

Report No. BC/MB/10.18.01/2.

Report on Drilling and Grouting: Plot 1, Greenacres, Heolgerrig, Merthyr Tydfil.

Prepared on behalf of:

Mr and Mrs James Coccimiglio

By:



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Report on Drilling and Grouting: Plot 1, Greenacres, Heolgerrig, Merthyr Tydfil.

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<i>BC/MB/10.18.01.02.</i>	<i>Geology Plan.</i>	<i>1:10,560.</i>
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<i>BC/MB/10.18.01.10.</i>	<i>Extract from Ordnance Survey Plan: 1938-1951 Edition.</i>	<i>1:2,500</i>
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Appendices

<i>Appendix I:</i>	<i>Graphic Logs of Boreholes 1-25 and 8A-8D.</i>
<i>Appendix II:</i>	<i>Details of Materials Injected into Boreholes.</i>
<i>Appendix III:</i>	<i>Geotechnical Logs and Photographs of Trench.</i>

Report on Drilling and Grouting: Plot 1, Greenacres, Heolgerrig, Merthyr Tydfil.

1 Introduction

This report has been prepared on behalf of our client:

***Mr and Mrs James Coccimiglio,
19 Park Cwm Pant Bach,
Heolgerrig,
Merthyr Tydfil,
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and relates to a parcel of land in Heolgerrig, Merthyr Tydfil where it is proposed to erect a detached dwelling; it discusses the findings of a drilling and grouting programme carried out on the Site to stabilise shallow mine workings. Recommendations are made on appropriate foundation options.

The following sources of data were used in the compilation of this report:

- i) *The findings of the 'Site Investigation Report: Plot 1, Greenacres, Heolgerrig, Merthyr Tydfil' reference no. BC/MB/10.18.01 published by Blandford Consulting;*
- ii) *The findings of the current site investigation and drilling and grouting programme and*
- iii) *the archive records of Blandford Consulting.*

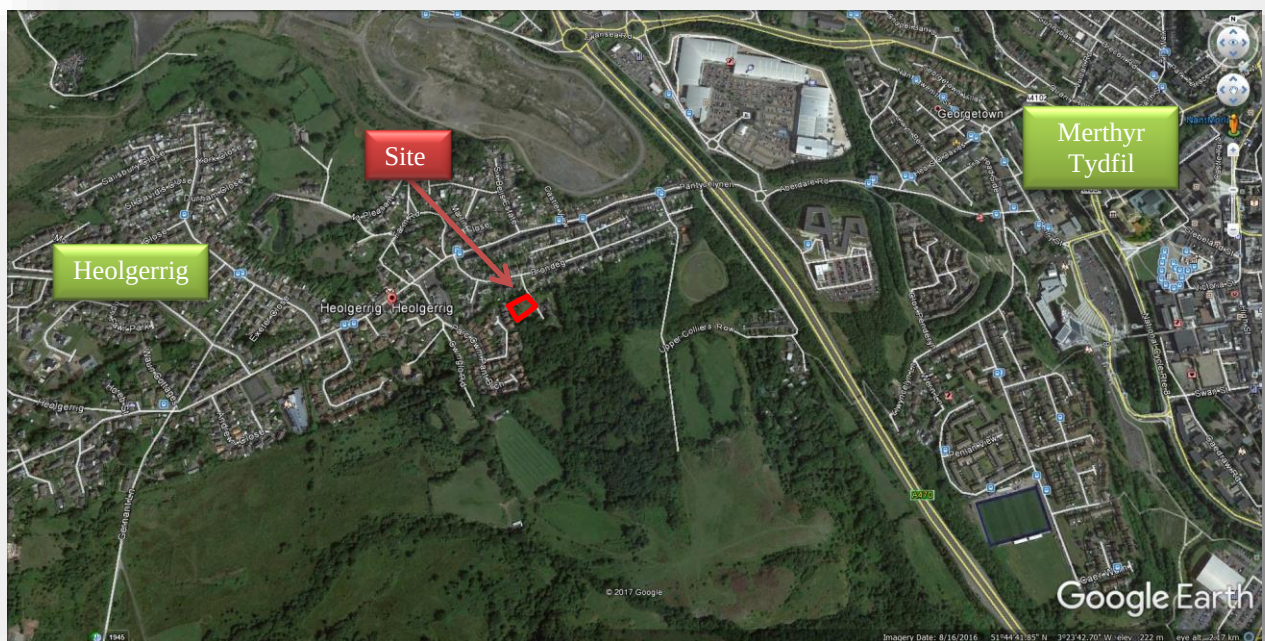
This report should be read in conjunction with the above listed reports. The findings of this report are necessarily based upon the data used in its compilation and may be amended in the future in the light of additional material information. The report must only be used in its entirety for its stated purpose.

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2 Brief Description of the Site

The property that is the subject of this report, 'the Site' is located within the curtilage of Greenfields, a detached bungalow on easterly facing slopes of the Taff Valley on the side of Mynydd Aberdâr in the village of Heolgerrig, approximately 1 kilometre west of the centre of Merthyr Tydfil (see Figure 1 and *General Location Plan, drawing no. BC/MB/10.18.01.01*); it is irregular in outline and has maximum dimensions of 31m by 33m (see *Detailed Location Plan, drawing no. BC/MB/10.18.01.03*). The Site slopes eastwards, the elevation at the centre of the Site is approximately 234m aod. The property is located on the southern fringes of Heolgerrig and is bordered to the east and south by woodland. The Site is presently occupied by a detached garage, sundry outbuildings and part of the lawn of Greenfield Bungalow.

Figure 1
Aerial View of the Site



3 Geology of the Site

The earlier site investigation report found the Site to be underlain at shallow depths by strata assigned to the Lower and Middle Coal Measures that include a number of coal seams, at

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least some of which are thick enough to have supported underground mining operations. The earlier reports also identified that the Site is not affected by any large-scale faulting and the coal measures to be overlain with deposits of glacial till, Boulder Clay, and that the Site is not affected by landslip.

4 Previous Site Investigation

The earlier site investigation undertaken on the Site identified shallow old workings in one coal seam depths of between 16.1m and 18.3m and recommended stabilising the workings with a drilling and grouting programme. The earlier study also found that there is no disused mine entry within the confines of the Site or within 20m of its boundary. There are no operating mines in the area that could affect the development and the Site has not been part of an opencast site.

5 Drilling and Grouting Programme

A programme of 25 boreholes was designed to cover the footprint of the proposed dwelling together with a 1m wide perimeter around its exterior. The spacing of the boreholes was designed to permit the injected grout to fill the voids and broken ground that are the result of the former mining operations. To assess anomalous descriptions of the soils in a number of the boreholes an additional 4 boreholes were drilled close to Borehole 8, some of these boreholes were drilled only to prove the depth to rockhead. A total of 29 boreholes were drilled to a maximum depth of 25.0m, the locations of the boreholes are shown schematically on the *Borehole Location Plan, drawing no. BC/MB/10.18.01.07* and the borehole logs are included in Appendix I. The boreholes were supervised by a Chartered Geologist and drilled by Apex Drilling Services.

The boreholes were monitored for mine gases throughout the drilling operations; the operations were monitored for the presence of methane, carbon monoxide, hydrogen sulphide and levels of oxygen outside the 20% - 21% range. None of the above mine gases were encountered and the readings of oxygen levels all fell within the above range.

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Grout comprised of a mixture of Ordinary Portland Cement (OPC) and pulverised fly ash (PFA) was injected into the boreholes in a 1:10 ratio. Where it was considered appropriate, chippings were added to the grout. A total of 132 tonnes of grout and 16 tonnes of chippings were injected into the boreholes. The details of the materials injected into each borehole are included at Appendix II.

6 Trenching Investigation

A number of the boreholes encountered what the driller described as ‘colliery spoil’ or ‘coal’ beneath deposits of Boulder Clay. In order to examine this anomaly a trench was excavated in the vicinity of Trial Pits 7 and 8 using a tracked 360° excavator; the trench was excavated to a depth of 4.6m. The soils were logged in accordance with BS 5930: 2015: Code of practice for site investigations British Standards Institution and in accordance with BS EN 1997-2 (2007). A Geotechnical Log and Photographs for the Trench are contained in Appendix III to this report. The trench encountered a very stiff gravelly and cobbly CLAY that had the appearance of in situ Boulder Clay. Beneath the apparent Boulder Clay a soft, very dark grey, clayey GRAVEL of mudstone and coal was encountered, colliery spoil. The overlying apparent Boulder Clay is interpreted as being relocated Boulder Clay, placed there following excavation work. Beneath the colliery spoil a second very stiff gravelly and cobbly CLAY was encountered, this soil again having the appearance of Boulder Clay.

A thin coal seam is present beneath the Site at a depth typically of around 11m; the seam was found to be present in only 9 of the 29 boreholes drilled on the Site. In the remaining 20 boreholes where the coal seam was found to be absent Made Ground of various descriptions was encountered. Where the base of the Made Ground could be recognised accurately it extended down to the horizon of the coal seam. In a number of those boreholes that encountered the thin coal seam, Made Ground could be identified to shallower depths. The Made Ground was found to be comprised of a number of different soils including those described by the driller as ‘Boulder Clay’, ‘colliery spoil’, ‘coal’ and ‘gravels’. It would appear that an open pit excavation has taken place on the Site to recover the thin coal seam. The excavation covered all the area where the drilling has taken place but was battered at the sides such that the excavation did not everywhere extend down to the coal seam.

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7 Review of Historic Ordnance Survey Plans

A review of Ordnance Survey plans was carried out in order to obtain any available information regarding mining operations on or in the vicinity of the Site. In 1875-1881 the Site was situated within a landscape where extensive mining operations were taking place (see *Extract from Ordnance Survey Sheet, 1875-1881, drawing no. BC/MB/10.18.01.08*). Colliery surfaces, tramways and colliery spoil heaps were common; the Site itself was then situated at the north-west corner of an area of woodland straddling the Nant Cwm-pant-bach. There were no mining operations in close proximity to the Site.

By 1900-1904 a number of the local collieries had closed, but tramways, spoil heaps and the remnants of colliery surfaces were still evident across the locality (see *Extract from Ordnance Survey Sheet, 1900-1904, drawing no. BC/MB/10.18.01.09*). The Site was then still situated at the north-west corner of an area of woodland.

The 1938-1951 Edition shows the situation to have been largely unchanged. It is not clear what date within the period various features on this edition relate to (see *Extract from Ordnance Survey Sheet, 1938-1951, drawing no. BC/MB/10.18.01.10*). Other Ordnance Survey extracts for this period do not provide any detail as to how the landscape changed in the immediate proximity of the Site.

By 1958-1964 the Site had become the garden area forming part of the curtilage of Greenacres Bungalow, the situation that prevailed up to the start of the current redevelopment of the Site (see *Extract from Ordnance Survey Sheet, 1958-1964, drawing no. BC/MB/10.18.01.11*).

There is no evidence on the Ordnance Survey sheets of any mining operation at the Site, no evidence of a colliery surface area having been constructed there and no evidence of any infrastructure such as tramways or a colliery spoil heap that would have been associated with a colliery there. There is no plan evidence to support the excavation indicated by the findings of the boreholes having been associated with a colliery surface, a shaft or an adit.

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It is not apparent from the available Ordnance Survey plan record when an excavation may have taken place on the Site or what that excavation may have looked like. The 1938-1951 Edition spanned the period of the Second World War when fuel was one of many commodities in short supply. An excavation to a depth of approximately 10m to recover a thin coal seam would not, in normal circumstances, be a viable undertaking. However, during a prolonged period of acute shortages it could have been viewed in a different light. The most likely explanation for the findings of the boreholes is that an excavation took place at the Site to recover the top coal seam, probably during the period of the Second World War or perhaps soon afterwards.

8 Discussion and Conclusions:

8.1 Drilling and Grouting Programme

A total of 29 boreholes were drilled across the footprint of the proposed dwelling and a 1m wide perimeter around its footprint. The borehole grid was designed to permit an efficient grouting up of the old mine workings. A total of 132 tonnes of grout and 16 tonnes of chippings were injected into the boreholes. The old workings are considered to have been stabilised and the risk of any remnant voids remaining following the grouting operation being large enough to collapse and result in structural distress to the proposed dwelling is considered to be extremely low to negligible.

8.2 Foundation Options

The boreholes encountered what is being interpreted as Made Ground to depths of between 4.9m and 12.1m. The Made Ground is comprised variously of what is interpreted as relocated Boulder Clay (Made Ground) and colliery spoil. There may be two or perhaps three separate layers of the relocated Boulder Clay and the layer of colliery spoil, all of which amount to a heterogeneous soil mixture of variable thickness across the footprint of the proposed dwelling. This soil profile is likely to display varying settlement characteristics across the proposed building making it unsuitable for shallow strip/trench foundations.

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A raft foundation would be appropriate. Large boulders and soft spots beneath the raft must be removed and replaced with engineering fill placed in compacted layers not exceeding 300mm in thickness.

Alternatively, a pile foundation would be appropriate. It may prove to be difficult to confirm that driven piles have founded at a suitable horizon, individual piles may found on a large boulder that has soft material below. Driven piles are considered to be unsuitable in this case. A continuous flight auger pile may experience difficulty in advancing through the upper layers of relocated Boulder Clay to reach a suitable founding horizon and are considered to be unsuitable in this case. Bored mini-piles using sacrificial steel casing filled with concrete/grout would be appropriate; the piles should be embedded a minimum of 2m into bedrock.



**Dr Malcolm Blandford,
Chartered Geologist.**

Report Date: 26th February 2020.

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PLANS



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Study on Land at Plot 1, Greenacres,
Heolgerrig, Merthyr Tydfil.

General Location Plan.

Plan Scale: 1:50,000.

Key to Symbols:



Approximate Position of Site.

Note:
North is at top of plan.

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Drawing No: BC/MB/10.18.01.01.



Study on Land at Plot 1, Greenacres,
Heolgerrig, Merthyr Tydfil.

Geology Plan.

Plan Scale: 1:10,560.

Key to Symbols:

 Approximate Position of Site.

Note:
North is at top of plan.

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Drawing No: BC/MB/10.18.01.02.



Study on Land at Plot 1, Greenacres,
Heolgerrig, Merthyr Tydfil.

Detailed Location Plan.

Plan Scale: 1:1,250.

Key to Symbols:

- Approximate Site Boundary.
- ⊕ Approximate Position of Treated, Disused Mine Shaft.

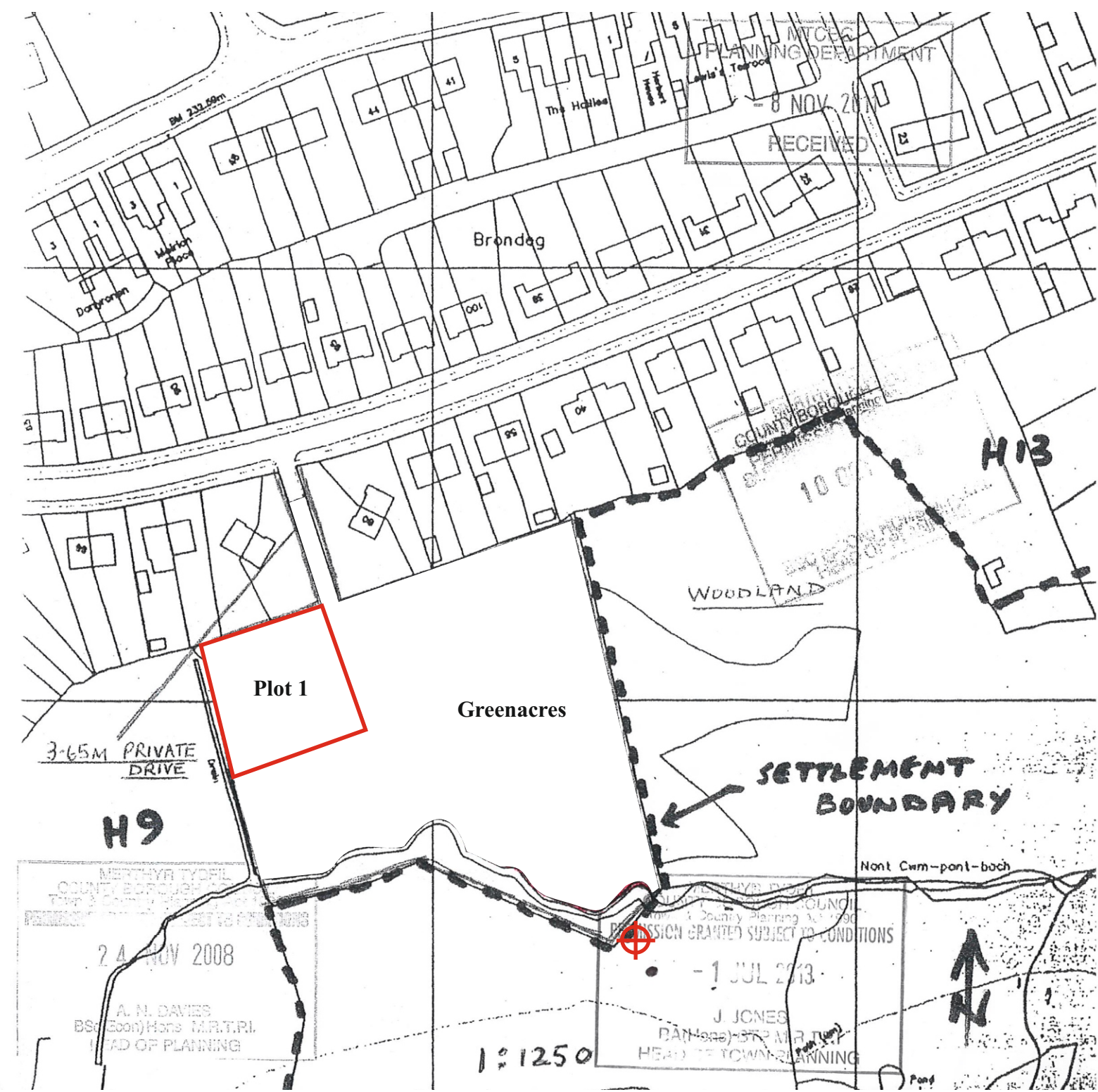
Note:
North is at top of plan.
Drawing extracted from documents provided by client.

