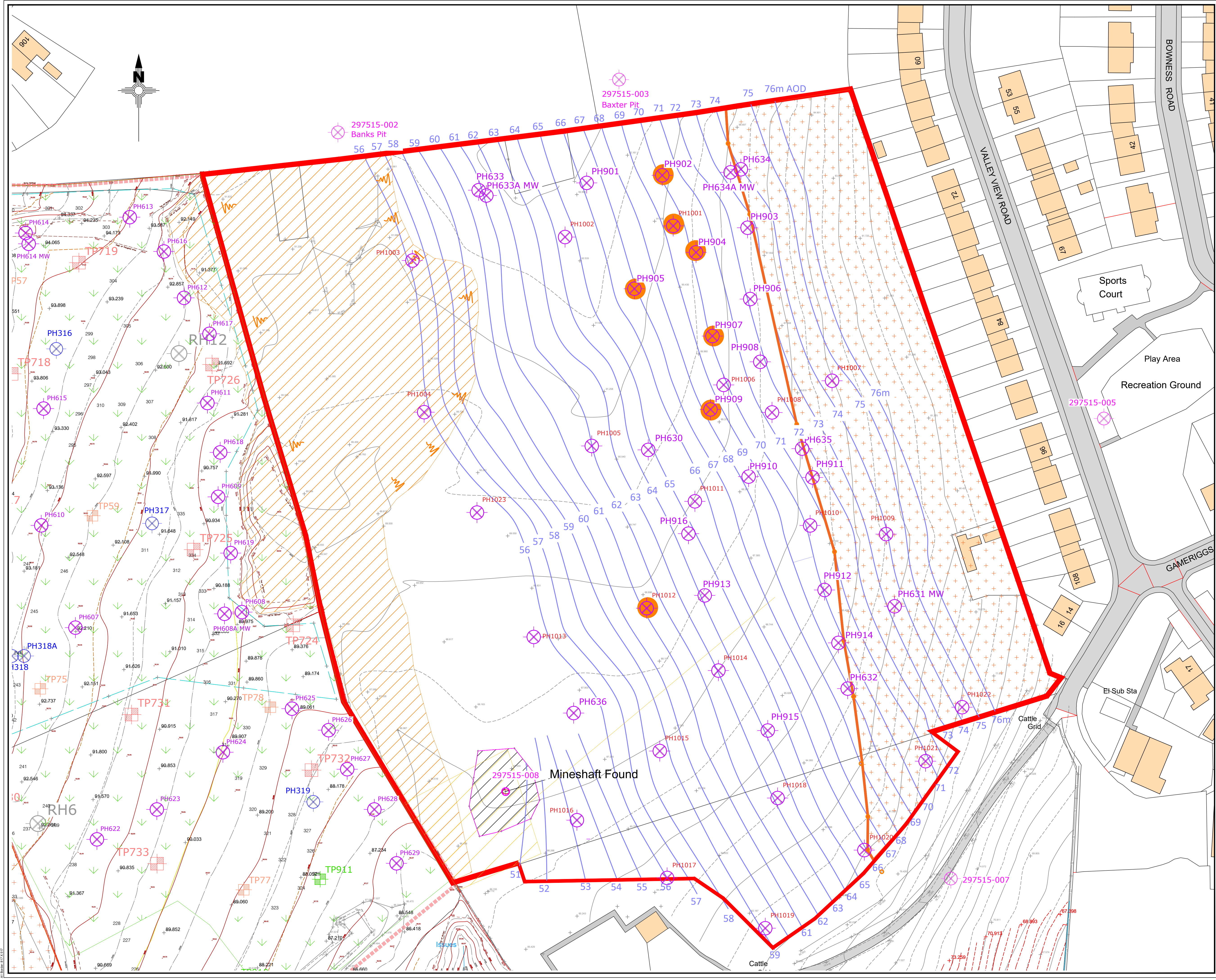
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Encls

Appendix B: Rotary Probe Hole logs PH630-PH636, PH901-PH916 &amp; PH1001 – PH1023

## APPENDIX A





The Employer must not amend any drawing, design or other intellectual property produced by IDG, without permission in writing from IDG in advance of any amendments being made. In the event that such written permission is not obtained in advance of the amendments being made, IDG shall not be liable for any damage and/or losses occurring as a result of the amended drawing, design or other intellectual property.

**KEY**

- Phase 4 Boundary
- PH1000 IDG Probehole 2022
- PH900 IDG Probehole 2021
- PH600 IDG Probehole 2020
- Evidence of Abandoned Workings
- Base of Coal Contour (m AOD)
- Evidence of Surface Excavation
- Worked Coal <14m of Surface
- CA Recorded Mine Shaft

C	Final PH1000 & Mine Influence Area Positions	14-6-22
B	Anticipated Treatment Area Depicted	17-5-22
A	66D Rev F Layout dated 3-5-22	6-5-22
Revision	Description	Date

**iGeo**  
ID GeoEnvironmental Limited

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The Stables, Aske Hall  
Aske, Richmond  
Yorkshire, DL10 5HG  
Tel: 01748 889015  
Fax: 01565 740263

CLIENT

Story Homes

JOB TITLE

Phase 4 Edgehill Park, Whitehaven

DRAWING TITLE

Mining Influence Plan

STATUS

Final






DRAWN BY	SIGNATURE	DATE
NW		26-10-21
APPROVED	SIGNATURE	DATE
BRB		15-12-21
SCALE	1:500@A1	DRG No: 4046-G-D055







## **APPENDIX B**

 iD GeoEnvironmental Limited		Project Title: Rhodia, Whitehaven						PH1001									
		Project Number: 4046			Client: Story Homes			Sheet 1 Of 2									
		GL (mAOD): 90.80			N Coord: 515868			E Coord: 297379									
Date: 06/06/2022		Method: Casagrande C6			Driller: GDC			Logged By: NW									
Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description	Water	Standpipe						
						90.50 89.80		0.30 1.00	TOPSOIL : Turf over brown silty sandy LOAM. (TOPSOIL)  Yellow-brown silty CLAY. Interpreted to be weathered MUDSTONE. (MIDDLE COAL MEASURES)  Grey and dark grey bands of silty MUDSTONE. (MIDDLE COAL MEASURES)								
						78.70 78.40 77.90 77.70		12.10 12.40 12.90 13.10	COAL. (MIDDLE COAL MEASURES)  Grey MUDSTONE. (MIDDLE COAL MEASURES)  COAL. (MIDDLE COAL MEASURES)  Grey MUDSTONE. (MIDDLE COAL MEASURES)								
									Borehole Continues								
<b>KEY</b> D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa  - Groundwater Strike  - Groundwater Level						<b>REMARKS</b> No Groundwater Encountered Air    Scale: 1:100						<b>Water Strikes</b>					
												Date	Strike	Level	Minutes	Casing	Remarks
						<b>Daily Log Of Depths</b>											
						<b>Flushing Medium</b>											
						Date	Casing	Water	From	To	Type						




















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 iD GeoEnvironmental Limited		Project Title: Rhodia, Whitehaven						PH1005									
		Project Number: 4046			Client: Story Homes			Sheet 1 Of 2									
		GL (mAOD): 90.80			N Coord: 515803			E Coord: 297355									
Date: 06/06/2022		Method: Casagrande C6				Driller: GDC			Logged By: NW								
Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description	Water	Standpipe						
						90.60		0.20	TOPSOIL: Dark brown clayey silty sandy loam. (TOPSOIL)								
						89.90		0.90	Yellow brown silty sandy CLAY. Interpreted to be highly weathered mudstone bedrock. (WEATHERED PENNINE MIDDLE COAL MEASURES)								
						88.80		2.00	Weathered yellow-brown MUDSTONE. (WEATHERED PENNINE MIDDLE COAL MEASURES)								
						88.00		2.80	Grey MUDSTONE (MIDDLE COAL MEASURES)								
						87.50		3.30	Soft black organic MUDSTONE. (MIDDLE COAL MEASURES)								
						87.20		3.60	COAL. (MIDDLE COAL MEASURES)								
									Grey MUDSTONE with siltstone laminations. (MIDDLE COAL MEASURES)								
									Borehole Continues								
<b>KEY</b> D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa  - Groundwater Strike  - Groundwater Level						<b>REMARKS</b> No Groundwater Encountered Air flush  Scale: 1:100						<b>Water Strikes</b>					
												Date	Strike	Level	Minutes	Casing	Remarks
						<b>Daily Log Of Depths</b>											
						Date	Casing	Water	From	To	Type						





