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Study on Land at Plot 1, Greenacres,
Heolgerrig, Merthyr Tydfil.

Drilling and Grouting Plan.

Plan Scale: 1:125.

Key to Symbols:

- Approximate Site Boundary.
- Borehole that encountered Solid Coal.
- Borehole that Encountered Old Workings.
- Boreholes Drilled to Rockhead.
- Borehole Not Deep Enough.
- Area where top thin coal seam is present.
- Approximate Position of Trench.

Notes:

North is as shown on plan.

Drawing based on drawing GREENACRES
02F prepared by Utopia Design.

Thickness of Made Ground shown in metres.

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Study on Land at Plot 1, Greenacres,
Heolgerrig, Merthyr Tydfil.

Extract from Ordnance Survey Sheet 1875-1881.

Plan Scale: 1:2,500.

Key to Symbols:

— Approximate Site Boundary.

Notes:

North is at top of plan.

Locations are approximate
and should not be scaled.

Data supplied by:



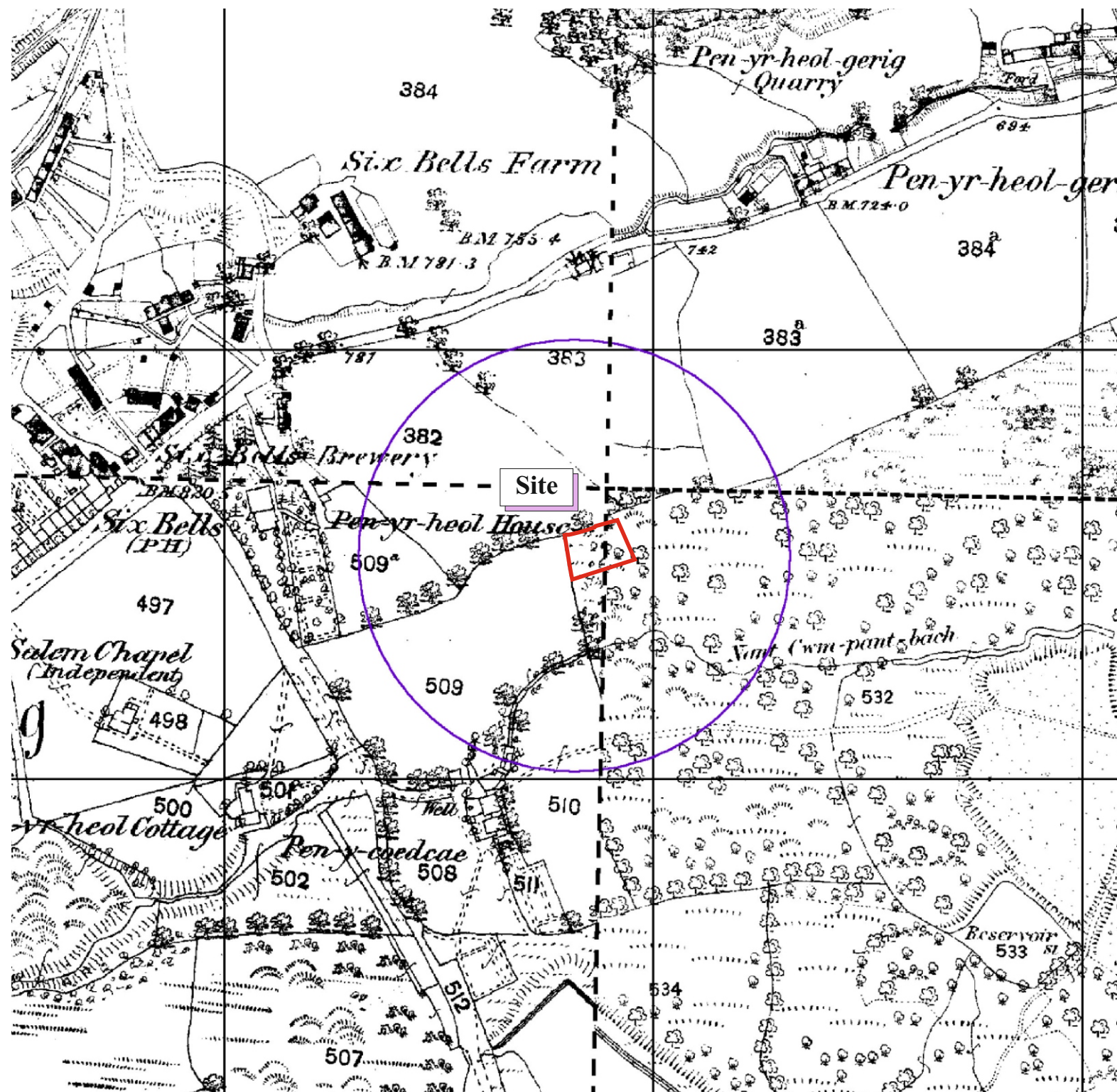
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Drawing No: BC/MB/10.18.01.08.



Study on Land at Plot 1, Greenacres,
Heolgerrig, Merthyr Tydfil.

Extract from Ordnance Survey Sheet 1900-1904.

Plan Scale: 1:2,500.

Key to Symbols:

 Approximate Site Boundary.

Notes:

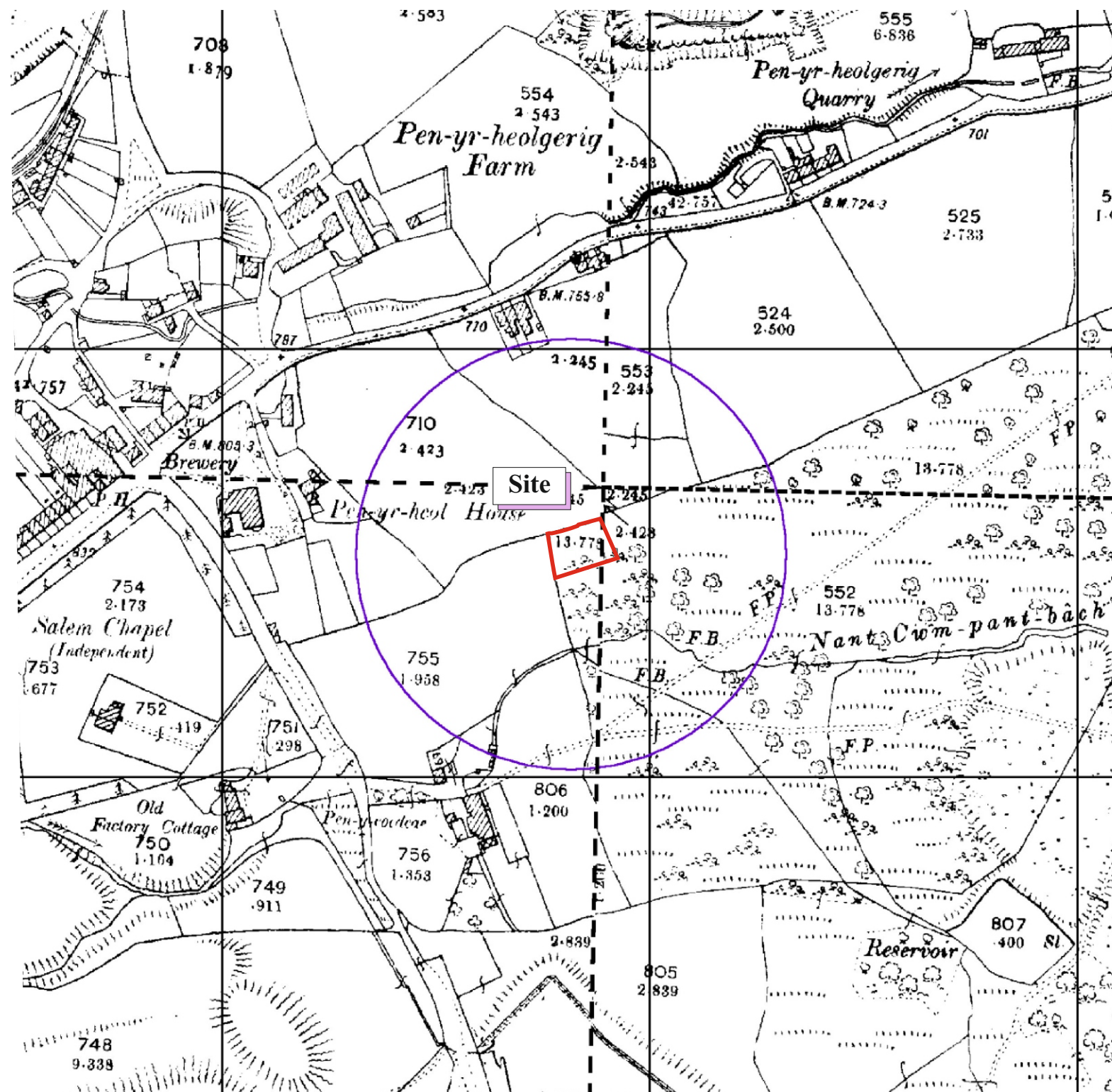
North is at top of plan.

*Locations are approximate
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Drawing No: BC/MB/10.18.01.09.

Study on Land at Plot 1, Greenacres,
Heolgerrig, Merthyr Tydfil.

*Extract from Ordnance
Survey Sheet 1938-1951.*

Plan Scale: 1:10,560.

Key to Symbols:

 Approximate Site Boundary.

Notes:

North is at top of plan.

*Locations are approximate
and should not be scaled.*

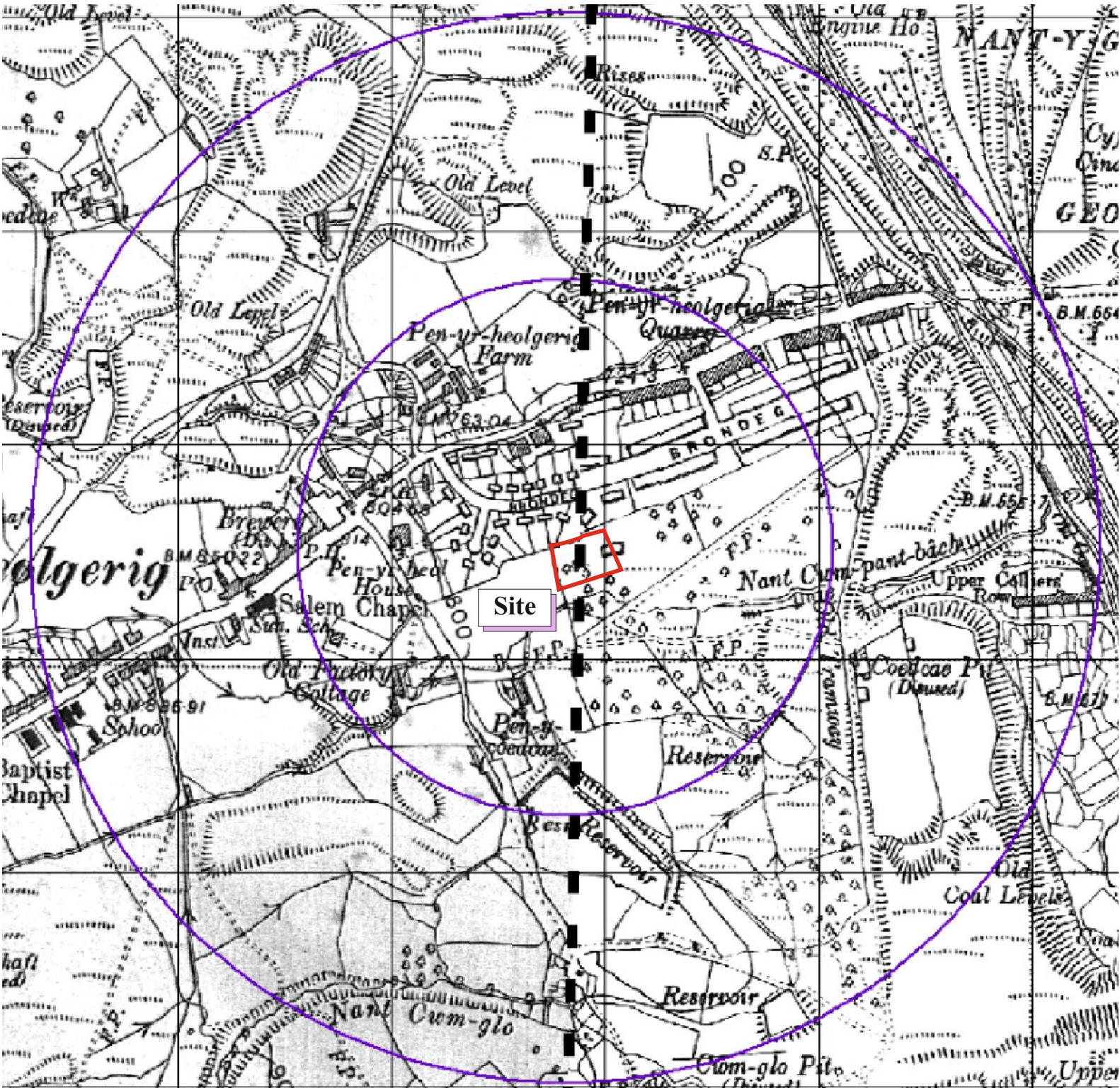
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Drawing No: BC/MB/10.18.01.10.



Study on Land at Plot 1, Greenacres,
Heolgerrig, Merthyr Tydfil.

Extract from Ordnance Survey Sheet 1958-1964.

Plan Scale: 1:2,500.

Key to Symbols:

 Approximate Site Boundary.

Notes:

North is at top of plan.

*Locations are approximate
and should not be scaled.*

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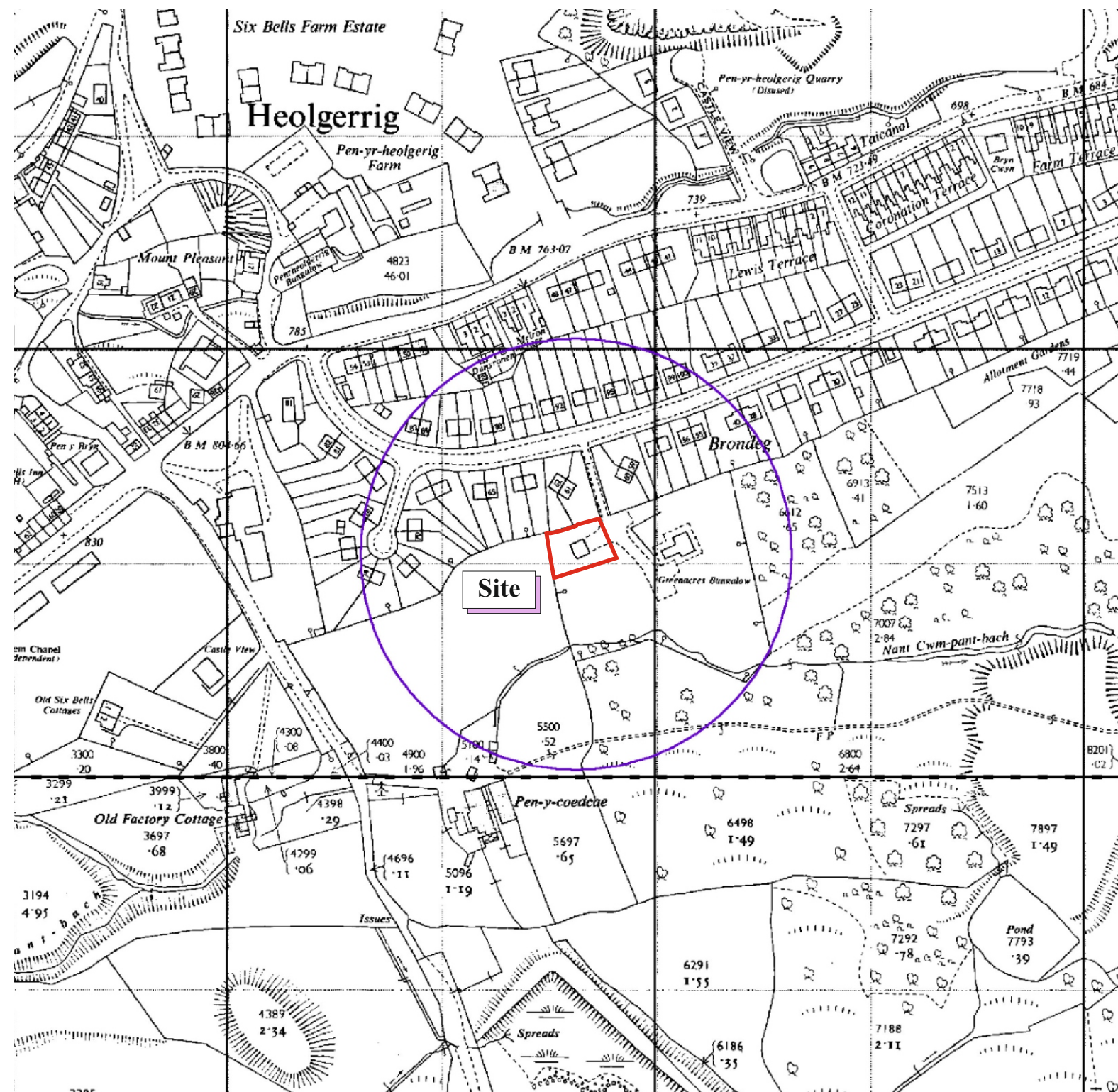
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Drawing No: BC/MB/10.18.01.11.



APPENDIX I

GRAPHIC LOGS BOREHOLES 1-25 AND 8A-8D

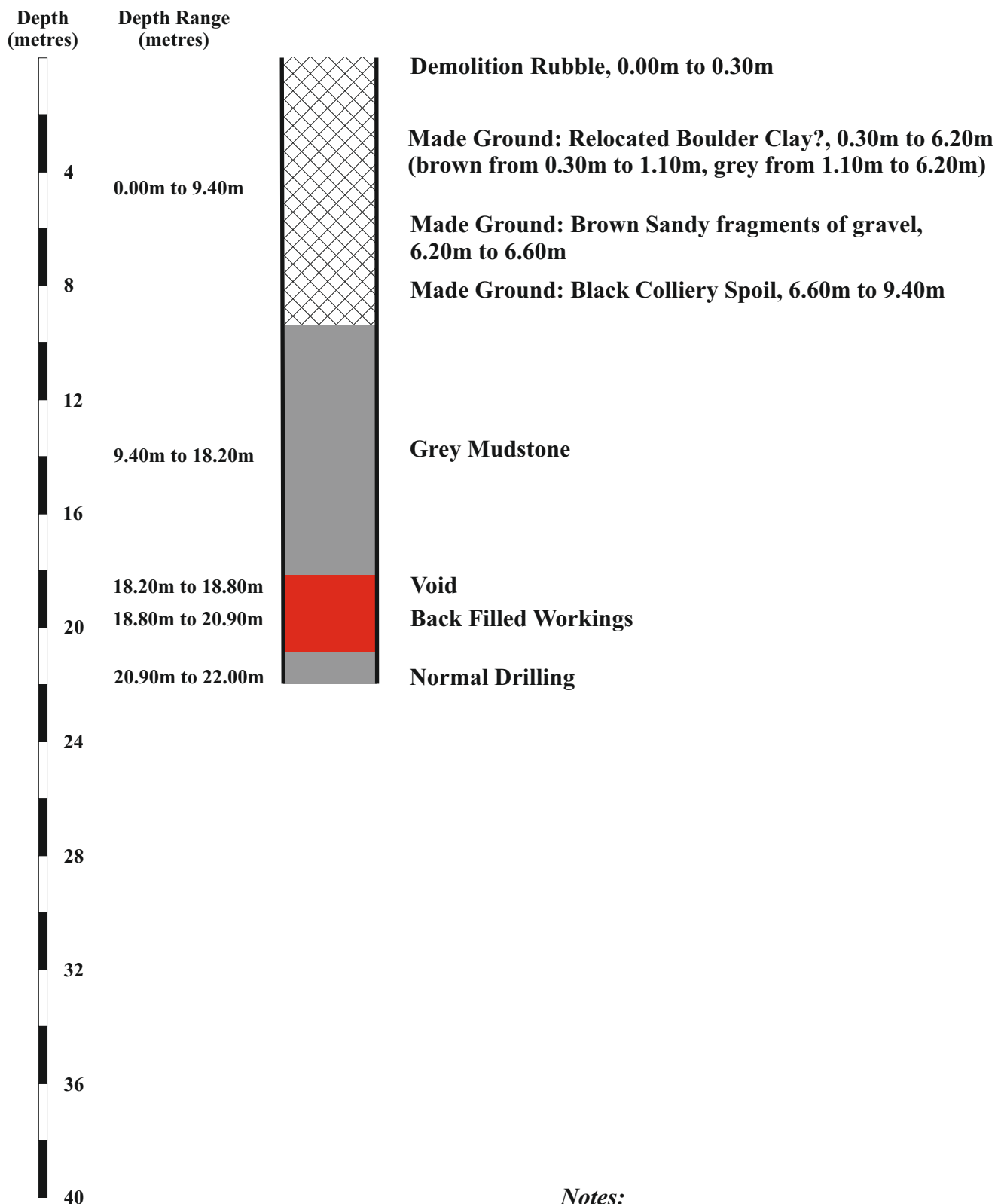


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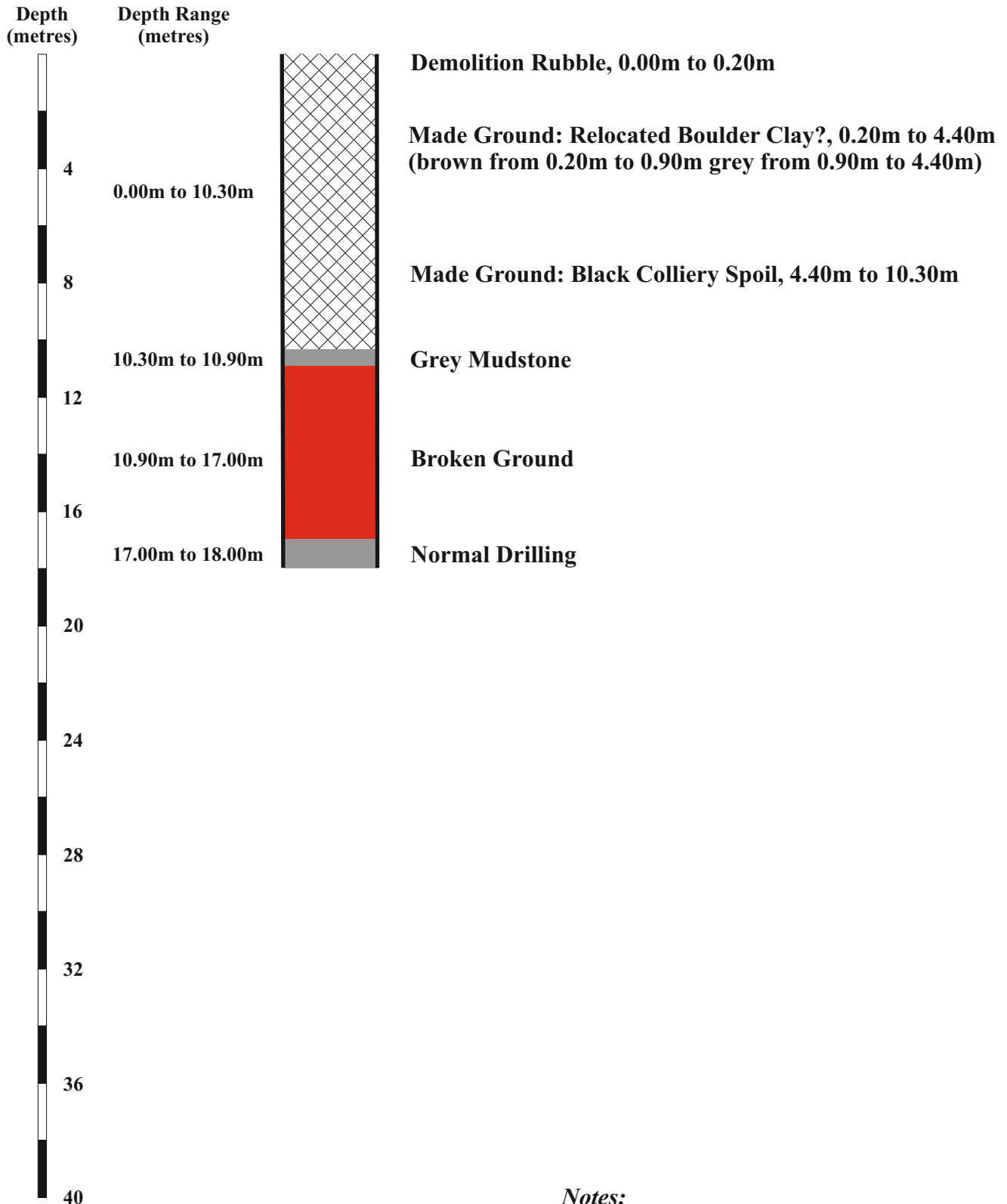
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Study on Land at Plot 1, Greenacres.

Borehole No. 1**Notes:**

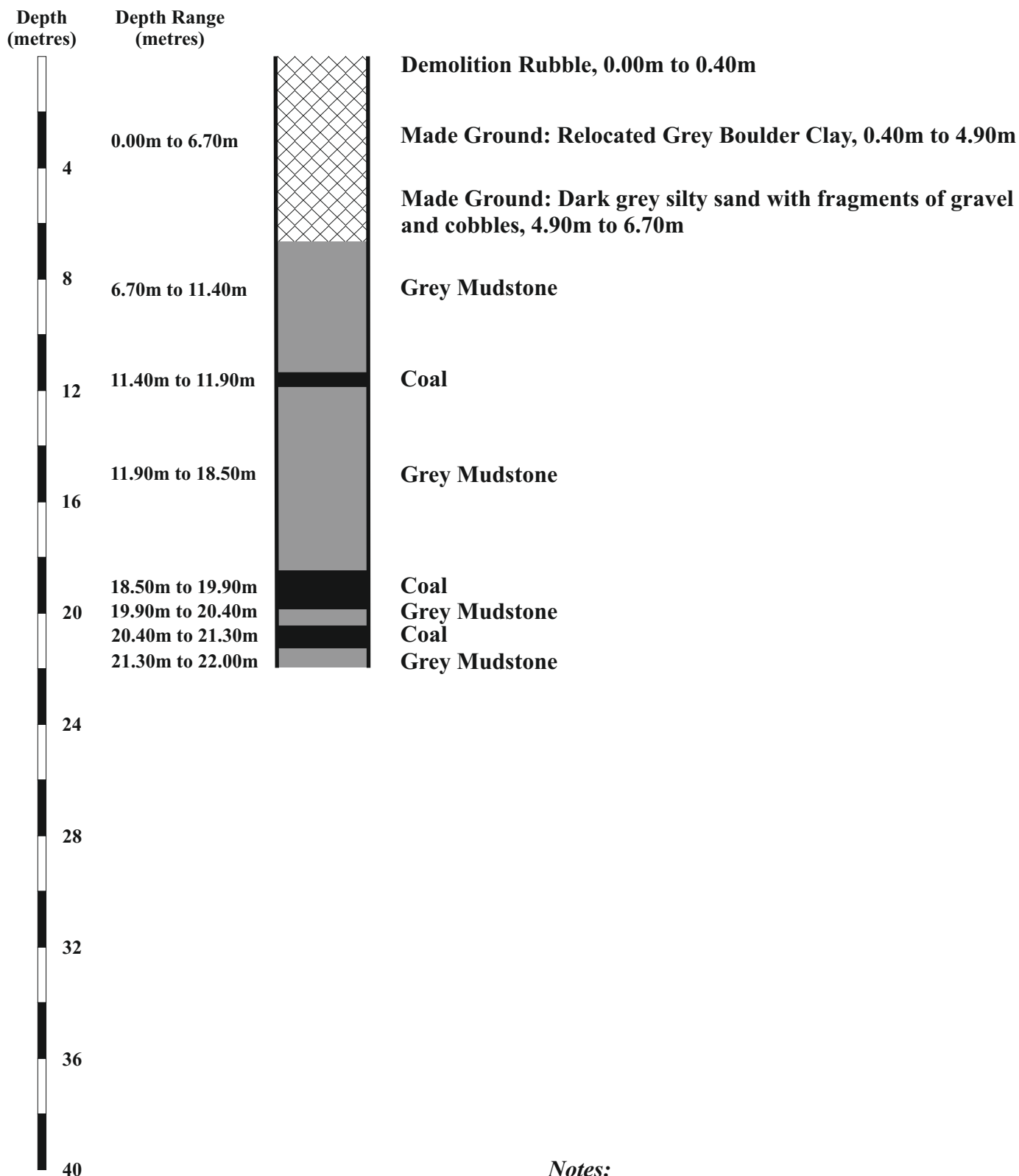
1. Total depth of borehole, 22.0m.
2. Borehole dry.
3. Casing 4.2m.
4. Based on driller's descriptions.

Study on Land at Plot 1, Greenacres.

Borehole No. 2***Notes:***

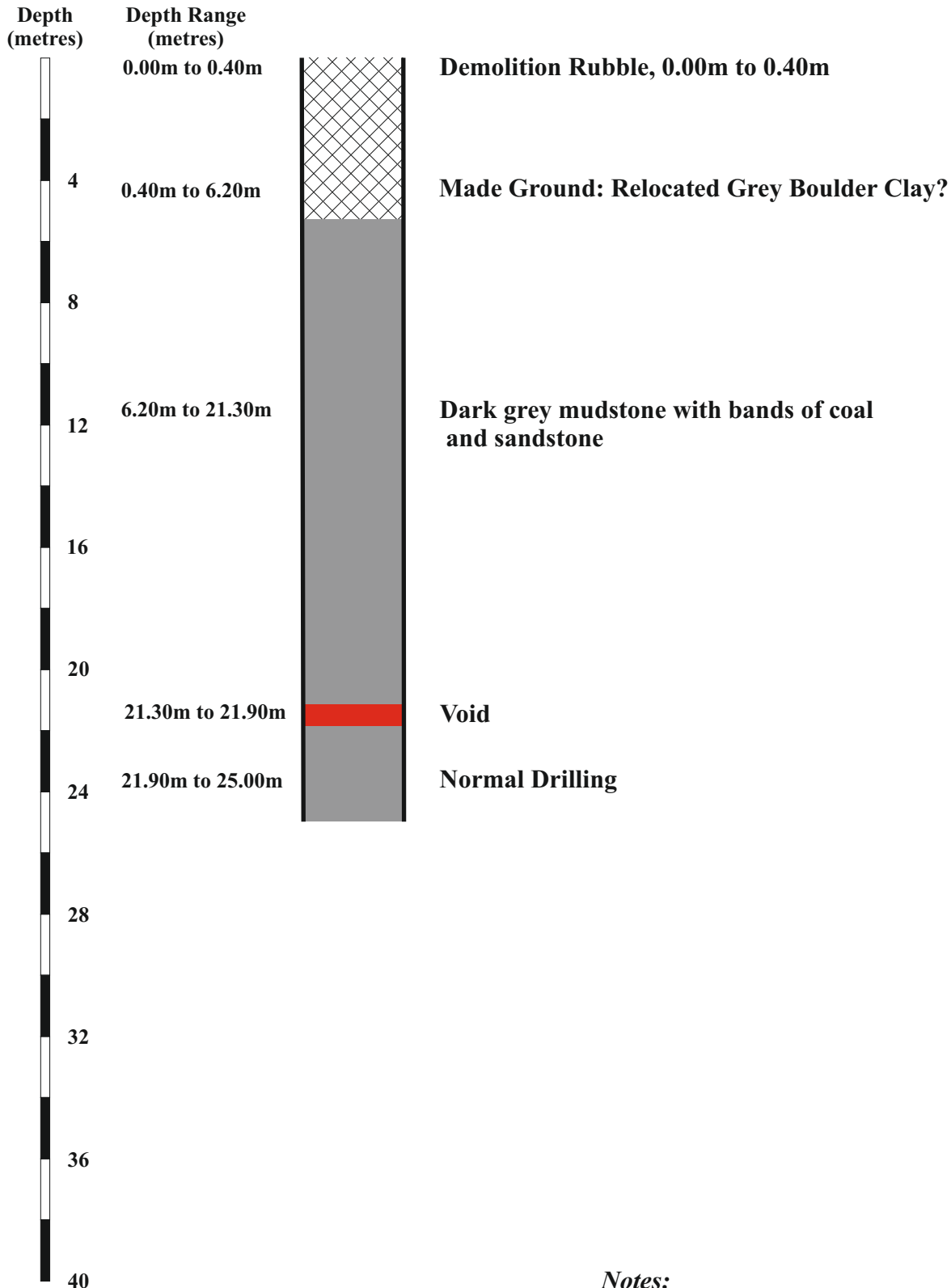
- 1. Total depth of borehole, 18.0m.***
- 2. Borehole dry.***
- 3. Casing 4.2m.***
- 4. Based on driller's descriptions.***

Study on Land at Plot 1, Greenacres.