						Project Title: Rhodia, Whitehaven				PH1007							
						Project Number: 4046		Client: Story Homes						Sheet 1 Of 2			
						GL (mAOD): 85.40		N Coord: 515823		E Coord: 297425							
Date: 07/06/2022						Method: Casagrande C6		Driller: GDC		Logged By: NW							
Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description				Water	Standpipe			
						85.20		0.20	TOPSOIL : Turf over brown silty sandy LOAM. (TOPSOIL)								
						84.10		1.30	Soft pale brown silty CLAY with abundant coal traces interpreted to be highly weathered MUDSTONE bedrock (possible thin coal seam at outcrop). (MIDDLE COAL MEASURES)								
						81.90		3.50	Grey MUDSTONE. (MIDDLE COAL MEASURES)								
									Black MUDSTONE. (MIDDLE COAL MEASURES)								
						75.90		9.50	Dark grey/black MUDSTONE recovered as fine tabular shale. (MIDDLE COAL MEASURES)								
						75.70		9.70									
						75.30		10.10					COAL. (MIDDLE COAL MEASURES)				
									Grey MUDSTONE. (MIDDLE COAL MEASURES)								
									Borehole Continues								
<b>KEY</b> D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa  - Groundwater Strike  - Groundwater Level						<b>REMARKS</b> No Groundwater Encountered Water Flush          Scale: 1:100						Water Strikes					
												Date	Strike	Level	Minutes	Casing	Remarks
												Daily Log Of Depths				Flushing Medium	
												Date	Casing	Water	From	To	Type



 iD GeoEnvironmental Limited						Project Title: Rhodia, Whitehaven				PH1008					
						Project Number: 4046		Client: Story Homes						Sheet 1 Of 2	
						GL (mAOD): 87.60		N Coord: 515813		E Coord: 297408					
Date: 06/06/2022						Method: Casagrande C6		Driller: GDC		Logged By: NW					
Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description				Water	Standpipe	
						87.30		0.30	TOPSOIL : Turf over brown silty sandy LOAM. (TOPSOIL)						
						85.60		2.00	Yellow-brown silty CLAY. Interpreted to be weathered MUDSTONE. (MIDDLE COAL MEASURES)						
						83.10		4.50	Grey MUDSTONE. (MIDDLE COAL MEASURES)						
						80.10			Dark grey/black MUDSTONE recovered as fine tabular shale gravel. (MIDDLE COAL MEASURES)						
						79.90		7.50							
						79.30		7.70	COAL. (MIDDLE COAL MEASURES)						
						79.10		8.30	Grey MUDSTONE. (MIDDLE COAL MEASURES)						
								8.50	COAL. (MIDDLE COAL MEASURES)						
									Grey MUDSTONE with siltstone laminations. (MIDDLE COAL MEASURES)						
									Borehole Continues						
<b>KEY</b> D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa  - Groundwater Strike  - Groundwater Level						<b>REMARKS</b> No Groundwater Encountered Air          Scale: 1:100				Water Strikes					
										Date	Strike	Level	Minutes	Casing	Remarks
										Daily Log Of Depths			Flushing Medium		
										Date	Casing	Water	From	To	Type









































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 iD GeoEnvironmental Limited		Project Title: Rhodia, Whitehaven						PH1010									
		Project Number: 4046			Client: Story Homes			Sheet 2 Of 2									
		GL (mAOD): 86.80			N Coord: 515780			E Coord: 297420									
Date: 07/06/2022		Method: Casagrande C6			Driller: GDC			Logged By: NW									
Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description	Water	Standpipe						
						70.30		16.50	COAL. (MIDDLE COAL MEASURES)								
									Grey MUDSTONE. (MIDDLE COAL MEASURES)								
						60.80		26.00									
						60.40		26.40	Dark grey/black MUDSTONE. (MIDDLE COAL MEASURES)								
									Grey MUDSTONE. (MIDDLE COAL MEASURES)								
						56.80		30.00									
									End Of Borehole At 30.00 m								
<b>KEY</b> D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa ▽ - Groundwater Strike ▼ - Groundwater Level						<b>REMARKS</b> No Groundwater Encountered Air flush          Scale: 1:100						<b>Water Strikes</b>					
												Date	Strike	Level	Minutes	Casing	Remarks
												Daily Log Of Depths				Flushing Medium	
												Date	Casing	Water	From	To	Type











 iD GeoEnvironmental Limited		Project Title: Rhodia, Whitehaven					PH1011																																		
		Project Number: 4046		Client: Story Homes			Sheet 1 Of 2																																		
		GL (mAOD): 89.40		N Coord: 515787		E Coord: 297386																																			
Date: 07/06/2022		Method: Casagrande C6			Driller: GDC		Logged By: NW																																		
Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description	Water	Standpipe																														
						89.20		0.20	TOPSOIL: Dark brown clayey silty sandy loam. (TOPSOIL)																																
						88.40		1.00	Yellow brown silty sandy CLAY. Interpreted to be highly weathered mudstone bedrock. (WEATHERED PENNINE MIDDLE COAL MEASURES)																																
						87.40		2.00	Weathered yellow-brown MUDSTONE. (WEATHERED PENNINE MIDDLE COAL MEASURES)																																
									Grey MUDSTONE with siltstone laminations. (MIDDLE COAL MEASURES)																																
																																									
																																									
																																									
																																									
																																									
																																									
																																									
																																									
																																									
																																									
																																									
																																									
																																									
																																									
																																									
																																									
																																									
																																									
																																									
																																									
																																									
																																									
																																									
																																									
																																									
																																									
																																									
																																									
<b>KEY</b> D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa  - Groundwater Strike  - Groundwater Level						<b>REMARKS</b> No Groundwater Encountered Air flush  Scale: 1:100				<b>Water Strikes</b> <table border="1"> <thead> <tr> <th>Date</th> <th>Strike</th> <th>Level</th> <th>Minutes</th> <th>Casing</th> <th>Remarks</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>		Date	Strike	Level	Minutes	Casing	Remarks																								
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						<b>Daily Log Of Depths</b> <table border="1"> <thead> <tr> <th>Date</th> <th>Casing</th> <th>Water</th> <th>From</th> <th>To</th> <th>Type</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>		Date	Casing	Water	From	To	Type																												
Date	Casing	Water	From	To	Type																																				
















































 iD GeoEnvironmental Limited						Project Title: Rhodia, Whitehaven				PH1013							
						Project Number: 4046		Client: Story Homes						Sheet 1 Of 2			
						GL (mAOD): 88.30		N Coord: 515747		E Coord: 297338							
Date: 06/06/2022						Method: Casagrande C6		Driller: GDC		Logged By: NW							
Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description				Water	Standpipe			
						88.10		0.20	TOPSOIL: Dark brown clayey silty sandy loam. (TOPSOIL)								
						87.40		0.90	Yellow brown silty sandy CLAY. Interpreted to be highly weathered mudstone bedrock. (WEATHERED PENNINE MIDDLE COAL MEASURES)								
						86.30		2.00	Weathered yellow-brown MUDSTONE. (WEATHERED PENNINE MIDDLE COAL MEASURES)								
									Grey MUDSTONE. (MIDDLE COAL MEASURES)								
						80.30		8.00	Dark grey/black MUDSTONE recovered as fine tabular shale gravel. (MIDDLE COAL MEASURES)								
						79.30		9.00	COAL. (MIDDLE COAL MEASURES)								
						79.10		9.20	Grey MUDSTONE with siltstone laminations. (MIDDLE COAL MEASURES)								
									Borehole Continues								
<b>KEY</b> D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa  - Groundwater Strike  - Groundwater Level						<b>REMARKS</b> No Groundwater Encountered Air flush          Scale: 1:100						Water Strikes					
												Date	Strike	Level	Minutes	Casing	Remarks
												Daily Log Of Depths				Flushing Medium	
												Date	Casing	Water	From	To	Type

 iD GeoEnvironmental Limited			Project Title: Rhodia, Whitehaven						PH1013																																													
			Project Number: 4046			Client: Story Homes			Sheet 2 Of 2																																													
			GL (mAOD): 88.30			N Coord: 515747			E Coord: 297338																																													
Date: 06/06/2022			Method: Casagrande C6			Driller: GDC			Logged By: NW																																													
Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description	Water	Standpipe																																											
						66.00 62.30 61.30 58.30	   	22.30 26.00 27.00 30.00	Grey MUDSTONE with siltstone laminations. (MIDDLE COAL MEASURES)  Black organic MUDSTONE. (MIDDLE COAL MEASURES)  COAL. (MIDDLE COAL MEASURES)  Dark grey/black MUDSTONE recovered as fine tabular shale gravel. (MIDDLE COAL MEASURES)  End Of Borehole At 30.00 m																																													
<b>KEY</b> D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa  - Groundwater Strike  - Groundwater Level			<b>REMARKS</b> No Groundwater Encountered Air flush  Scale: 1:100					<b>Water Strikes</b> <table border="1"> <tr> <th>Date</th> <th>Strike</th> <th>Level</th> <th>Minutes</th> <th>Casing</th> <th>Remarks</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table> <b>Daily Log Of Depths</b> <b>Flushing Medium</b> <table border="1"> <tr> <th>Date</th> <th>Casing</th> <th>Water</th> <th>From</th> <th>To</th> <th>Type</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table>					Date	Strike	Level	Minutes	Casing	Remarks																			Date	Casing	Water	From	To	Type												
Date	Strike	Level	Minutes	Casing	Remarks																																																	
Date	Casing	Water	From	To	Type																																																	



 <small>iD GeoEnvironmental Limited</small>		Project Title: Rhodia, Whitehaven						PH1014			
		Project Number: 4046			Client: Story Homes						
		GL (mAOD): 87.00			N Coord: 515737			E Coord: 297392			
Date: 07/06/2022		Method: Casagrande C6			Driller: GDC			Logged By: NW			

Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description	Water	Standpipe
						86.80		0.20	TOPSOIL: Dark brown clayey silty sandy loam. (TOPSOIL)		
						85.00		2.00	Weathered yellow-brown MUDSTONE. (MIDDLE COAL MEASURES)		
									Grey MUDSTONE with siltstone laminations. (MIDDLE COAL MEASURES)		
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											

**KEY**

D - Disturbed Sample  
 B - Bulk Sample  
 U - Undisturbed  
 W - Water Sample  
 S - Standard Penetration Test  
 C - Cone Penetration Test  
 N - Penetration Test 'N' Value  
 V - Hand Shear Vane kPa  
 - Groundwater Strike  
 - Groundwater Level