Borehole No. 3***Notes:***

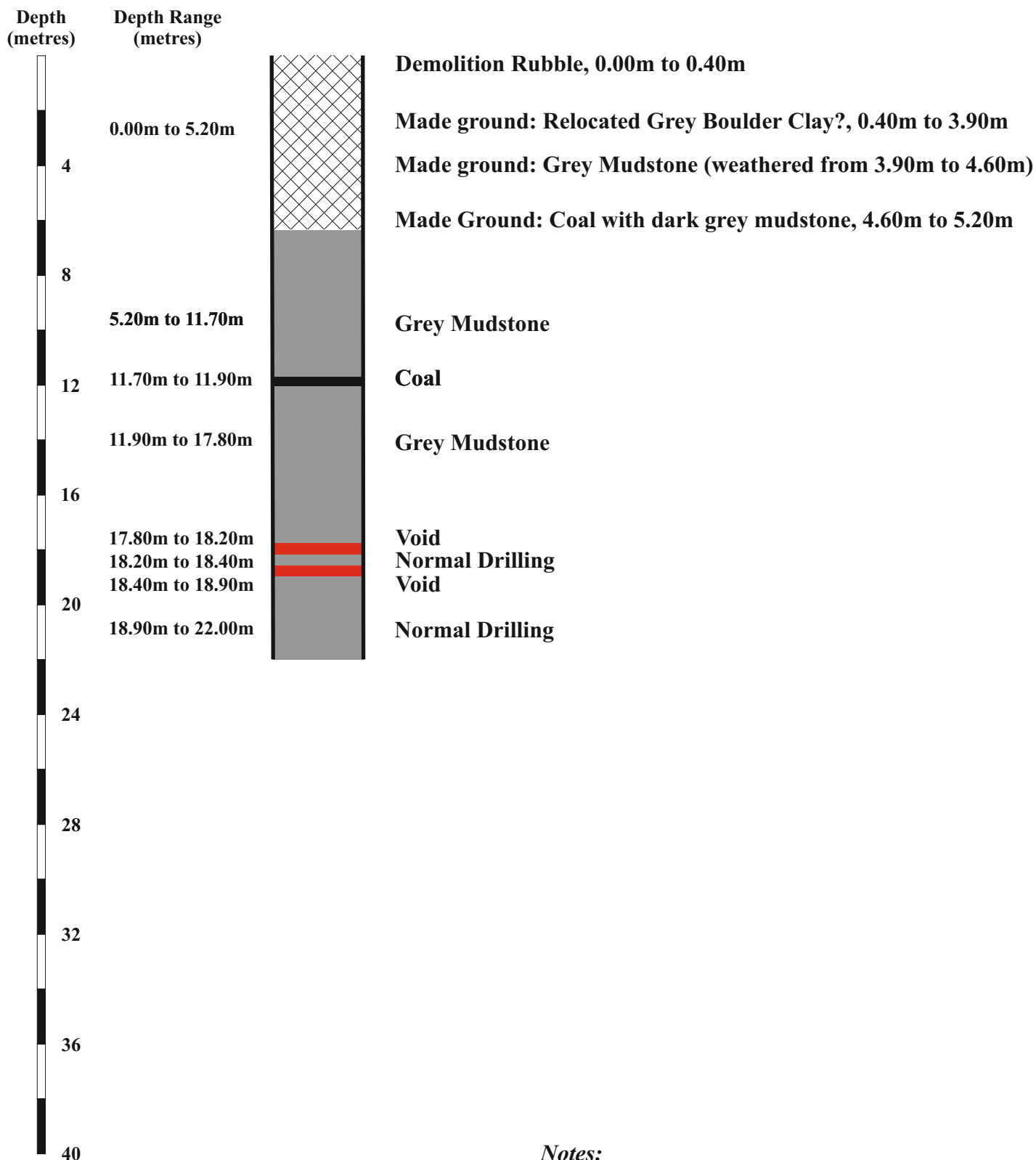
- 1. Total depth of borehole, 22.0m.***
- 2. Borehole dry.***
- 3. Casing 4.2m.***
- 4. Based on driller's descriptions.***

Study on Land at Plot 1, Greenacres.

Borehole No. 4***Notes:***

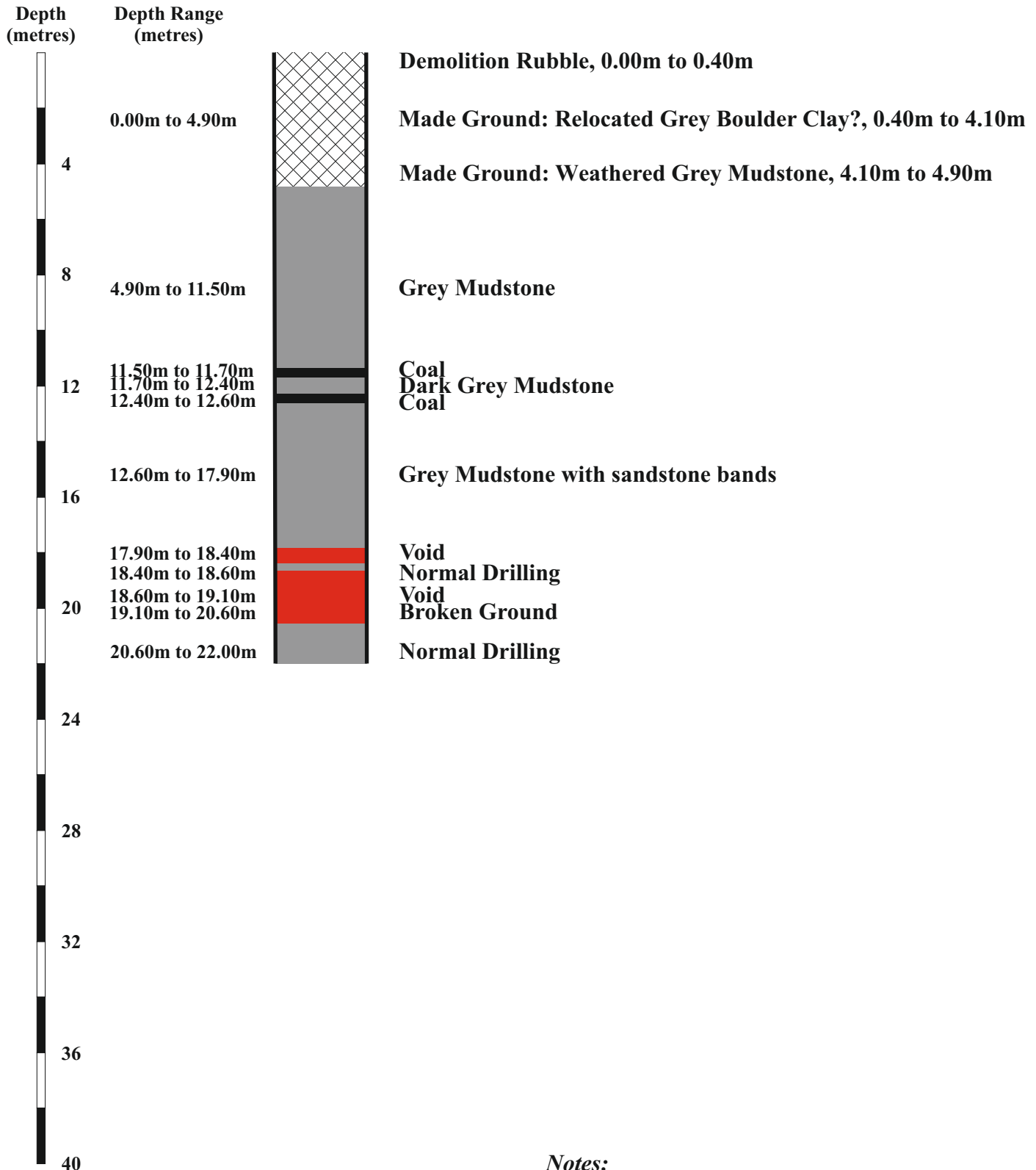
- 1. Total depth of borehole, 25.0m.***
- 2. Borehole dry.***
- 3. Casing 4.2m.***
- 4. Based on driller's descriptions.***

Study on Land at Plot 1, Greenacres.

Borehole No. 5***Notes:***

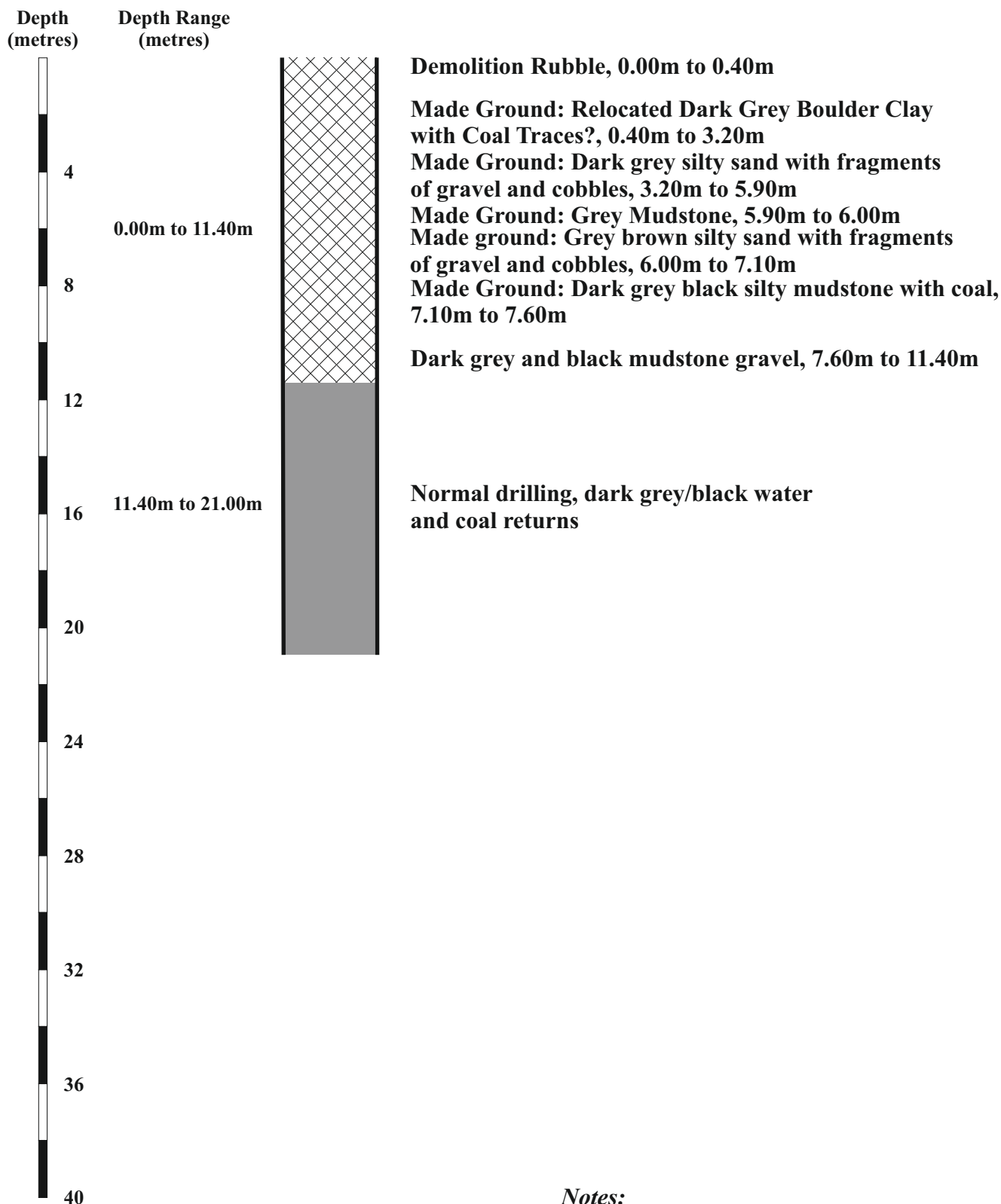
- 1. Total depth of borehole, 22.0m.***
- 2. Borehole dry.***
- 3. Casing 4.2m.***
- 4. Based on driller's descriptions.***

Study on Land at Plot 1, Greenacres.

Borehole No. 6***Notes:***

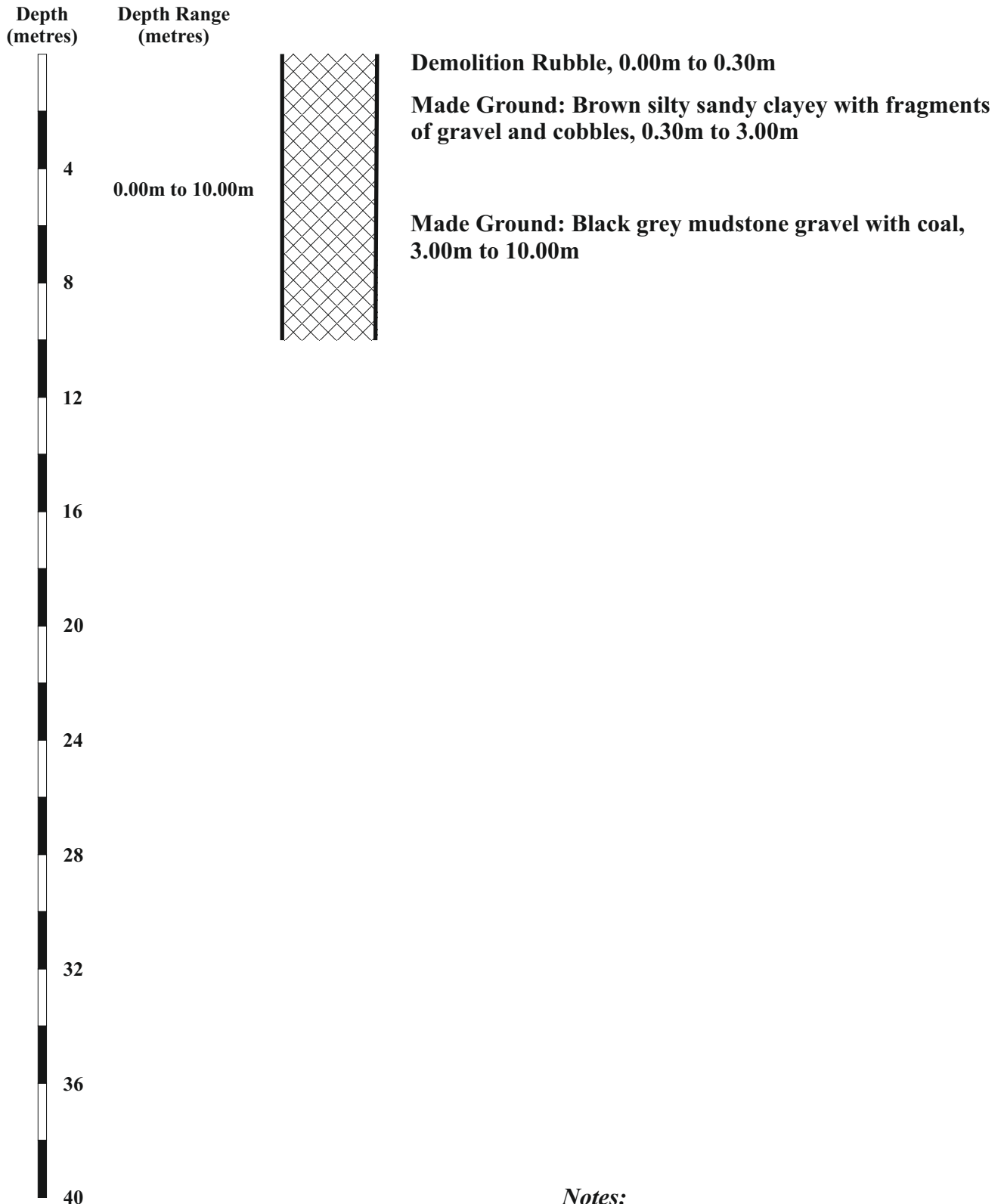
- 1. Total depth of borehole, 22.0m.***
- 2. Borehole dry.***
- 3. Casing 4.2m.***
- 4. Based on driller's descriptions.***

Study on Land at Plot 1, Greenacres.