**REMARKS**

No Groundwater Encountered  
 Air flush

Scale: 1:100

Borehole Continues









Water Strikes					
Date	Strike	Level	Minutes	Casing	Remarks

Daily Log Of Depths			Flushing Medium		
Date	Casing	Water	From	To	Type





 iD GeoEnvironmental Limited			Project Title: Rhodia, Whitehaven						PH1015																																																									
			Project Number: 4046			Client: Story Homes			Sheet 2 Of 2																																																									
			GL (mAOD): 87.10			N Coord: 515713			E Coord: 297375																																																									
Date: 07/06/2022			Method: Casagrande C6			Driller: GDC			Logged By: NW																																																									
Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description	Water	Standpipe																																																							
						68.10 67.10 59.10 58.40 57.10	    	19.00 20.00 28.00 28.70 30.00	Dark grey/black MUDSTONE recovered as fine tabular shale gravel. (MIDDLE COAL MEASURES) COAL with thin black Mudstone laminations. (MIDDLE COAL MEASURES) Grey MUDSTONE with siltstone laminations. (MIDDLE COAL MEASURES) COAL (wet) (MIDDLE COAL MEASURES) Grey MUDSTONE (dry) (MIDDLE COAL MEASURES) End Of Borehole At 30.00 m																																																									
<b>KEY</b> D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa  - Groundwater Strike  - Groundwater Level			<b>REMARKS</b> No Groundwater Encountered Air flush  Scale: 1:100						<b>Water Strikes</b> <table border="1"> <tr> <th>Date</th> <th>Strike</th> <th>Level</th> <th>Minutes</th> <th>Casing</th> <th>Remarks</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table> <table border="1"> <tr> <th colspan="3">Daily Log Of Depths</th> <th colspan="3">Flushing Medium</th> </tr> <tr> <th>Date</th> <th>Casing</th> <th>Water</th> <th>From</th> <th>To</th> <th>Type</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table>				Date	Strike	Level	Minutes	Casing	Remarks																									Daily Log Of Depths			Flushing Medium			Date	Casing	Water	From	To	Type												
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Daily Log Of Depths			Flushing Medium																																																															
Date	Casing	Water	From	To	Type																																																													




















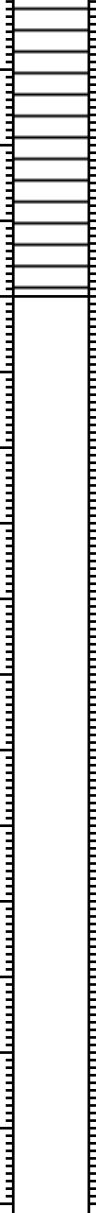


















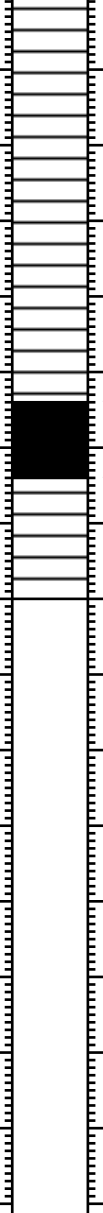




 iD GeoEnvironmental Limited						Project Title: Rhodia, Whitehaven				PH1018							
						Project Number: 4046		Client: Story Homes						Sheet 1 Of 3			
						GL (mAOD): 84.20		N Coord: 515700		E Coord: 297410							
Date: 07/06/2022						Method: Casagrande C6		Driller: GDC		Logged By: NW							
Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description				Water	Standpipe			
						84.00		0.20	TOPSOIL: Dark brown clayey silty sandy loam. (TOPSOIL)								
									Weathered yellow-brown MUDSTONE. (MIDDLE COAL MEASURES)								
						81.50		2.70	Grey MUDSTONE with siltstone laminations. (MIDDLE COAL MEASURES)								
									Dark grey/black MUDSTONE recovered as fine angular shale gravel. (MIDDLE COAL MEASURES)								
						75.20		9.00	Black organic MUDSTONE. (MIDDLE COAL MEASURES)								
						73.20		11.00	COAL. (MIDDLE COAL MEASURES)								
						72.40		11.80	Grey MUDSTONE. (MIDDLE COAL MEASURES)								
						72.20		12.00	COAL. (MIDDLE COAL MEASURES)								
						71.70		12.50	Grey MUDSTONE. (MIDDLE COAL MEASURES)								
						71.50		12.70	COAL. (MIDDLE COAL MEASURES)								
									Grey MUDSTONE (MIDDLE COAL MEASURES)								
									Borehole Continues								
<b>KEY</b> D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa  - Groundwater Strike  - Groundwater Level						<b>REMARKS</b> No Groundwater Encountered Air flush          Scale: 1:100						Water Strikes					
												Date	Strike	Level	Minutes	Casing	Remarks
Daily Log Of Depths						Flushing Medium											
						Date	Casing	Water	From	To	Type						




















 iD GeoEnvironmental Limited			Project Title: Rhodia, Whitehaven						PH1018																																																											
			Project Number: 4046			Client: Story Homes			Sheet 3 Of 3																																																											
			GL (mAOD): 84.20			N Coord: 515700			E Coord: 297410																																																											
Date: 07/06/2022			Method: Casagrande C6			Driller: GDC			Logged By: NW																																																											
Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description			Water	Standpipe																																																							
						48.20		36.00	Grey MUDSTONE. (MIDDLE COAL MEASURES)  End Of Borehole At 36.00 m																																																											
<b>KEY</b> D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa  - Groundwater Strike  - Groundwater Level			<b>REMARKS</b> No Groundwater Encountered Air flush   Scale: 1:100						<table border="1"> <tr> <th colspan="6">Water Strikes</th> </tr> <tr> <th>Date</th> <th>Strike</th> <th>Level</th> <th>Minutes</th> <th>Casing</th> <th>Remarks</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table> <table border="1"> <tr> <th colspan="3">Daily Log Of Depths</th> <th colspan="3">Flushing Medium</th> </tr> <tr> <th>Date</th> <th>Casing</th> <th>Water</th> <th>From</th> <th>To</th> <th>Type</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table>						Water Strikes						Date	Strike	Level	Minutes	Casing	Remarks																			Daily Log Of Depths			Flushing Medium			Date	Casing	Water	From	To	Type												
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




 iD GeoEnvironmental Limited		Project Title: Rhodia, Whitehaven						PH1019									
		Project Number: 4046			Client: Story Homes			Sheet 1 Of 2									
		GL (mAOD): 81.60			N Coord: 515662			E Coord: 297406									
Date: 07/06/2022		Method: Casagrande C6			Driller: GDC			Logged By: NW									
Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description	Water	Standpipe						
						81.40		0.20	TOPSOIL: Dark brown clayey silty sandy loam. (TOPSOIL)								
						79.60		2.00	Weathered yellow-brown MUDSTONE. (MIDDLE COAL MEASURES)								
									Grey MUDSTONE with siltstone laminations. (MIDDLE COAL MEASURES)								
						72.20		9.40	Dark grey/black MUDSTONE recovered as fine angular shale gravel. (MIDDLE COAL MEASURES)								
						69.20		12.40	COAL. (MIDDLE COAL MEASURES)								
						69.00		12.60	Grey MUDSTONE. (MIDDLE COAL MEASURES)								
						68.60		13.00	COAL. (MIDDLE COAL MEASURES)								
						68.40		13.20	Pale grey MUDSTONE. (MIDDLE COAL MEASURES)								
									Borehole Continues								
<b>KEY</b> D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa  - Groundwater Strike  - Groundwater Level						<b>REMARKS</b> No Groundwater Encountered Water Flush  Scale: 1:100						<b>Water Strikes</b>					
												Date	Strike	Level	Minutes	Casing	Remarks
						Daily Log Of Depths						Flushing Medium					
						Date	Casing	Water	From	To	Type						

 iD GeoEnvironmental Limited				Project Title: Rhodia, Whitehaven						PH1019																																																													
				Project Number: 4046			Client: Story Homes			Sheet 2 Of 2																																																													
				GL (mAOD): 81.60			N Coord: 515662			E Coord: 297406																																																													
Date: 07/06/2022				Method: Casagrande C6			Driller: GDC			Logged By: NW																																																													
Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description	Water	Standpipe																																																												
						60.20 59.20 57.60		21.40 22.40 24.00	Pale grey MUDSTONE. (MIDDLE COAL MEASURES)  21.00 - 21.40 Damp MUDSTONE. COAL (moist). (MIDDLE COAL MEASURES) Grey MUDSTONE. (MIDDLE COAL MEASURES) End Of Borehole At 24.00 m																																																														
<b>KEY</b> D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa  - Groundwater Strike  - Groundwater Level				<b>REMARKS</b> No Groundwater Encountered Water Flush  Scale: 1:100				<table border="1"> <tr> <th colspan="6">Water Strikes</th> </tr> <tr> <th>Date</th> <th>Strike</th> <th>Level</th> <th>Minutes</th> <th>Casing</th> <th>Remarks</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr> <th colspan="3">Daily Log Of Depths</th> <th colspan="3">Flushing Medium</th> </tr> <tr> <th>Date</th> <th>Casing</th> <th>Water</th> <th>From</th> <th>To</th> <th>Type</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table>				Water Strikes						Date	Strike	Level	Minutes	Casing	Remarks																									Daily Log Of Depths			Flushing Medium			Date	Casing	Water	From	To	Type												
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







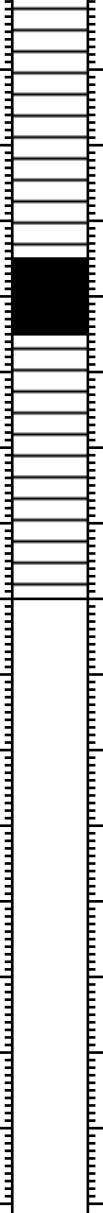


 iD GeoEnvironmental Limited						Project Title: Rhodia, Whitehaven				PH1020							
						Project Number: 4046		Client: Story Homes						Sheet 1 Of 2			
						GL (mAOD): 81.70		N Coord: 515685		E Coord: 297436							
Date: 08/06/2022						Method: Casagrande C6		Driller: GDC		Logged By: NW							
Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description	Water	Standpipe						
						81.50		0.20	TOPSOIL : Turf over brown silty sandy LOAM. (TOPSOIL)								
						79.70		2.00	Weathered yellow-brown MUDSTONE. (MIDDLE COAL MEASURES)								
						78.80		2.90	Grey MUDSTONE. (MIDDLE COAL MEASURES)								
						78.50		3.20	Black organic MUDSTONE with COAL traces. (MIDDLE COAL MEASURES)								
									Dark grey/black MUDSTONE. (MIDDLE COAL MEASURES)								
						75.70		6.00	COAL. (MIDDLE COAL MEASURES)								
						75.60		6.10	Grey MUDSTONE. (MIDDLE COAL MEASURES)								
						75.20		6.50	COAL. (MIDDLE COAL MEASURES)								
						75.00		6.70	Grey MUDSTONE with thin Siltstone laminations. (MIDDLE COAL MEASURES)								
																	
						67.70		14.00									
						66.60		15.10	Dark grey/black MUDSTONE recovered as fine tabular shale gravel. (MIDDLE COAL MEASURES)								
						65.90		15.80	COAL with strong sulphurous odour. (MIDDLE COAL MEASURES)								
									Pale grey MUDSTONE. (MIDDLE COAL MEASURES)								
						Borehole Continues											
<b>KEY</b> D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa  - Groundwater Strike  - Groundwater Level						<b>REMARKS</b> No Groundwater Encountered Water Flush          Scale: 1:100						<b>Water Strikes</b>					
												Date	Strike	Level	Minutes	Casing	Remarks
												Daily Log Of Depths			Flushing Medium		
												Date	Casing	Water	From	To	Type




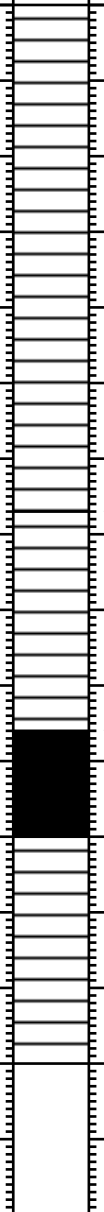


 iD GeoEnvironmental Limited						Project Title: Rhodia, Whitehaven				PH1021							
						Project Number: 4046		Client: Story Homes						Sheet 1 Of 2			
						GL (mAOD): 80.00		N Coord: 515711		E Coord: 297454							
Date: 08/06/2022						Method: Casagrande C6		Driller: GDC		Logged By: NW							
Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description				Water	Standpipe			
						79.80		0.20	TOPSOIL : Turf over brown silty sandy LOAM. (TOPSOIL)								
						78.00		2.00	Weathered yellow-brown MUDSTONE. (MIDDLE COAL MEASURES)								
									Grey MUDSTONE. (MIDDLE COAL MEASURES)								
						75.00		5.00	Dark grey/black MUDSTONE recovered as fine tabular shale gravel. (MIDDLE COAL MEASURES)								
						71.40		8.60	COAL with strong sulphurous odour. (MIDDLE COAL MEASURES)								
						70.70		9.30	Grey MUDSTONE. (MIDDLE COAL MEASURES)								
									Borehole Continues								
<b>KEY</b> D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa  - Groundwater Strike  - Groundwater Level						<b>REMARKS</b> No Groundwater Encountered Water Flush          Scale: 1:100						Water Strikes					
												Date	Strike	Level	Minutes	Casing	Remarks
												Daily Log Of Depths			Flushing Medium		
												Date	Casing	Water	From	To	Type



 iD GeoEnvironmental Limited						Project Title: Rhodia, Whitehaven				PH1022							
						Project Number: 4046		Client: Story Homes						Sheet 1 Of 2			
						GL (mAOD): 78.90		N Coord: 515727		E Coord: 297464							
Date: 07/06/2022						Method: Casagrande C6		Driller: GDC		Logged By: NW							
Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description				Water	Standpipe			
						78.70		0.20	TOPSOIL : Turf over brown silty sandy LOAM. (TOPSOIL)								
						76.90		2.00	Weathered yellow-brown MUDSTONE. (MIDDLE COAL MEASURES)								
						75.30		3.60	Grey MUDSTONE. (MIDDLE COAL MEASURES)								
						74.40		4.50	COAL (moist) (MIDDLE COAL MEASURES)								
									Grey MUDSTONE with Siltstone laminations. (MIDDLE COAL MEASURES)								
									Borehole Continues								
<b>KEY</b> D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa  - Groundwater Strike  - Groundwater Level						<b>REMARKS</b> No Groundwater Encountered Water Flush      Scale: 1:100						Water Strikes					
												Date	Strike	Level	Minutes	Casing	Remarks
												Daily Log Of Depths				Flushing Medium	
												Date	Casing	Water	From	To	Type

				Project Title: Rhodia, Whitehaven					PH1022																																																																
				Project Number: 4046			Client: Story Homes		Sheet 2 Of 2																																																																
				GL (mAOD): 78.90			N Coord: 515727		E Coord: 297464																																																																
Date: 07/06/2022				Method: Casagrande C6			Driller: GDC		Logged By: NW																																																																
Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description			Water	Standpipe																																																												
						<div> <div>59.40</div> <div>58.40</div> <div>54.90</div> </div>		<div>19.50</div> <div>20.50</div> <div>24.00</div>	<div>Grey MUDSTONE with Siltstone laminations. (MIDDLE COAL MEASURES)</div> <div>COAL. (MIDDLE COAL MEASURES)</div> <div>Grey MUDSTONE with Siltstone laminations. (MIDDLE COAL MEASURES)</div> <div>End Of Borehole At 24.00 m</div>																																																																
<b>KEY</b> D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa  - Groundwater Strike  - Groundwater Level				<b>REMARKS</b> No Groundwater Encountered Water Flush  Scale: 1:100				<table border="1"> <tr> <th colspan="6">Water Strikes</th> </tr> <tr> <th>Date</th> <th>Strike</th> <th>Level</th> <th>Minutes</th> <th>Casing</th> <th>Remarks</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr> <th colspan="3">Daily Log Of Depths</th> <th colspan="3">Flushing Medium</th> </tr> <tr> <th>Date</th> <th>Casing</th> <th>Water</th> <th>From</th> <th>To</th> <th>Type</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table>						Water Strikes						Date	Strike	Level	Minutes	Casing	Remarks																									Daily Log Of Depths			Flushing Medium			Date	Casing	Water	From	To	Type												
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






























 iGeo iD GeoEnvironmental Limited				Project Title: Rhodia, Whitehaven						PH1023																																											
				Project Number: 4046			Client: Story Homes			Sheet 2 Of 2																																											
				GL (mAOD): 89.80			N Coord: 515784			E Coord: 297321																																											
Date: 06/06/2022				Method: Casagrande C6			Driller: GDC			Logged By: NW																																											
Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description	Water	Standpipe																																										
						67.10 64.20 62.80 59.80		22.70 25.60 27.00 30.00	Grey MUDSTONE with siltstone laminations. (MIDDLE COAL MEASURES)  Moist black MUDSTONE recovered as fine tabular shale gravel. (MIDDLE COAL MEASURES)  COAL. Damp. (MIDDLE COAL MEASURES)  Wet dark grey/black MUDSTONE recovered as fine angular shale. (MIDDLE COAL MEASURES)  End Of Borehole At 30.00 m																																												
<b>KEY</b> D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa  - Groundwater Strike  - Groundwater Level				<b>REMARKS</b> No Groundwater Encountered Air flush  Scale: 1:100				<b>Water Strikes</b> <table border="1"> <tr> <th>Date</th> <th>Strike</th> <th>Level</th> <th>Minutes</th> <th>Casing</th> <th>Remarks</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table> <b>Daily Log Of Depths</b> <table border="1"> <tr> <th>Date</th> <th>Casing</th> <th>Water</th> <th>From</th> <th>To</th> <th>Type</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table>				Date	Strike	Level	Minutes	Casing	Remarks																			Date	Casing	Water	From	To	Type												
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





 iD GeoEnvironmental Limited		Project Title: Rhodia, Whitehaven						PH902																																																																					
		Project Number: 4046			Client: Story Homes							Sheet 1 Of 2																																																																	
		GL (mAOD): 91.67			N Coord: 515889			E Coord: 297379																																																																					
Date: 01/09/2021		Method: Casagrande C6			Driller: GDC			Logged By: NW																																																																					
Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description	Water	Standpipe																																																																		
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 iD GeoEnvironmental Limited			Project Title: Rhodia, Whitehaven						PH902																																																			
			Project Number: 4046			Client: Story Homes							Sheet 2 Of 2																																															
			GL (mAOD): 91.67			N Coord: 515889			E Coord: 297379																																																			
Date: 01/09/2021			Method: Casagrande C6			Driller: GDC			Logged By: NW																																																			
Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description	Water	Standpipe																																																	
						73.27		18.40	Grey MUDSTONE. (MIDDLE COAL MEASURES)																																																			
						70.27		21.40	Broken Ground & loss of flush - Probable mineworkings (PROBABLE WORKINGS)																																																			
						67.67		24.00	Solid drilling with no returns. (MIDDLE COAL MEASURES)																																																			
									End Of Borehole At 24.00 m																																																			
<b>KEY</b> D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa ▽ - Groundwater Strike ▼ - Groundwater Level			<b>REMARKS</b> No Groundwater Encountered Air Mist  Scale: 1:100						<b>Water Strikes</b> <table border="1"> <tr> <th>Date</th> <th>Strike</th> <th>Level</th> <th>Minutes</th> <th>Casing</th> <th>Remarks</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table> <table border="1"> <tr> <th colspan="3">Daily Log Of Depths</th> <th colspan="3">Flushing Medium</th> </tr> <tr> <th>Date</th> <th>Casing</th> <th>Water</th> <th>From</th> <th>To</th> <th>Type</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table>				Date	Strike	Level	Minutes	Casing	Remarks																			Daily Log Of Depths			Flushing Medium			Date	Casing	Water	From	To	Type												
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 iD GeoEnvironmental Limited		Project Title: Rhodia, Whitehaven						<h1 style="margin: 0;">PH903</h1>			
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		GL (mAOD): 88.20			N Coord: 515872			E Coord: 297407			
Date: 01/09/2021		Method: Casagrande C6			Driller: GDC			Logged By: NW			

Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description	Water	Standpipe
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						86.90		1.30	<div style="border: 1px solid black; padding: 2px;">           Yellow-brown silty CLAY. Interpreted to be weathered MUDSTONE. (MIDDLE COAL MEASURES)         </div>		
									Grey silty MUDSTONE. (MIDDLE COAL MEASURES)		
						81.70		6.50	<div style="border: 1px solid black; padding: 2px;">           COAL. (MIDDLE COAL MEASURES)         </div>		
						81.60		6.60		Grey MUDSTONE. (MIDDLE COAL MEASURES)	
						73.20		15.00	<div style="border: 1px solid black; padding: 2px;">           COAL. (MIDDLE COAL MEASURES)         </div>		
						72.70		15.50		Grey SILTSTONE with mudstone laminations. (MIDDLE COAL MEASURES)	
									Borehole Continues		










<b>KEY</b> D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa  - Groundwater Strike  - Groundwater Level	<b>REMARKS</b> No Groundwater Encountered Air Mist   Scale: 1:100	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="6">Water Strikes</th> </tr> <tr> <th>Date</th> <th>Strike</th> <th>Level</th> <th>Minutes</th> <th>Casing</th> <th>Remarks</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="3">Daily Log Of Depths</th> <th colspan="3">Flushing Medium</th> </tr> <tr> <th>Date</th> <th>Casing</th> <th>Water</th> <th>From</th> <th>To</th> <th>Type</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table>	Water Strikes						Date	Strike	Level	Minutes	Casing	Remarks																									Daily Log Of Depths			Flushing Medium			Date	Casing	Water	From	To	Type												
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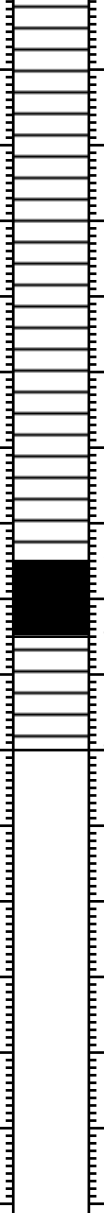


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











 iD GeoEnvironmental Limited		Project Title: Rhodia, Whitehaven						PH905																																																																					
		Project Number: 4046			Client: Story Homes							Sheet 1 Of 3																																																																	
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Date: 01/09/2021		Method: Casagrande C6			Driller: GDC			Logged By: NW																																																																					
Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description	Water	Standpipe																																																																		
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									Dark grey-black MUDSTONE. (MIDDLE COAL MEASURES)																																																																				
						79.25		12.50	Dark grey-black MUDSTONE with COAL traces. (MIDDLE COAL MEASURES)																																																																				
						76.75		15.00	Borehole Continues																																																																				
<b>KEY</b> D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa  - Groundwater Strike  - Groundwater Level						<b>REMARKS</b> No Groundwater Encountered Air Mist  Scale: 1:100						<b>Water Strikes</b> <table border="1"> <tr> <th>Date</th> <th>Strike</th> <th>Level</th> <th>Minutes</th> <th>Casing</th> <th>Remarks</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table> <table border="1"> <tr> <th colspan="3">Daily Log Of Depths</th> <th colspan="3">Flushing Medium</th> </tr> <tr> <th>Date</th> <th>Casing</th> <th>Water</th> <th>From</th> <th>To</th> <th>Type</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table>						Date	Strike	Level	Minutes	Casing	Remarks																									Daily Log Of Depths			Flushing Medium			Date	Casing	Water	From	To	Type																		
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 iD GeoEnvironmental Limited			Project Title: Rhodia, Whitehaven						PH905																																													
			Project Number: 4046			Client: Story Homes							Sheet 3 Of 3																																									
			GL (mAOD): 91.75			N Coord: 515845			E Coord: 297367																																													
Date: 01/09/2021			Method: Casagrande C6			Driller: GDC			Logged By: NW																																													
Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description	Water	Standpipe																																											
						52.25 51.25 49.75		Solid drilling accompanied by slow recovery of up to 50% returns comprising grey MUDSTONE. (MIDDLE COAL MEASURES)  COAL. Partial returns. (MIDDLE COAL MEASURES)  Grey MUDSTONE. Partial returns. (MIDDLE COAL MEASURES)  End Of Borehole At 42.00 m																																														
<b>KEY</b> D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa  - Groundwater Strike  - Groundwater Level			<b>REMARKS</b> No Groundwater Encountered Air Mist  Scale: 1:100						<b>Water Strikes</b> <table border="1"> <tr> <th>Date</th> <th>Strike</th> <th>Level</th> <th>Minutes</th> <th>Casing</th> <th>Remarks</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table> <b>Daily Log Of Depths</b> <table border="1"> <tr> <th>Date</th> <th>Casing</th> <th>Water</th> <th>From</th> <th>To</th> <th>Type</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table>				Date	Strike	Level	Minutes	Casing	Remarks																			Date	Casing	Water	From	To	Type												
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Date	Casing	Water	From	To	Type																																																	

Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description	Water	Standpipe
						87.94		0.30	TOPSOIL : Turf over brown silty sandy LOAM. (TOPSOIL)		
						86.74		1.50	Yellow-brown silty CLAY. Interpreted to be weathered MUDSTONE. (MIDDLE COAL MEASURES)		
									Grey and dark grey bands of silty MUDSTONE. (MIDDLE COAL MEASURES)		
						81.74		6.50			
						81.64		6.60	Dark grey-black MUDSTONE with COAL traces. (MIDDLE COAL MEASURES)		
						80.84		7.40	Grey MUDSTONE. (MIDDLE COAL MEASURES)		
						80.74		7.50	COAL. (MIDDLE COAL MEASURES)		
									Grey MUDSTONE. (MIDDLE COAL MEASURES)		
						72.74		15.50	COAL. (MIDDLE COAL MEASURES)		
									Borehole Continues		

## KEY

D - Disturbed Sample  
 B - Bulk Sample  
 U - Undisturbed  
 W - Water Sample  
 S - Standard Penetration Test  
 C - Cone Penetration Test  
 N - Penetration Test 'N' Value  
 V - Hand Shear Vane kPa  
 - Groundwater Strike  
 - Groundwater Level

## REMARKS

No Groundwater Encountered  
Air Mist

Scale: 1:100


## Water Strikes

Date	Strike	Level	Minutes	Casing	Remarks

## Daily Log Of Depths

## Flushing Medium

Date	Casing	Water	From	To	Type

 iGeo iD GeoEnvironmental Limited		Project Title: Rhodia, Whitehaven						PH906									
		Project Number: 4046			Client: Story Homes			Sheet 2 Of 2									
		GL (mAOD): 88.24			N Coord: 515847			E Coord: 297409									
Date: 01/09/2021		Method: Casagrande C6			Driller: GDC			Logged By: NW									
Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description	Water	Standpipe						
						72.14		16.10	COAL. (MIDDLE COAL MEASURES) Grey MUDSTONE with SILTSTONE laminations. (MIDDLE COAL MEASURES)								
						64.24		24.00									
						64.24		24.00	End Of Borehole At 24.00 m								
<b>KEY</b> D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa ▽ - Groundwater Strike ▼ - Groundwater Level						<b>REMARKS</b> No Groundwater Encountered Air Mist  Scale: 1:100						<b>Water Strikes</b>					
												Date	Strike	Level	Minutes	Casing	Remarks
						Daily Log Of Depths						Flushing Medium					
						Date	Casing	Water	From	To	Type						


 iGeo <small>iD GeoEnvironmental Limited</small>		Project Title: Rhodia, Whitehaven						PH907			
		Project Number: 4046			Client: Story Homes			Sheet 1 Of 2			
		GL (mAOD): 89.67			N Coord: 515847			E Coord: 297388			
Date: 02/09/2021		Method: Casagrande C6			Driller: GDC			Logged By: NW			

Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description	Water	Standpipe
						89.37		0.30	TOPSOIL : Turf over brown silty sandy LOAM. (TOPSOIL)		
						88.17		1.50	Yellow-brown silty CLAY. Interpreted to be weathered MUDSTONE. (MIDDLE COAL MEASURES)		
						86.17		3.50	Grey silty MUDSTONE. (MIDDLE COAL MEASURES)		
									Dark grey-black MUDSTONE. (MIDDLE COAL MEASURES)		
						79.67		10.00			
						79.47		10.20	Dark grey-black MUDSTONE with COAL traces. (MIDDLE COAL MEASURES)		
						78.87		10.80			
						78.77		10.90	Grey MUDSTONE (MIDDLE COAL MEASURES)		
									COAL. (MIDDLE COAL MEASURES)		
									Grey MUDSTONE. (MIDDLE COAL MEASURES)		
									Borehole Continues		






  