Borehole No. 7***Notes:***

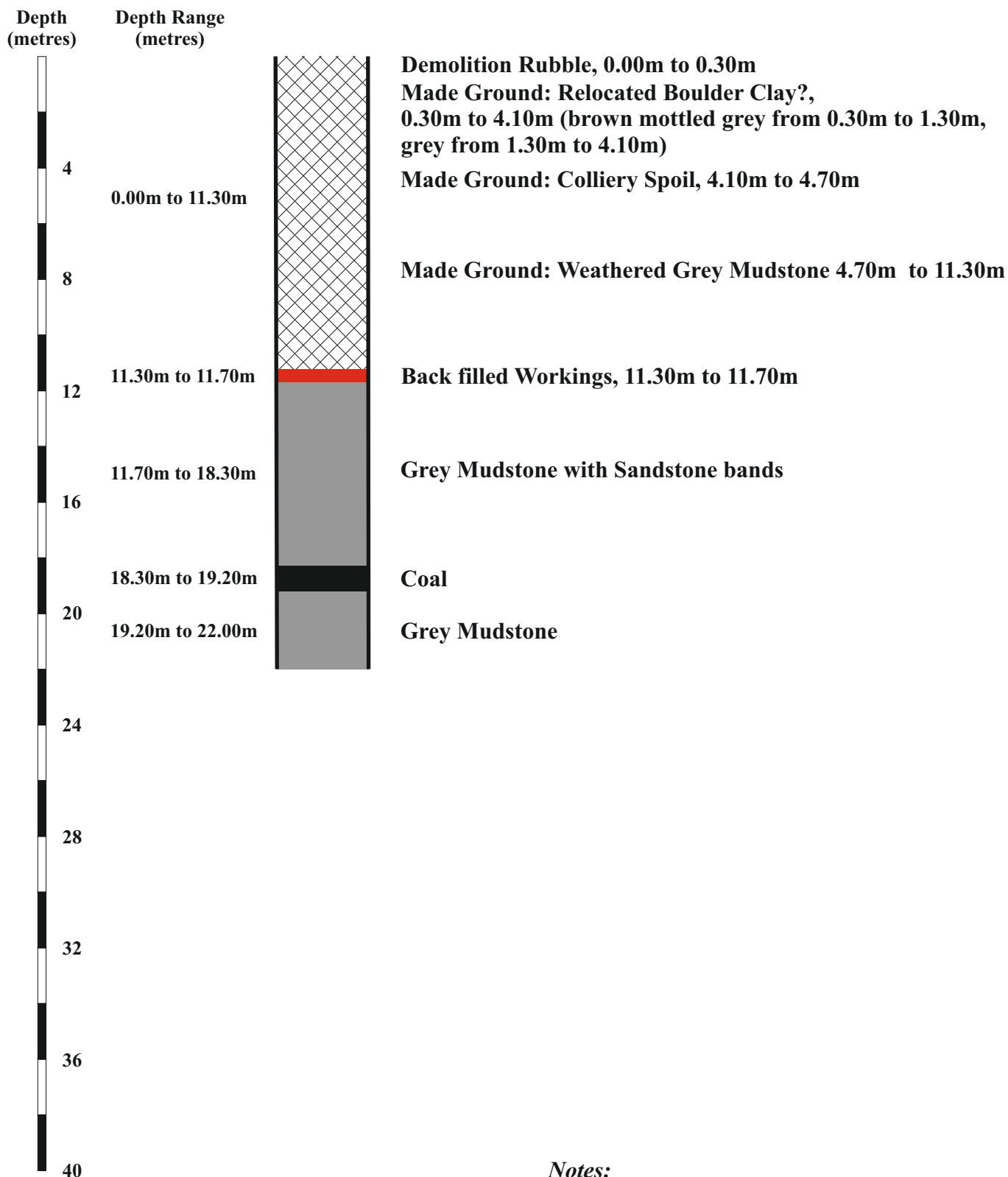
- 1. Total depth of borehole, 21.0m.***
- 2. Water Strikes at 7.5m.***
- 3. Casing 4.2m.***
- 4. Based on driller's descriptions.***

Study on Land at Plot 1, Greenacres.

Borehole No. 8***Notes:***

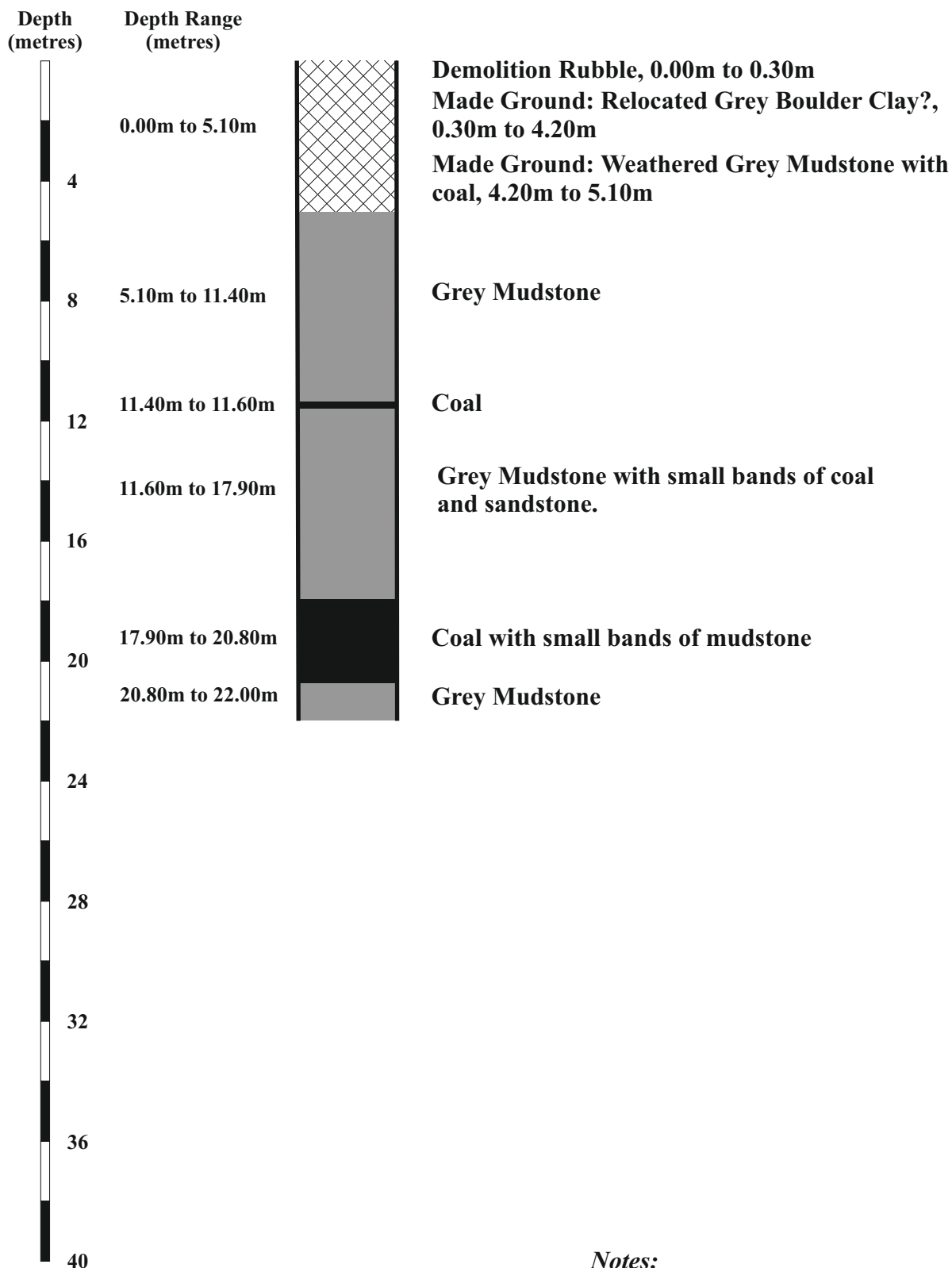
- 1. Total depth of borehole, 10.0m.***
- 2. Water strikes at 7.0m.***
- 3. Casing 4.2m.***
- 4. Based on driller's descriptions.***

Study on Land at Plot 1, Greenacres.

Borehole No. 9**Notes:**

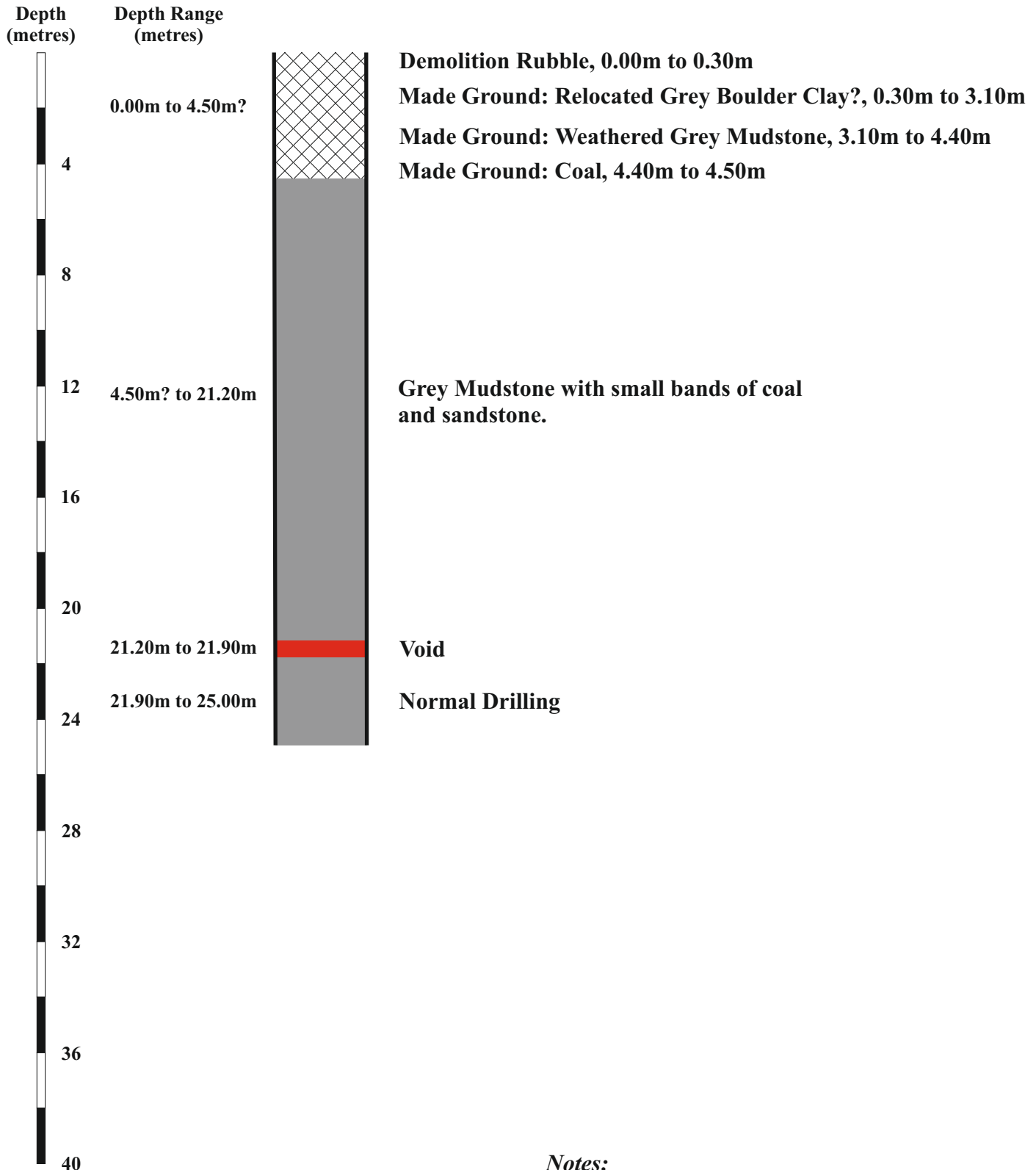
1. Total depth of borehole, 22.0m.
2. Borehole dry.
3. Casing 4.2m.
4. Based on driller's descriptions.

Study on Land at Plot 1, Greenacres.

Borehole No. 10***Notes:***

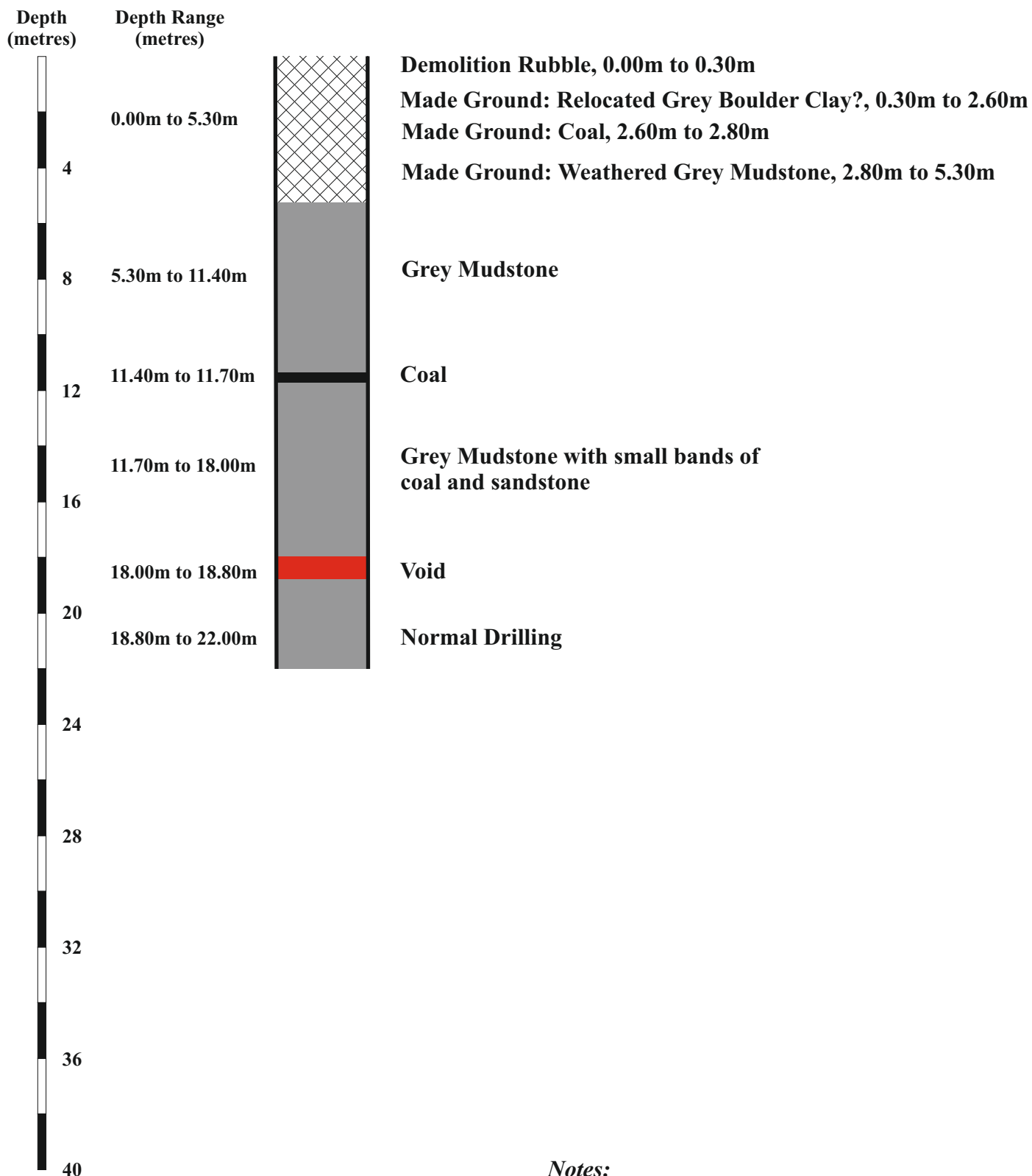
- 1. Total depth of borehole, 22.0m.***
- 2. Borehole dry.***
- 3. Casing 4.2m.***
- 4. Based on driller's descriptions.***

Study on Land at Plot 1, Greenacres.