<b>KEY</b> D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa - Groundwater Strike - Groundwater Level	<b>REMARKS</b> No Groundwater Encountered Air Mist   Scale: 1:100	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="6">Water Strikes</th> </tr> <tr> <th>Date</th> <th>Strike</th> <th>Level</th> <th>Minutes</th> <th>Casing</th> <th>Remarks</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="3">Daily Log Of Depths</th> <th colspan="3">Flushing Medium</th> </tr> <tr> <th>Date</th> <th>Casing</th> <th>Water</th> <th>From</th> <th>To</th> <th>Type</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table>	Water Strikes						Date	Strike	Level	Minutes	Casing	Remarks																									Daily Log Of Depths			Flushing Medium			Date	Casing	Water	From	To	Type												
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 iD GeoEnvironmental Limited		Project Title: Rhodia, Whitehaven						PH907									
		Project Number: 4046			Client: Story Homes							Sheet 2 Of 2					
		GL (mAOD): 89.67			N Coord: 515847			E Coord: 297388									
Date: 02/09/2021		Method: Casagrande C6			Driller: GDC			Logged By: NW									
Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description	Water	Standpipe						
						71.37		18.30	Grey MUDSTONE. (MIDDLE COAL MEASURES)								
						70.17		19.50	Broken ground accompanied by loss of returns - probable mineworkings. (PROBABLE WORKINGS)								
						68.67		21.00	Solid drilling - no returns. (MIDDLE COAL MEASURES)								
									End Of Borehole At 21.00 m								
<b>KEY</b> D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa ▽ - Groundwater Strike ▼ - Groundwater Level						<b>REMARKS</b> No Groundwater Encountered Air Mist  Scale: 1:100						<b>Water Strikes</b>					
												Date	Strike	Level	Minutes	Casing	Remarks
						Daily Log Of Depths						Flushing Medium					
						Date	Casing	Water	From	To	Type						


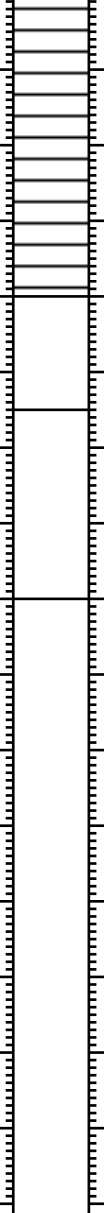









 iD GeoEnvironmental Limited			Project Title: Rhodia, Whitehaven						PH908																																																		
			Project Number: 4046			Client: Story Homes						Sheet 2 Of 3																																															
			GL (mAOD): 87.00			N Coord: 515821			E Coord: 297414																																																		
Date: 02/09/2021			Method: Casagrande C6			Driller: GDC			Logged By: NW																																																		
Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description	Water	Standpipe																																																
						70.40		16.60	COAL (MIDDLE COAL MEASURES) Grey MUDSTONE with SILTSTONE laminations (MIDDLE COAL MEASURES)																																																		
						55.90		31.10	COAL. (MIDDLE COAL MEASURES)																																																		
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<b>KEY</b> D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa  - Groundwater Strike  - Groundwater Level			<b>REMARKS</b> No Groundwater Encountered Air Mist  Scale: 1:100						<b>Water Strikes</b> <table border="1"> <tr> <th>Date</th> <th>Strike</th> <th>Level</th> <th>Minutes</th> <th>Casing</th> <th>Remarks</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table> <table border="1"> <tr> <th colspan="3">Daily Log Of Depths</th> <th colspan="3">Flushing Medium</th> </tr> <tr> <th>Date</th> <th>Casing</th> <th>Water</th> <th>From</th> <th>To</th> <th>Type</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table>			Date	Strike	Level	Minutes	Casing	Remarks																			Daily Log Of Depths			Flushing Medium			Date	Casing	Water	From	To	Type												
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












 iD GeoEnvironmental Limited			Project Title: Rhodia, Whitehaven						<h1>PH909</h1>																																																														
			Project Number: 4046			Client: Story Homes							Sheet 2 Of 2																																																										
			GL (mAOD): 89.85			N Coord: 515810			E Coord: 297393																																																														
Date: 02/09/2021			Method: Casagrande C6			Driller: GDC			Logged By: NW																																																														
Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description			Water	Standpipe																																																										
						69.85 68.35 65.85		20.00 21.50 24.00	<p>Grey MUDSTONE. (MIDDLE COAL MEASURES)</p> <p>Broken/soft ground accompanied by partial loss of returns comprising mudstone with coal traces - probable backfilled mineworkings. (PROBABLE WORKINGS)</p> <p>Solid drilling - partial returns comprising grey mudstone with coal traces (PROBABLE WORKINGS)</p> <p>End Of Borehole At 24.00 m</p>																																																														
<b>KEY</b> D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa  - Groundwater Strike  - Groundwater Level						<b>REMARKS</b> No Groundwater Encountered Air Mist  Scale: 1:100						<b>Water Strikes</b> <table border="1"> <tr> <th>Date</th> <th>Strike</th> <th>Level</th> <th>Minutes</th> <th>Casing</th> <th>Remarks</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table> <b>Daily Log Of Depths</b> <table border="1"> <tr> <th colspan="3">Flushing Medium</th> <th colspan="3"> </th> </tr> <tr> <th>Date</th> <th>Casing</th> <th>Water</th> <th>From</th> <th>To</th> <th>Type</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table>						Date	Strike	Level	Minutes	Casing	Remarks																									Flushing Medium						Date	Casing	Water	From	To	Type												
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 iGeo <small>iD GeoEnvironmental Limited</small>		Project Title: Rhodia, Whitehaven						<h1 style="margin: 0;">PH910</h1>	
		Project Number: 4046			Client: Story Homes				
		GL (mAOD): 88.30			N Coord: 515821			E Coord: 297394	
Date: 02/09/2021		Method: Casagrande C6			Driller: GDC			Logged By: NW	














  

Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description	Water	Standpipe
						88.00		0.30	<div style="border: 1px solid black; padding: 2px;">           TOPSOIL : Turf over brown silty sandy LOAM. (TOPSOIL)         </div>		
						86.80		1.50	<div style="border: 1px solid black; padding: 2px;">           Yellow-brown silty CLAY. Interpreted to be weathered MUDSTONE. (MIDDLE COAL MEASURES)         </div>		
									<div style="border: 1px solid black; padding: 2px;">           Grey and dark grey bands of silty MUDSTONE. (MIDDLE COAL MEASURES)         </div>		
						78.60		9.70			
						78.50		9.80	<div style="border: 1px solid black; padding: 2px;">           Dark grey-black MUDSTONE with COAL traces. (MIDDLE COAL MEASURES)         </div>		
						77.80		10.50	<div style="border: 1px solid black; padding: 2px;">           Grey MUDSTONE. (MIDDLE COAL MEASURES)         </div>		
						77.70		10.60	<div style="border: 1px solid black; padding: 2px;">           COAL. (MIDDLE COAL MEASURES)         </div>		
									<div style="border: 1px solid black; padding: 2px;">           Grey MUDSTONE. (MIDDLE COAL MEASURES)         </div>		
									Borehole Continues		






<b>KEY</b> D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa  - Groundwater Strike  - Groundwater Level	<b>REMARKS</b> No Groundwater Encountered Air Mist   Scale: 1:100	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="6">Water Strikes</th> </tr> <tr> <th>Date</th> <th>Strike</th> <th>Level</th> <th>Minutes</th> <th>Casing</th> <th>Remarks</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="3">Daily Log Of Depths</th> <th colspan="3">Flushing Medium</th> </tr> <tr> <th>Date</th> <th>Casing</th> <th>Water</th> <th>From</th> <th>To</th> <th>Type</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table>	Water Strikes						Date	Strike	Level	Minutes	Casing	Remarks																									Daily Log Of Depths			Flushing Medium			Date	Casing	Water	From	To	Type												
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 iD GeoEnvironmental Limited			Project Title: Rhodia, Whitehaven						PH910																																																																	
			Project Number: 4046			Client: Story Homes							Sheet 2 Of 2																																																													
			GL (mAOD): 88.30			N Coord: 515821			E Coord: 297394																																																																	
Date: 02/09/2021			Method: Casagrande C6			Driller: GDC			Logged By: NW																																																																	
Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description			Water	Standpipe																																																													
						69.80 69.00 67.30	  	18.50 19.30 21.00	Grey MUDSTONE. (MIDDLE COAL MEASURES)  COAL. (MIDDLE COAL MEASURES)  Grey MUDSTONE with SILTSTONE laminations. (MIDDLE COAL MEASURES)  End Of Borehole At 21.00 m																																																																	
<b>KEY</b> D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa  - Groundwater Strike  - Groundwater Level			<b>REMARKS</b> No Groundwater Encountered Air Mist   Scale: 1:100						<table border="1"> <tr> <th colspan="6">Water Strikes</th> </tr> <tr> <th>Date</th> <th>Strike</th> <th>Level</th> <th>Minutes</th> <th>Casing</th> <th>Remarks</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr> <th colspan="3">Daily Log Of Depths</th> <th colspan="3">Flushing Medium</th> </tr> <tr> <th>Date</th> <th>Casing</th> <th>Water</th> <th>From</th> <th>To</th> <th>Type</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table>						Water Strikes						Date	Strike	Level	Minutes	Casing	Remarks																									Daily Log Of Depths			Flushing Medium			Date	Casing	Water	From	To	Type												
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Date	Casing	Water	From	To	Type																																																																					

 iD GeoEnvironmental Limited						Project Title: Rhodia, Whitehaven				PH911																															
						Project Number: 4046		Client: Story Homes						Sheet 1 Of 2																											
						GL (mAOD): 86.72		N Coord: 515780		E Coord: 297414																															
Date: 02/09/2021						Method: Casagrande C6		Driller: GDC		Logged By: NW																															
Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description				Water	Standpipe																											
						86.42		0.30	TOPSOIL : Turf over brown silty sandy LOAM. (TOPSOIL)																																
						85.72		1.00	Yellow-brown silty CLAY. Interpreted to be weathered MUDSTONE. (MIDDLE COAL MEASURES)																																
						83.22		3.50	Yellow-brown muddy SANDSTONE (MIDDLE COAL MEASURES)																																
									Grey and dark grey bands of silty MUDSTONE. (MIDDLE COAL MEASURES)																																
						80.82		5.90	Dark grey-black MUDSTONE with COAL traces. (MIDDLE COAL MEASURES)																																
						80.72		6.00	Grey MUDSTONE. (MIDDLE COAL MEASURES)																																
						80.22		6.50	COAL. (MIDDLE COAL MEASURES)																																
						80.12		6.60	Grey MUDSTONE. (MIDDLE COAL MEASURES)																																
								14.70	COAL. (MIDDLE COAL MEASURES)																																
						71.32		15.40	Grey MUDSTONE with SILTSTONE laminations. (MIDDLE COAL MEASURES)																																
										Borehole Continues																															
<b>KEY</b> D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa  - Groundwater Strike  - Groundwater Level						<b>REMARKS</b> No Groundwater Encountered Air Mist  Scale: 1:100						<b>Water Strikes</b>																													
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						<b>Daily Log Of Depths</b>																																			
						<table border="1"> <tr> <th colspan="3">Flushing Medium</th> <th colspan="3"> </th> </tr> <tr> <th>Date</th> <th>Casing</th> <th>Water</th> <th>From</th> <th>To</th> <th>Type</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table>						Flushing Medium						Date	Casing	Water	From	To	Type																		
Flushing Medium																																									
Date	Casing	Water	From	To	Type																																				





Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description	Water	Standpipe
						85.85		0.30	TOPSOIL : Turf over brown silty sandy LOAM. (TOPSOIL)		
						85.15		1.00	Yellow-brown silty CLAY. Interpreted to be weathered MUDSTONE. (MIDDLE COAL MEASURES)		
									Grey and dark grey bands of silty MUDSTONE. (MIDDLE COAL MEASURES)		
						79.65		6.50	Dark grey-black MUDSTONE with COAL traces. (MIDDLE COAL MEASURES)		
						79.55		6.60			
						79.05		7.10	Grey MUDSTONE. (MIDDLE COAL MEASURES)		
						78.95		7.20	COAL. (MIDDLE COAL MEASURES)		
									Grey MUDSTONE with SILTSTONE laminations. (MIDDLE COAL MEASURES)		
						70.85		15.30	COAL (MIDDLE COAL MEASURES)		
						70.25		15.90	Grey MUDSTONE. (MIDDLE COAL MEASURES)		
									Borehole Continues		

## KEY

D - Disturbed Sample  
 B - Bulk Sample  
 U - Undisturbed  
 W - Water Sample  
 S - Standard Penetration Test  
 C - Cone Penetration Test  
 N - Penetration Test 'N' Value  
 V - Hand Shear Vane kPa  
 - Groundwater Strike  
 - Groundwater Level

## REMARKS

No Groundwater Encountered  
Air Mist

Scale: 1:100

## Water Strikes

Date	Strike	Level	Minutes	Casing	Remarks

## Daily Log Of Depths


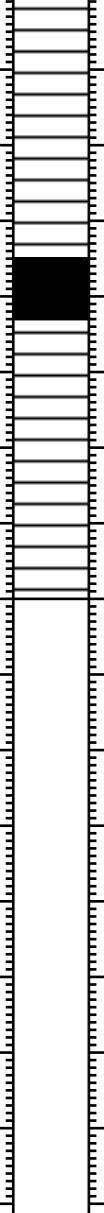


## Flushing Medium

























Date	Casing	Water	From	To	Type

















 iD GeoEnvironmental Limited			Project Title: Rhodia, Whitehaven						PH913																																																			
			Project Number: 4046			Client: Story Homes							Sheet 2 Of 2																																															
			GL (mAOD): 88.30			N Coord: 515749			E Coord: 297387																																																			
Date: 03/09/2021			Method: Casagrande C6			Driller: GDC			Logged By: NW																																																			
Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description	Water	Standpipe																																																	
						68.80 68.00 64.30		19.50 20.30 24.00	Grey MUDSTONE. (MIDDLE COAL MEASURES)  COAL. (MIDDLE COAL MEASURES) Grey MUDSTONE with SILTSTONE laminations. (MIDDLE COAL MEASURES)  End Of Borehole At 24.00 m																																																			
<b>KEY</b> D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa  - Groundwater Strike  - Groundwater Level			<b>REMARKS</b> No Groundwater Encountered Air Mist  Scale: 1:100						<b>Water Strikes</b> <table border="1"> <tr> <th>Date</th> <th>Strike</th> <th>Level</th> <th>Minutes</th> <th>Casing</th> <th>Remarks</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table> <table border="1"> <tr> <th colspan="3">Daily Log Of Depths</th> <th colspan="3">Flushing Medium</th> </tr> <tr> <th>Date</th> <th>Casing</th> <th>Water</th> <th>From</th> <th>To</th> <th>Type</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table>				Date	Strike	Level	Minutes	Casing	Remarks																			Daily Log Of Depths			Flushing Medium			Date	Casing	Water	From	To	Type												
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




Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description	Water	Standpipe
						84.90		0.30	<div>TOPSOIL : Turf over brown silty sandy LOAM. (TOPSOIL)</div> <div>Yellow-brown silty CLAY. Interpreted to be weathered MUDSTONE. (MIDDLE COAL MEASURES)</div> <div>Grey and dark grey bands of silty MUDSTONE. (MIDDLE COAL MEASURES)</div>		
						84.20		1.00			
											
											
											
											
											
											
											
											
											
											
						78.70		6.50	<div>COAL. (MIDDLE COAL MEASURES)</div> <div>Grey MUDSTONE. (MIDDLE COAL MEASURES)</div> <div>COAL. (MIDDLE COAL MEASURES)</div> <div>Grey MUDSTONE. (MIDDLE COAL MEASURES)</div>		
						78.60		6.60			
						78.10		7.10			
						77.90		7.30			
											
											
											
											
											
											
						70.00		15.20			
						69.20		16.00	<div>COAL. (MIDDLE COAL MEASURES)</div> <div>Borehole Continues</div>		

 iD GeoEnvironmental Limited				Project Title: Rhodia, Whitehaven						PH914			
				Project Number: 4046			Client: Story Homes						
				GL (mAOD): 85.20			N Coord: 515739			E Coord: 297417			
Date: 04/09/2021				Method: Casagrande C6			Driller: GDC			Logged By: NW			
Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description			Water	Standpipe
						67.20		18.00	Grey MUDSTONE with SILTSTONE laminations. (MIDDLE COAL MEASURES)				
									End Of Borehole At 18.00 m				
<b>KEY</b> D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa  - Groundwater Strike  - Groundwater Level				<b>REMARKS</b> No Groundwater Encountered Air Mist      Scale: 1:100				<b>Water Strikes</b>					
								Date	Strike	Level	Minutes	Casing	Remarks
								Daily Log Of Depths			Flushing Medium		
								Date	Casing	Water	From	To	Type







 iD GeoEnvironmental Limited			Project Title: Rhodia, Whitehaven						PH915																																																					
			Project Number: 4046			Client: Story Homes							Sheet 2 Of 2																																																	
			GL (mAOD): 85.50			N Coord: 515718			E Coord: 297382																																																					
Date: 04/09/2021			Method: Casagrande C6			Driller: GDC			Logged By: NW																																																					
Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description			Water	Standpipe																																																	
						64.70 64.00 61.50	  	20.80 21.50 24.00	Grey MUDSTONE. (MIDDLE COAL MEASURES)  COAL. (MIDDLE COAL MEASURES) Grey MUDSTONE with SILTSTONE laminations. (MIDDLE COAL MEASURES)  End Of Borehole At 24.00 m																																																					
<b>KEY</b> D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa  - Groundwater Strike  - Groundwater Level			<b>REMARKS</b> No Groundwater Encountered Air Mist  Scale: 1:100						<b>Water Strikes</b> <table border="1"> <tr> <th>Date</th> <th>Strike</th> <th>Level</th> <th>Minutes</th> <th>Casing</th> <th>Remarks</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table> <table border="1"> <tr> <th colspan="3">Daily Log Of Depths</th> <th colspan="3">Flushing Medium</th> </tr> <tr> <th>Date</th> <th>Casing</th> <th>Water</th> <th>From</th> <th>To</th> <th>Type</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table>						Date	Strike	Level	Minutes	Casing	Remarks																			Daily Log Of Depths			Flushing Medium			Date	Casing	Water	From	To	Type												
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Daily Log Of Depths			Flushing Medium																																																											
Date	Casing	Water	From	To	Type																																																									

Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description	Water	Standpipe
						88.95		0.30	TOPSOIL : Turf over brown silty sandy LOAM. (TOPSOIL)		
						87.95		1.30	Yellow-brown silty CLAY. Interpreted to be weathered MUDSTONE. (MIDDLE COAL MEASURES)		
									Grey and dark grey bands of silty MUDSTONE. (MIDDLE COAL MEASURES)		
									COAL with Mudstone. (MIDDLE COAL MEASURES)		
									Grey MUDSTONE. (MIDDLE COAL MEASURES)		
									COAL. (MIDDLE COAL MEASURES)		
									Grey MUDSTONE. (MIDDLE COAL MEASURES)		

## KEY

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 W - Water Sample  
 S - Standard Penetration Test  
 C - Cone Penetration Test  
 N - Penetration Test 'N' Value  
 V - Hand Shear Vane kPa  
 - Groundwater Strike  
 - Groundwater Level