Borehole No. 11***Notes:***

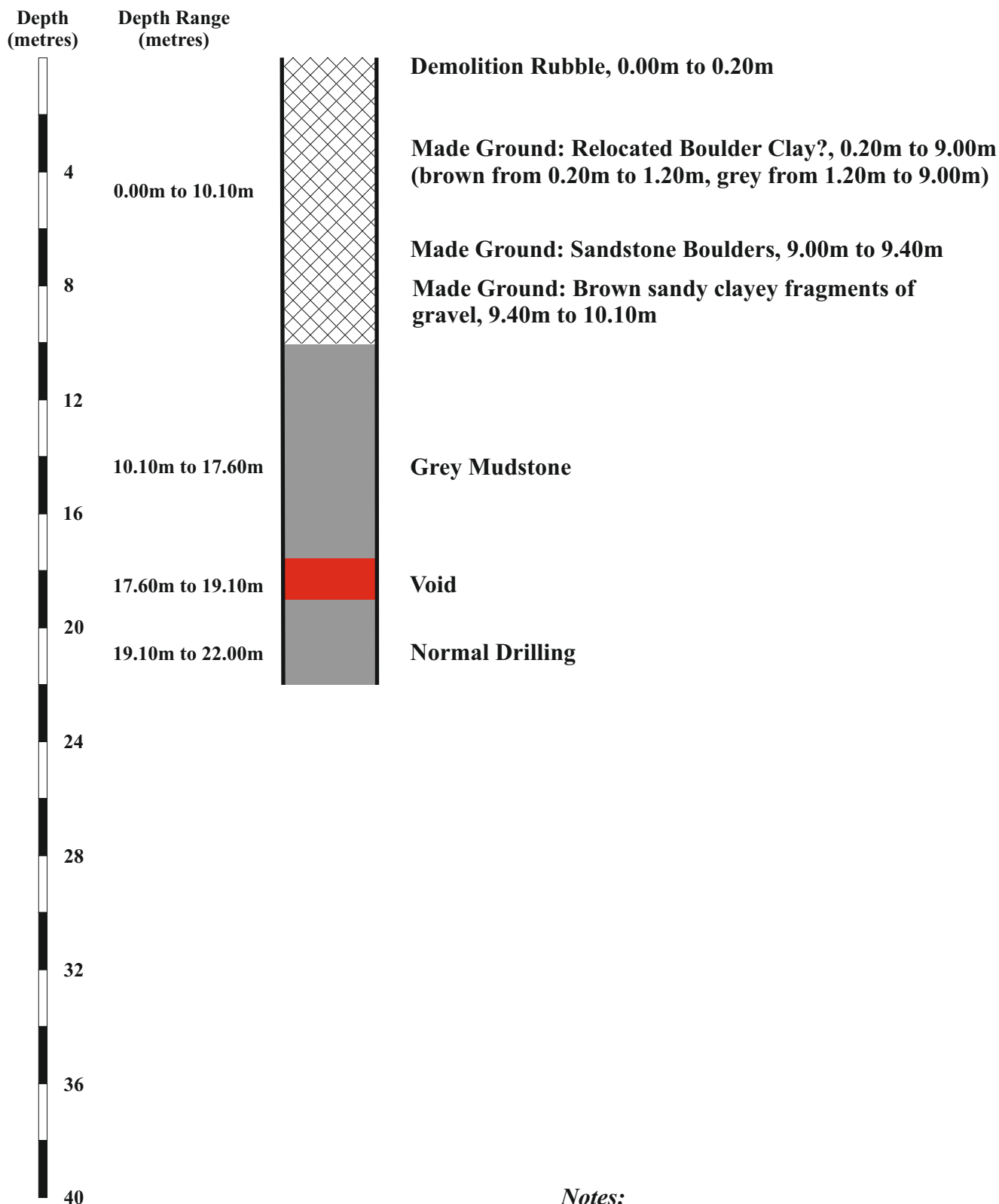
- 1. Total depth of borehole, 25.0m.***
- 2. Borehole dry.***
- 3. Casing 4.2m.***
- 4. Based on driller's descriptions.***

Study on Land at Plot 1, Greenacres.

Borehole No. 12***Notes:***

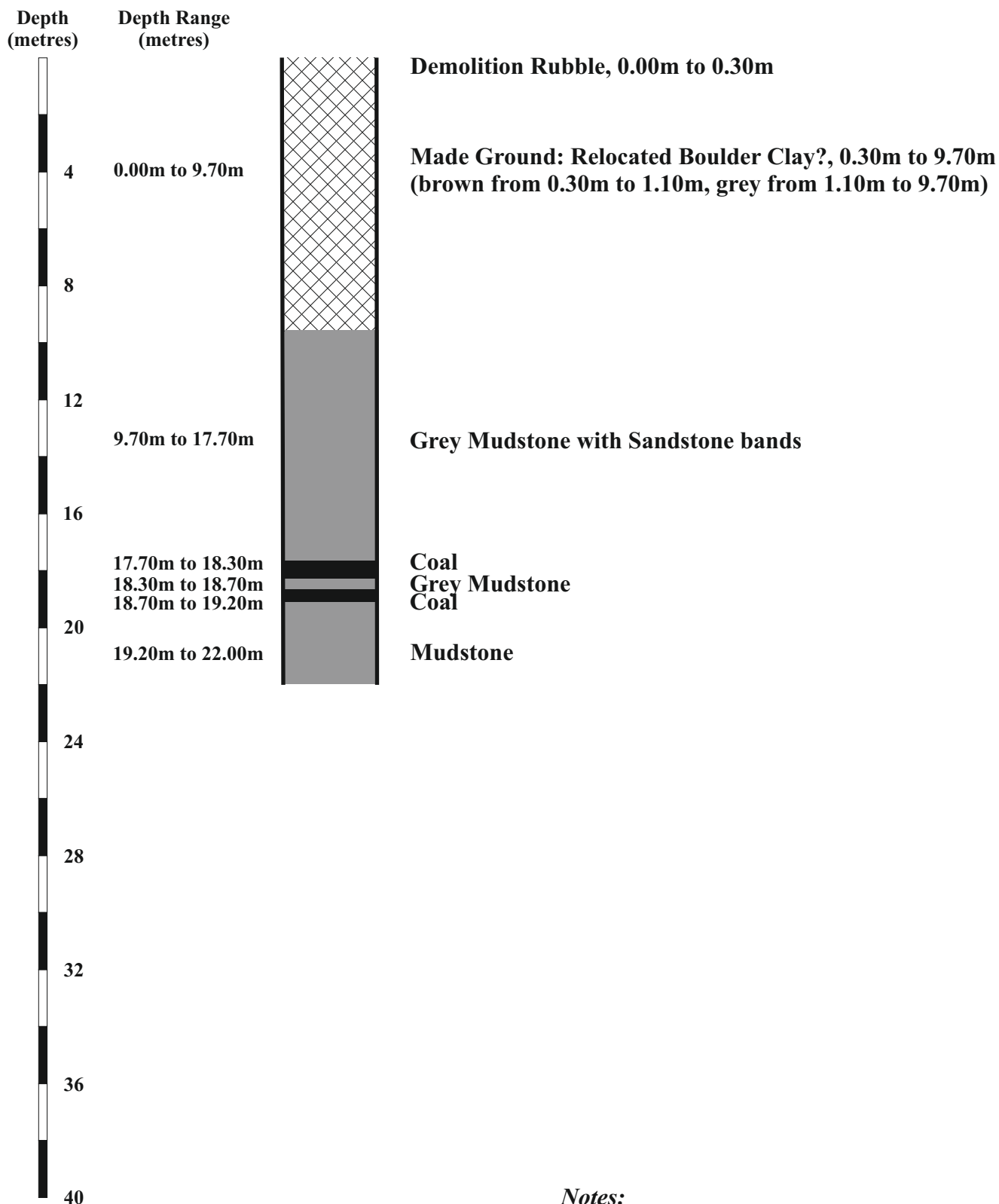
- 1. Total depth of borehole, 22.0m.***
- 2. Borehole dry.***
- 3. Casing 3.0m.***
- 4. Based on driller's descriptions.***

Study on Land at Plot 1, Greenacres.

Borehole No. 13***Notes:***

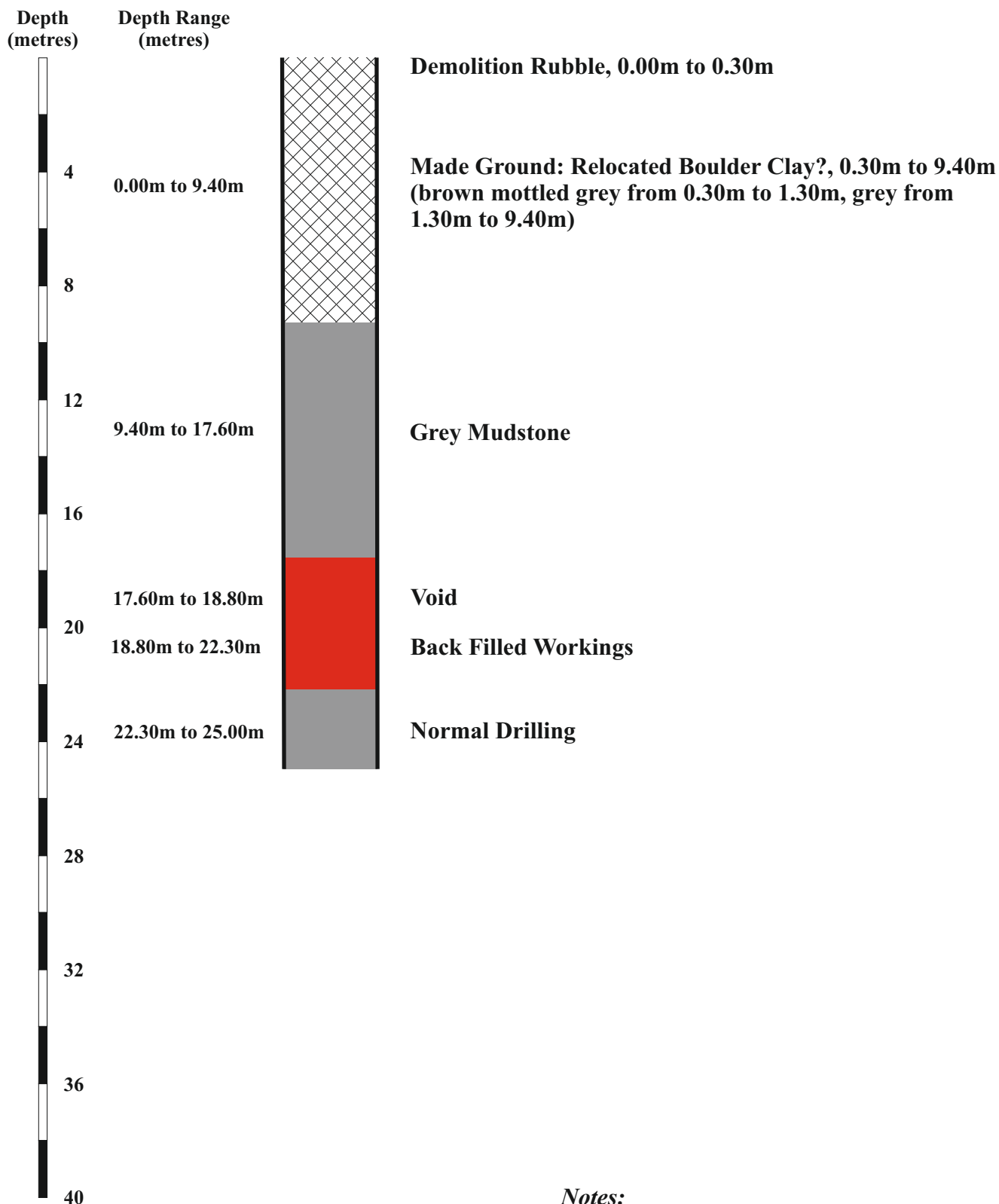
- 1. Total depth of borehole, 22.0m.***
- 2. Borehole dry.***
- 3. Casing 4.2m.***
- 4. Based on driller's descriptions.***

Study on Land at Plot 1, Greenacres.

Borehole No. 14***Notes:***

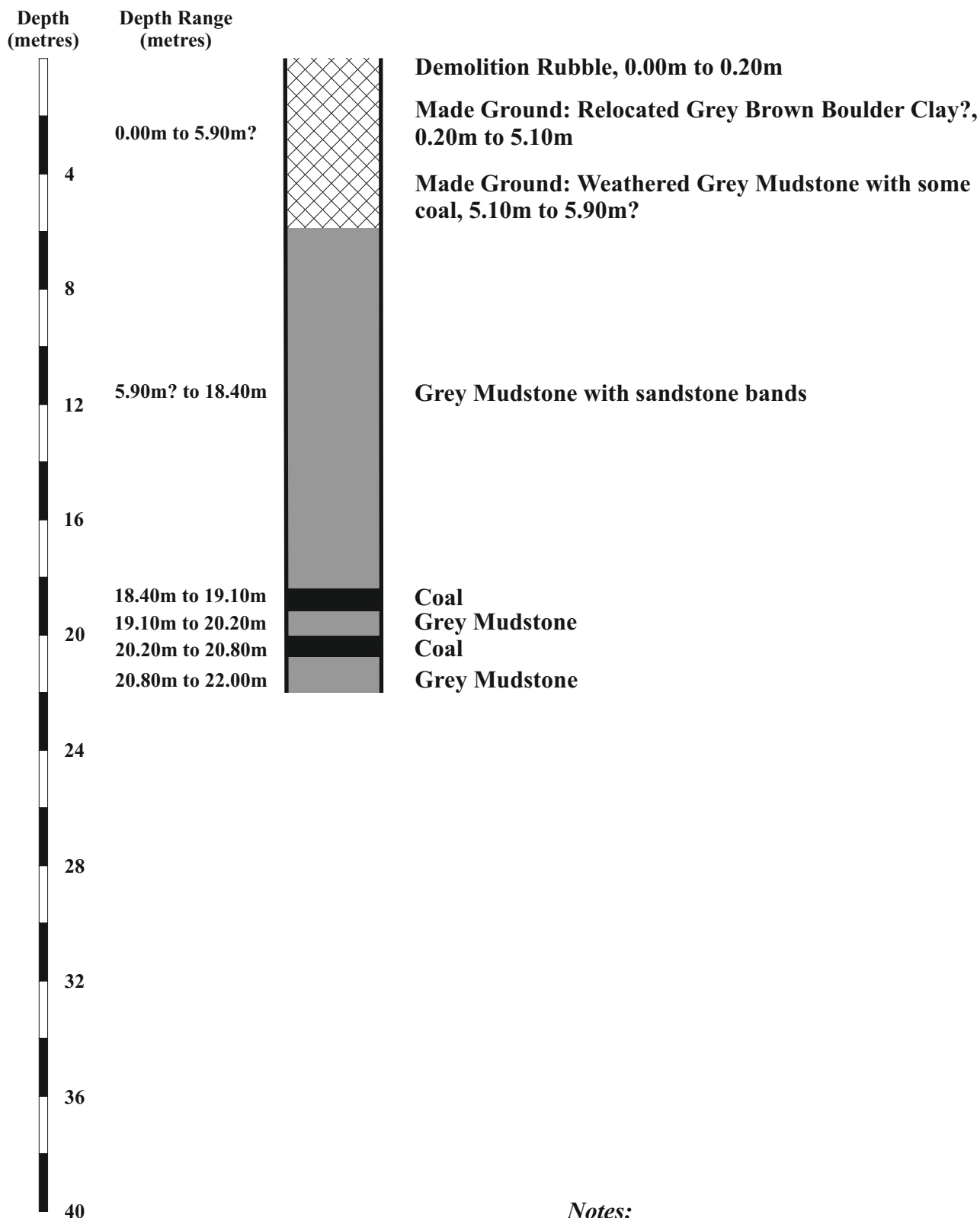
- 1. Total depth of borehole, 22.0m.***
- 2. Borehole dry.***
- 3. Casing 4.2m.***
- 4. Based on driller's descriptions.***

Study on Land at Plot 1, Greenacres.

Borehole No. 15***Notes:***

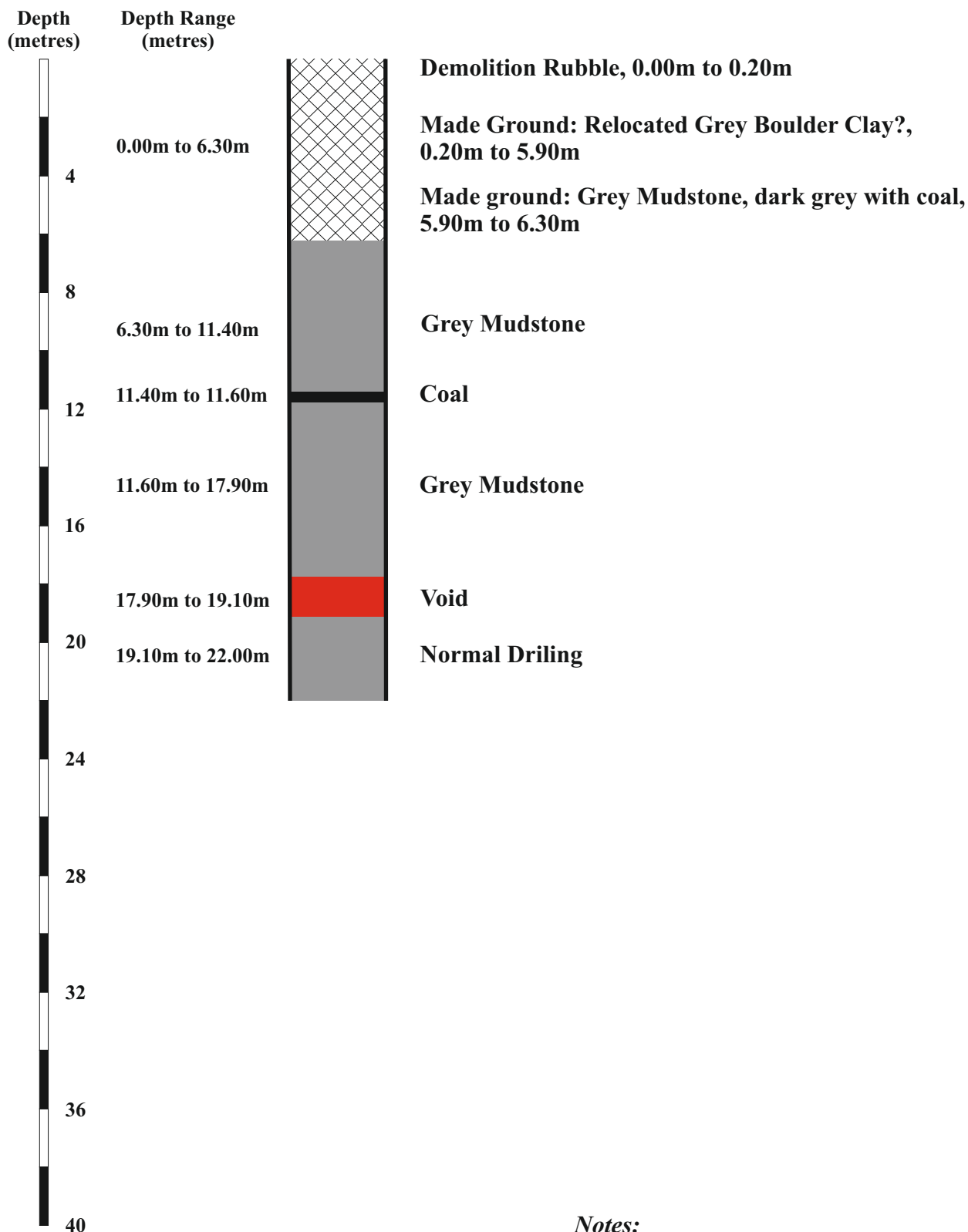
- 1. Total depth of borehole, 25.0m.***
- 2. Borehole dry.***
- 3. Casing 4.2m.***
- 4. Based on driller's descriptions.***

Study on Land at Plot 1, Greenacres.