## REMARKS

No Groundwater Encountered  
Air Mist

Scale: 1:100

Borehole Water Strikes


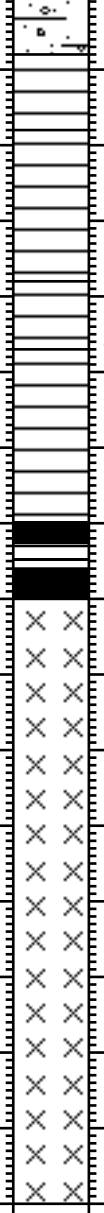


Date	Strike	Level	Minutes	Casing	Remarks
Daily Log Of Depths			Flushing Medium		
Date	Casing	Water	From	To	Type

 iGeo iD GeoEnvironmental Limited			Project Title: Rhodia, Whitehaven						PH916																																																								
			Project Number: 4046			Client: Story Homes							Sheet 2 Of 2																																																				
			GL (mAOD): 89.25			N Coord: 515770			E Coord: 297370																																																								
Date: 04/09/2021			Method: Casagrande C6			Driller: GDC			Logged By: NW																																																								
Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description			Water	Standpipe																																																				
						65.65 64.85 62.25	  	23.60 24.40 27.00	Grey MUDSTONE. (MIDDLE COAL MEASURES)  COAL. (MIDDLE COAL MEASURES)  Grey MUDSTONE with SILTSTONE laminations. (MIDDLE COAL MEASURES)  End Of Borehole At 27.00 m																																																								
<b>KEY</b> D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa  - Groundwater Strike  - Groundwater Level						<b>REMARKS</b> No Groundwater Encountered Air Mist  Scale: 1:100						<b>Water Strikes</b> <table border="1"> <tr> <th>Date</th> <th>Strike</th> <th>Level</th> <th>Minutes</th> <th>Casing</th> <th>Remarks</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table> <table border="1"> <tr> <th colspan="3">Daily Log Of Depths</th> <th colspan="3">Flushing Medium</th> </tr> <tr> <th>Date</th> <th>Casing</th> <th>Water</th> <th>From</th> <th>To</th> <th>Type</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table>						Date	Strike	Level	Minutes	Casing	Remarks																			Daily Log Of Depths			Flushing Medium			Date	Casing	Water	From	To	Type												
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









 iD GeoEnvironmental Limited						Project Title: Rhodia, Whitehaven				PH632							
						Project Number: 4046		Client: Story Homes						Sheet 1 Of 2			
						GL (mAOD): 83.70		N Coord: 515726		E Coord: 297434							
Date: 10/09/2020						Method:		Driller: GDC		Logged By: NW							
Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description	Water	Standpipe						
						82.90 81.90 79.90 79.00 76.70 76.40 76.10 75.70 67.70		0.80 1.80 3.80 4.70 7.00 7.30 7.60 8.00 16.00	Turf over brown silty sandy gravelly CLAY. (GLACIAL TILL) Yellow-brown weathered silty MUDSTONE. (MIDDLE COAL MEASURES) Grey silty MUDSTONE. (MIDDLE COAL MEASURES) Black organic MUDSTONE with COAL traces. (MIDDLE COAL MEASURES) Grey silty MUDSTONE. (MIDDLE COAL MEASURES) COAL. (MIDDLE COAL MEASURES) Black organic MUDSTONE. (MIDDLE COAL MEASURES) COAL. (MIDDLE COAL MEASURES) Grey SILTSTONE and MUDSTONE laminations. (MIDDLE COAL MEASURES) Borehole Continues								
<b>KEY</b> D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa  - Groundwater Strike  - Groundwater Level						<b>REMARKS</b> No Groundwater Encountered  Scale: 1:100						<b>Water Strikes</b>					
												Date	Strike	Level	Minutes	Casing	Remarks
						<b>Daily Log Of Depths</b>											
						Flushing Medium											
						Date	Casing	Water	From	To	Type						





 iD GeoEnvironmental Limited						Project Title: Rhodia, Whitehaven				PH633					
						Project Number: 4046		Client: Story Homes						Sheet 1 Of 3	
						GL (mAOD): 92.00		N Coord: 515879		E Coord: 297309					
Date: 11/09/2020						Method: Casagrande C6		Driller:		Logged By: NW					
Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description				Water	Standpipe	
						91.20 89.00 85.20 84.70 84.30	     	0.80 3.00 6.80 7.30 7.70	Turf over brown silty sandy gravelly CLAY. (MIDDLE COAL MEASURES) Yellow-brown weathered silty MUDSTONE. (MIDDLE COAL MEASURES) Grey silty MUDSTONE. (MIDDLE COAL MEASURES) Black organic MUDSTONE. (MIDDLE COAL MEASURES) COAL. (MIDDLE COAL MEASURES) Grey silty MUDSTONE and SILTSTONE laminations. (MIDDLE COAL MEASURES)						
									Borehole Continues						
<b>KEY</b> D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa  - Groundwater Strike  - Groundwater Level						<b>REMARKS</b>      Scale: 1:100				<b>Water Strikes</b>					
										Date	Strike	Level	Minutes	Casing	Remarks
										11/09/2020	13.5				Slight
										11/09/2020	19				Moderate
										Daily Log Of Depths			Flushing Medium		
										Date	Casing	Water	From	To	Type

 <small>iD GeoEnvironmental Limited</small>		Project Title: Rhodia, Whitehaven						PH633			
		Project Number: 4046			Client: Story Homes						
		GL (mAOD): 92.00			N Coord: 515879			E Coord: 297309			
Date: 11/09/2020		Method: Casagrande C6			Driller:			Logged By: NW			


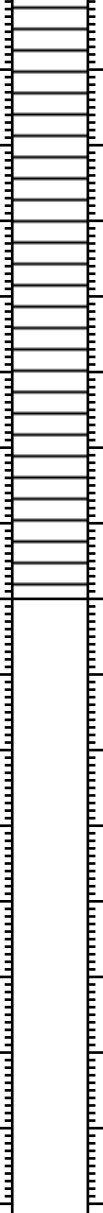



Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description	Water	Standpipe
						70.50		21.50	Grey silty MUDSTONE and SILTSTONE laminations. (MIDDLE COAL MEASURES)		
						69.40		22.60	Black MUDSTONE. (MIDDLE COAL MEASURES)		
						68.90		23.10	COAL (MIDDLE COAL MEASURES)		
									Grey silty MUDSTONE and SILTSTONE laminations. (MIDDLE COAL MEASURES)		
						61.20		30.80			
						60.20		31.80	COAL. (MIDDLE COAL MEASURES)		
									Grey silty MUDSTONE and SILTSTONE laminations. (MIDDLE COAL MEASURES)		
									Borehole Continues		


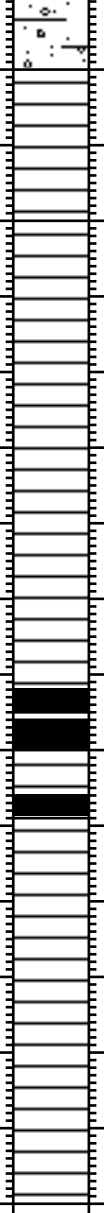
  

<b>KEY</b> D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa ▽ - Groundwater Strike ▼ - Groundwater Level	<b>REMARKS</b>          Scale: 1:100	Water Strikes					
		Date	Strike	Level	Minutes	Casing	Remarks
		11/09/2020	13.5				Slight
		11/09/2020	19				Moderate
		Daily Log Of Depths			Flushing Medium		
		Date	Casing	Water	From	To	Type





 iGeo iD GeoEnvironmental Limited				Project Title: Rhodia, Whitehaven						<h1>PH634</h1>				
				Project Number: 4046			Client: Story Homes							Sheet 2 Of 2
				GL (mAOD): 88.52			N Coord: 515890			E Coord: 297403				
Date: 11/09/2020				Method: Casagrande C6			Driller:			Logged By: NW				
Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description				Water	Standpipe
						64.52 24.00		Grey silty MUDSTONE with SILTSTONE laminations. (MIDDLE COAL MEASURES)						
									End Of Borehole At 24.00 m					
<b>KEY</b> D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa  - Groundwater Strike  - Groundwater Level				<b>REMARKS</b>       Scale: 1:100					<b>Water Strikes</b>					
									Date	Strike	Level	Minutes	Casing	Remarks
									15/09/2020	0				
									Daily Log Of Depths			Flushing Medium		
									Date	Casing	Water	From	To	Type

 iD GeoEnvironmental Limited		Project Title: Rhodia, Whitehaven					<h1>PH635</h1>																																																												
		Project Number: 4046		Client: Story Homes					Sheet 1 Of 2																																																										
		GL (mAOD): 86.90		N Coord: 515803			E Coord: 297418																																																												
Date: 11/09/2020		Method:		Driller: GDC			Logged By: NW																																																												
Core/Samples	TCR	SCR	RQD	FI	ISPT	Level	Legend	Depth (m)	Description	Water	Standpipe																																																								
						85.90 83.90 77.70 77.40 77.30 76.90 76.30 76.00		1.00 3.00 9.20 9.50 9.60 10.00 10.60 10.90	Turf over brown silty sandy gravelly CLAY. (MIDDLE COAL MEASURES) Yellow-brown weathered silty MUDSTONE. (MIDDLE COAL MEASURES) Grey silty MUDSTONE. (MIDDLE COAL MEASURES) COAL. (MIDDLE COAL MEASURES) Black organic MUDSTONE. (MIDDLE COAL MEASURES) COAL. (MIDDLE COAL MEASURES) Black organic MUDSTONE with COAL traces. (MIDDLE COAL MEASURES) COAL (MIDDLE COAL MEASURES) Grey silty MUDSTONE with SILTSTONE laminations. (MIDDLE COAL MEASURES) Borehole Continues																																																										
<b>KEY</b> D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa ▽ - Groundwater Strike ▼ - Groundwater Level						<b>REMARKS</b> No Groundwater Encountered Scale: 1:100						<b>Water Strikes</b> <table border="1"> <thead> <tr> <th>Date</th> <th>Strike</th> <th>Level</th> <th>Minutes</th> <th>Casing</th> <th>Remarks</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table> <table border="1"> <thead> <tr> <th colspan="3">Daily Log Of Depths</th> <th colspan="3">Flushing Medium</th> </tr> <tr> <th>Date</th> <th>Casing</th> <th>Water</th> <th>From</th> <th>To</th> <th>Type</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>		Date	Strike	Level	Minutes	Casing	Remarks																									Daily Log Of Depths			Flushing Medium			Date	Casing	Water	From	To	Type												
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Date	Casing	Water	From	To	Type																																																														









## **APPENDIX B**