Borehole No. 16**Notes:**

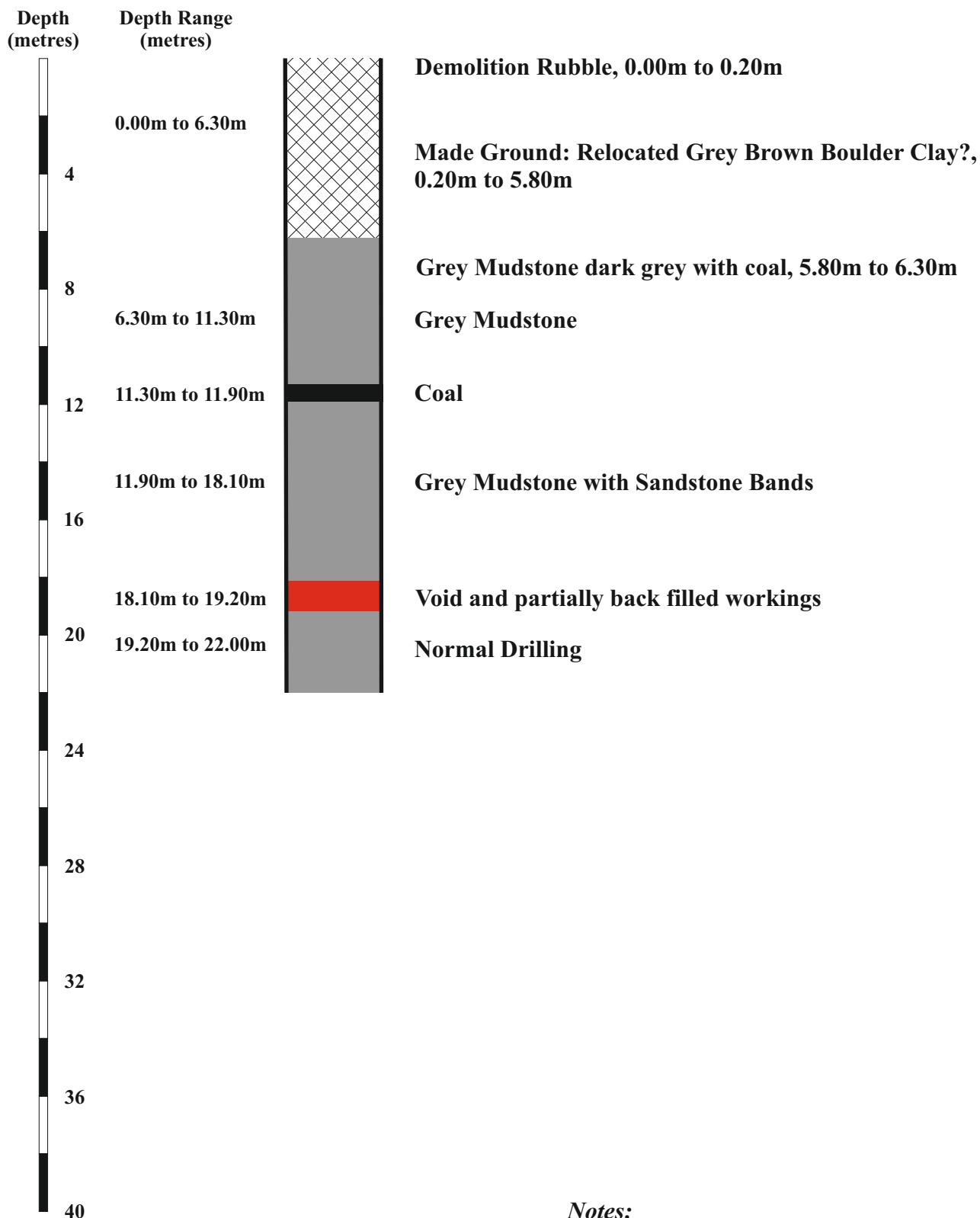
1. Total depth of borehole, 22.0m.
2. Borehole dry.
3. Casing 4.2m.
4. Based on driller's descriptions.

Study on Land at Plot 1, Greenacres.

Borehole No. 17***Notes:***

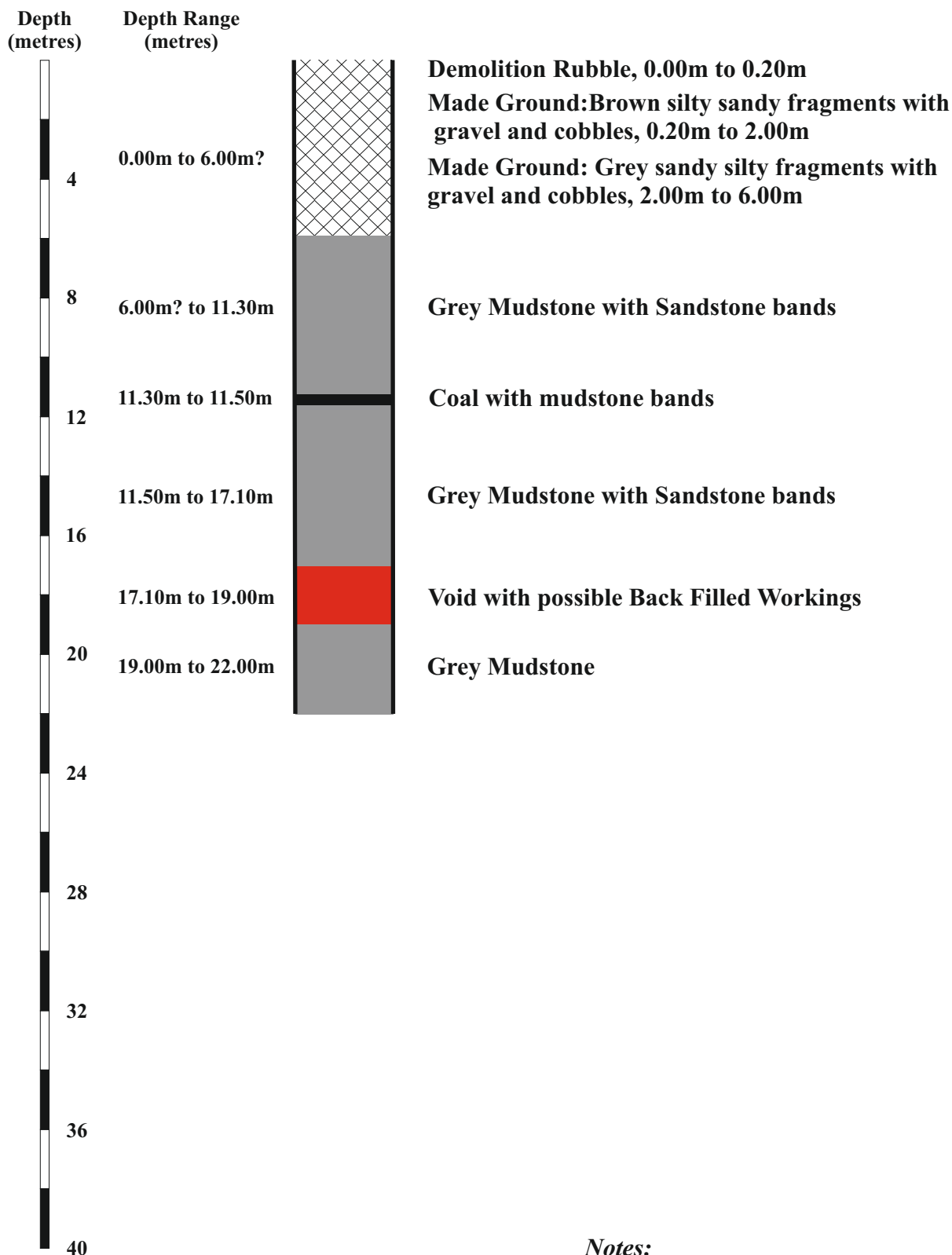
- 1. Total depth of borehole, 22.0m.***
- 2. Borehole dry.***
- 3. Casing 4.2m.***
- 4. Based on driller's descriptions.***

Study on Land at Plot 1, Greenacres.

Borehole No. 18**Notes:**

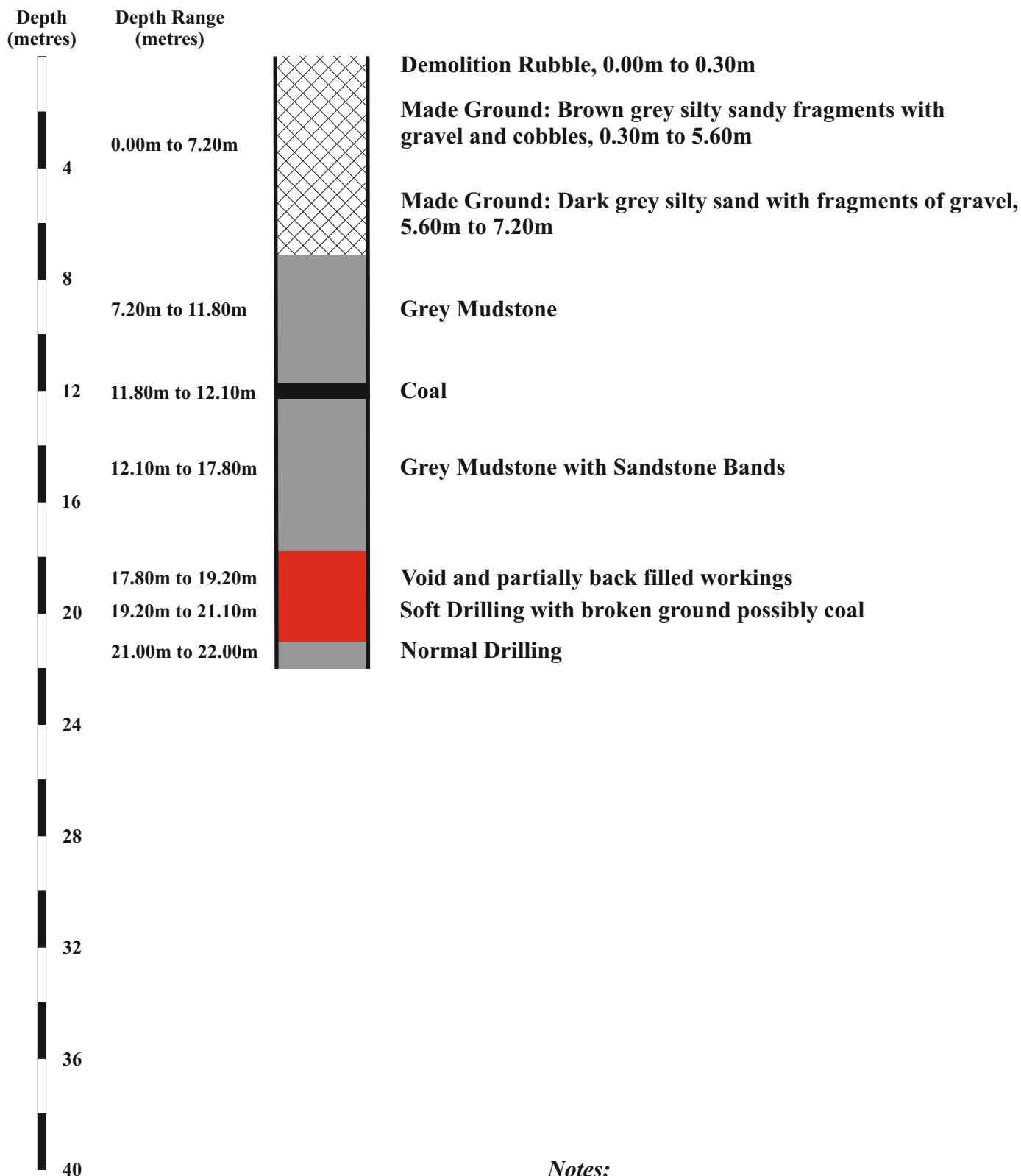
1. Total depth of borehole, 22.0m.
2. Borehole dry.
3. Casing 4.2m.
4. Based on driller's descriptions.

Study on Land at Plot 1, Greenacres.

Borehole No. 19***Notes:***

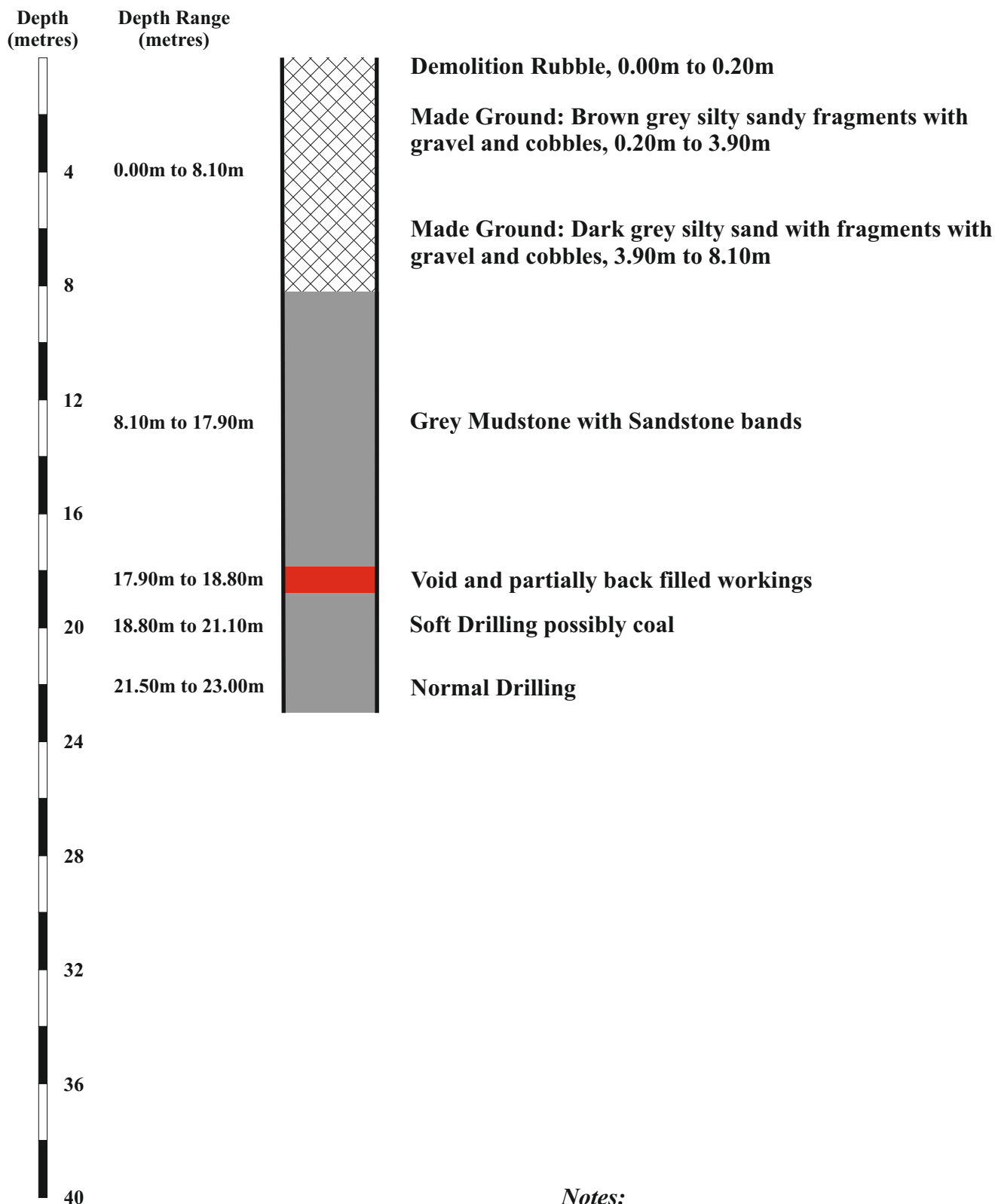
- 1. Total depth of borehole, 22.0m.***
- 2. Borehole dry.***
- 3. Casing 4.2m.***
- 4. Based on driller's descriptions.***

Study on Land at Plot 1, Greenacres.

Borehole No. 20***Notes:***

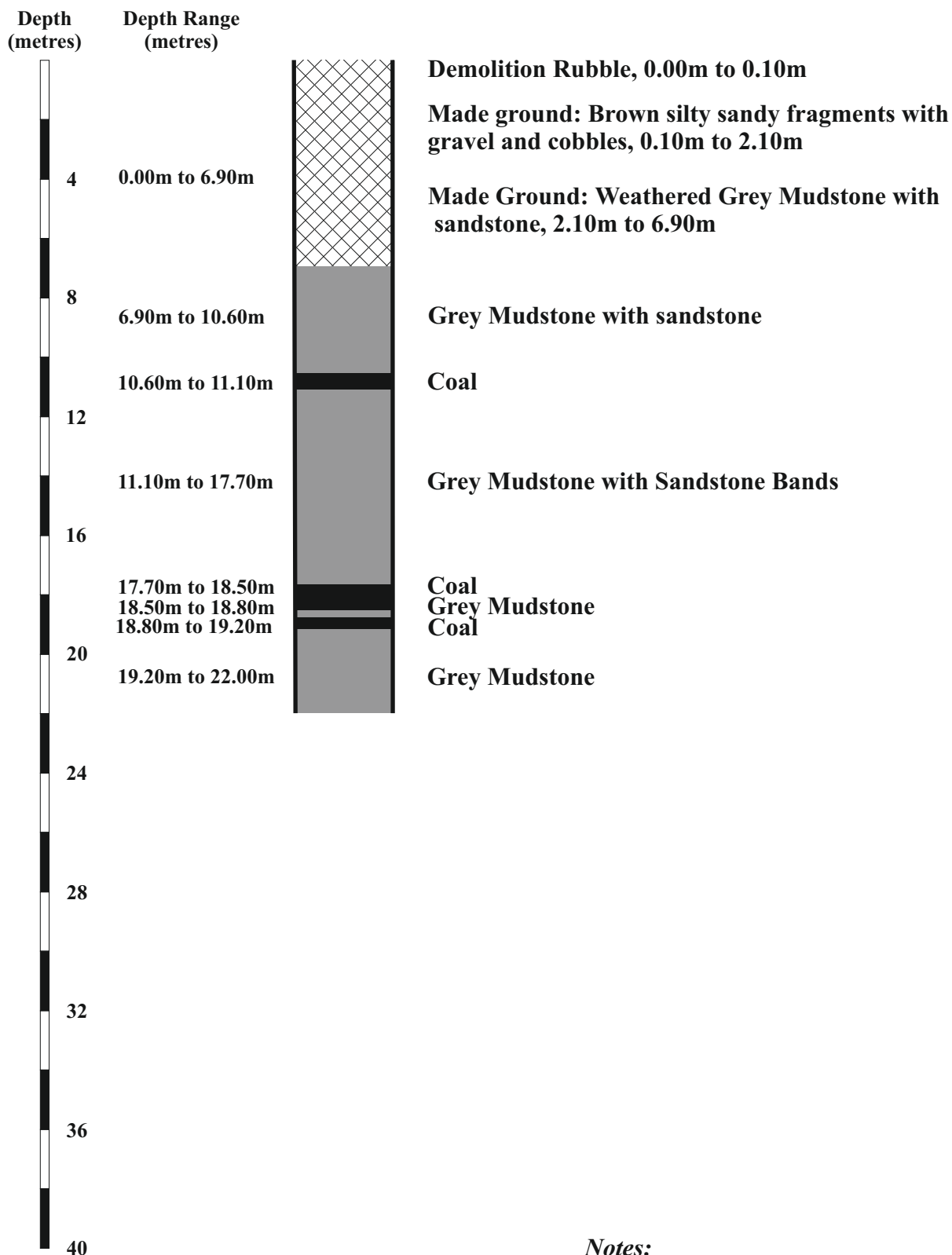
- 1. Total depth of borehole, 22.0m.***
- 2. Borehole dry.***
- 3. Casing 5.7m.***
- 4. Based on driller's descriptions.***

Study on Land at Plot 1, Greenacres.

Borehole No. 21***Notes:***

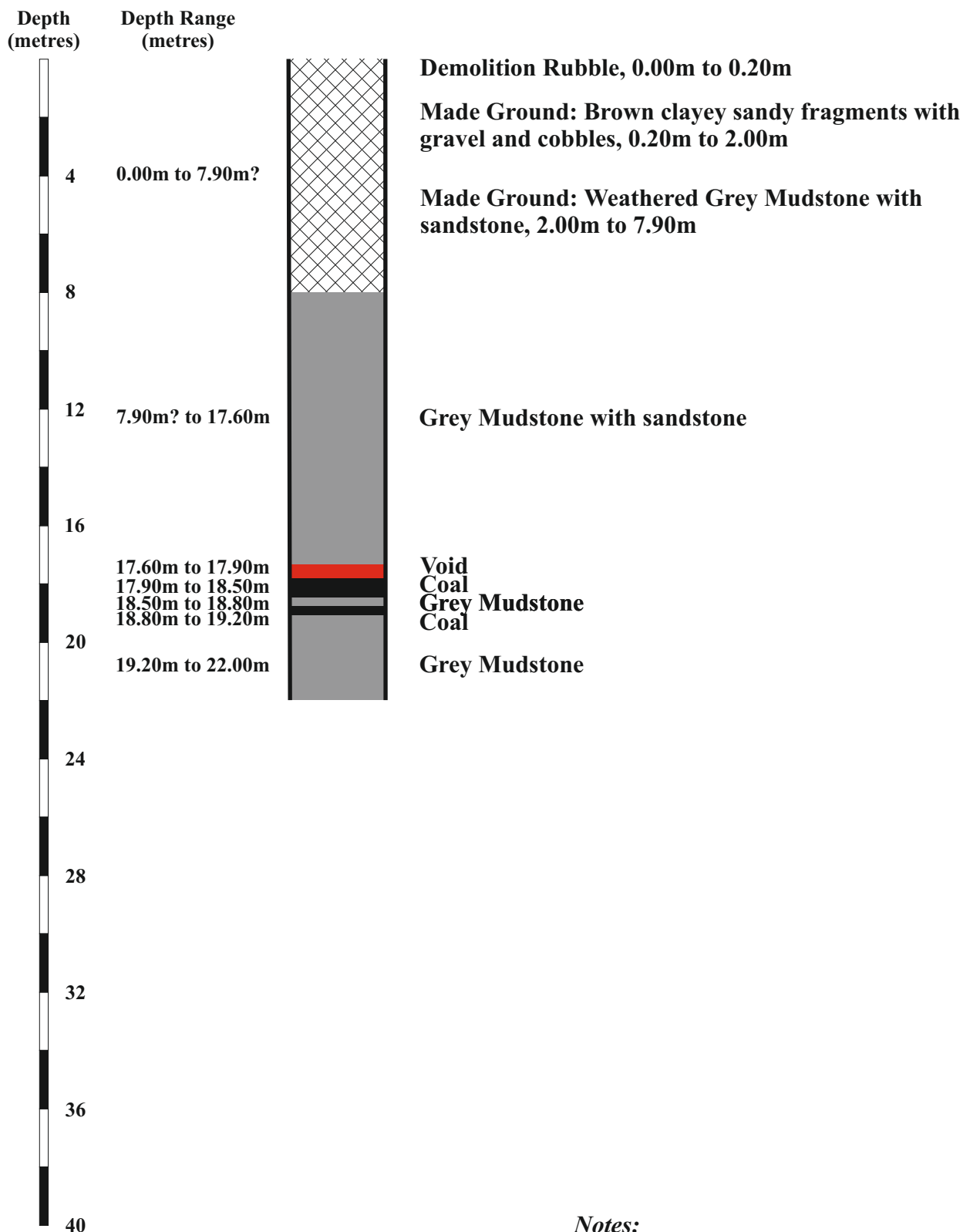
- 1. Total depth of borehole, 23.0m.***
- 2. Borehole dry.***
- 3. Casing 5.7m.***
- 4. Based on driller's descriptions.***

Study on Land at Plot 1, Greenacres.

Borehole No. 22***Notes:***

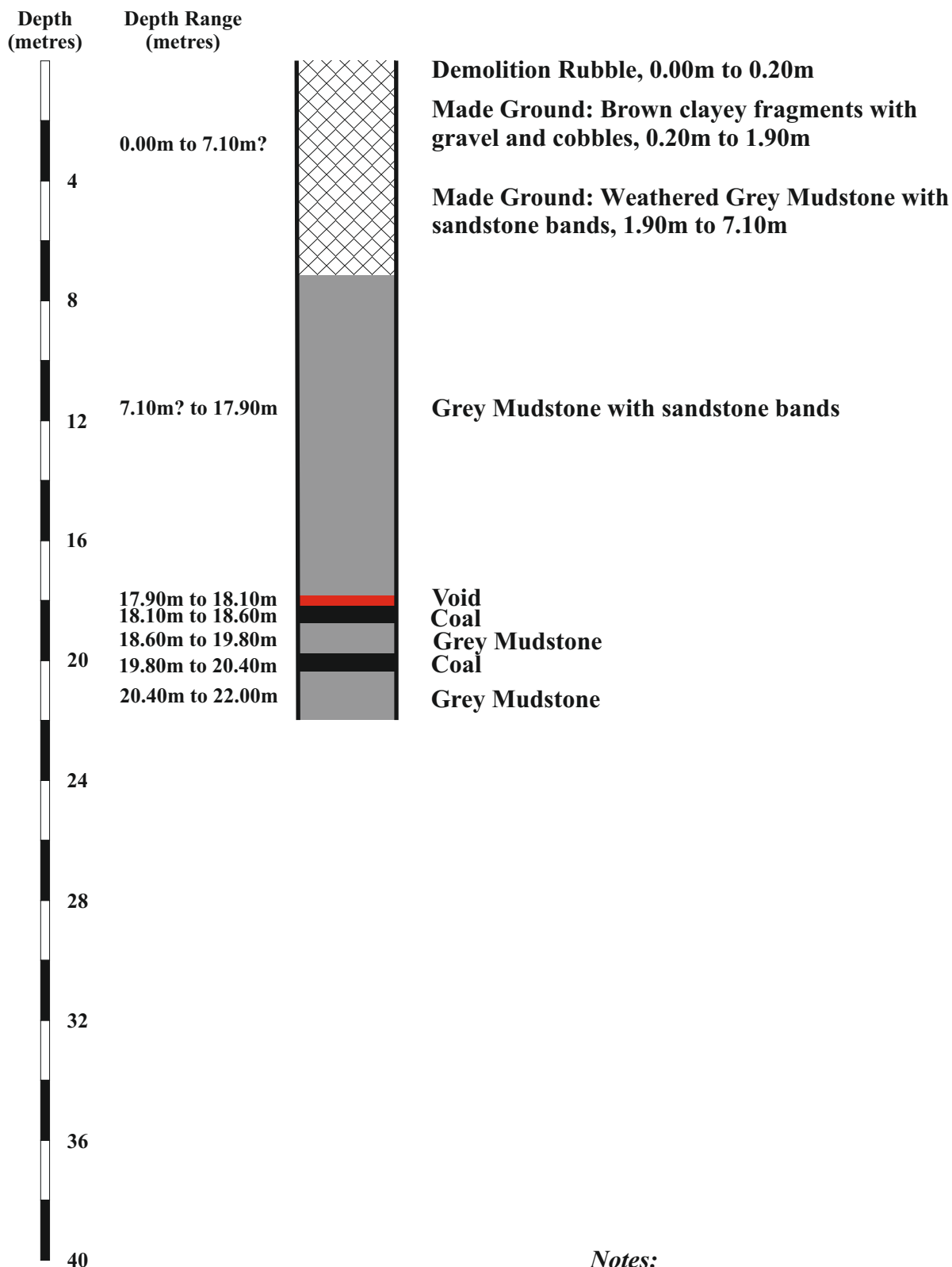
- 1. Total depth of borehole, 22.0m.***
- 2. Borehole dry.***
- 3. Casing 4.2m.***
- 4. Based on driller's descriptions.***

Study on Land at Plot 1, Greenacres.

Borehole No. 23***Notes:***

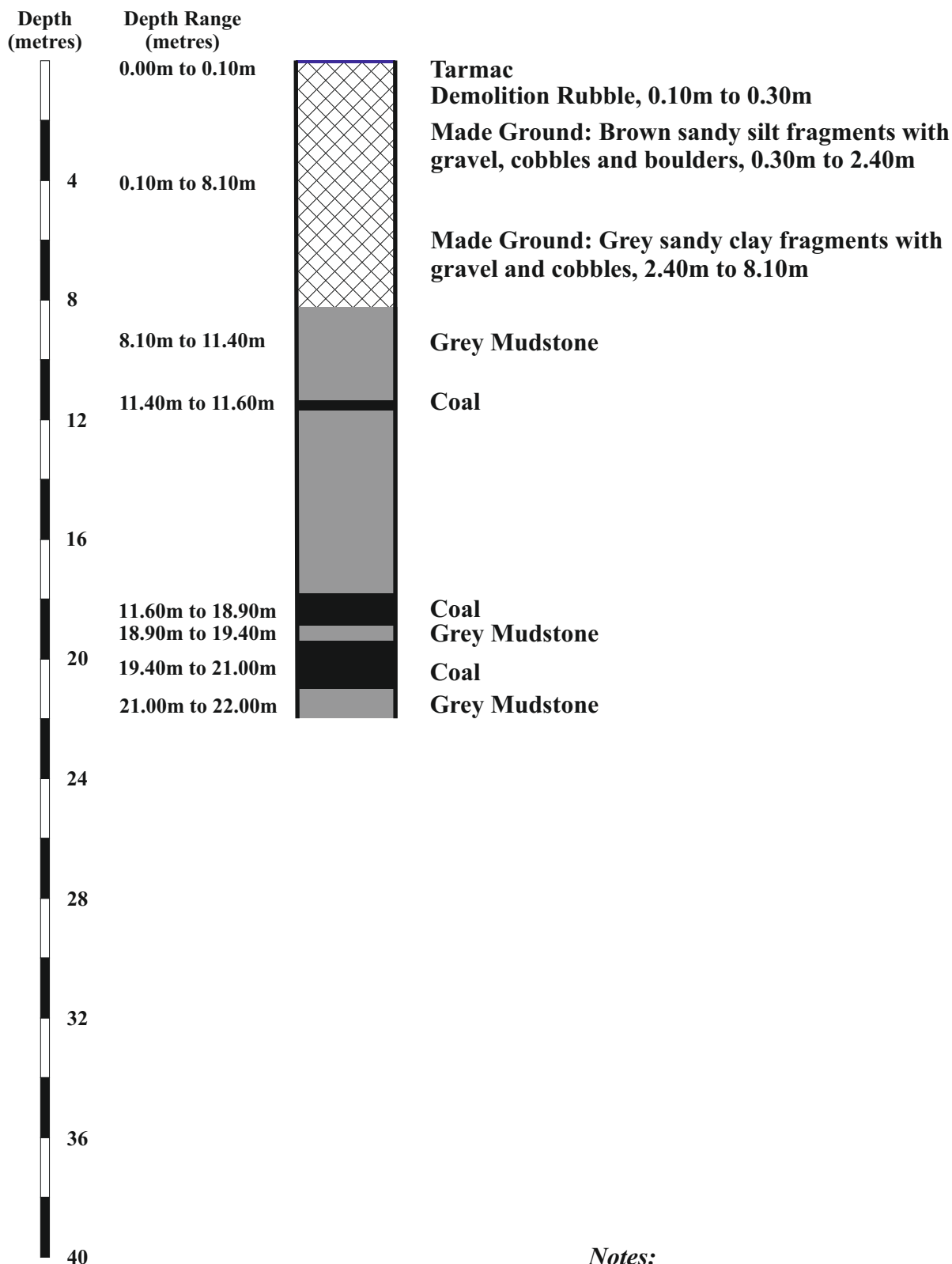
1. Total depth of borehole, 22.0m.
2. Borehole dry.
3. Casing 4.2m.
4. Based on driller's descriptions.

Study on Land at Plot 1, Greenacres.

Borehole No. 24***Notes:***

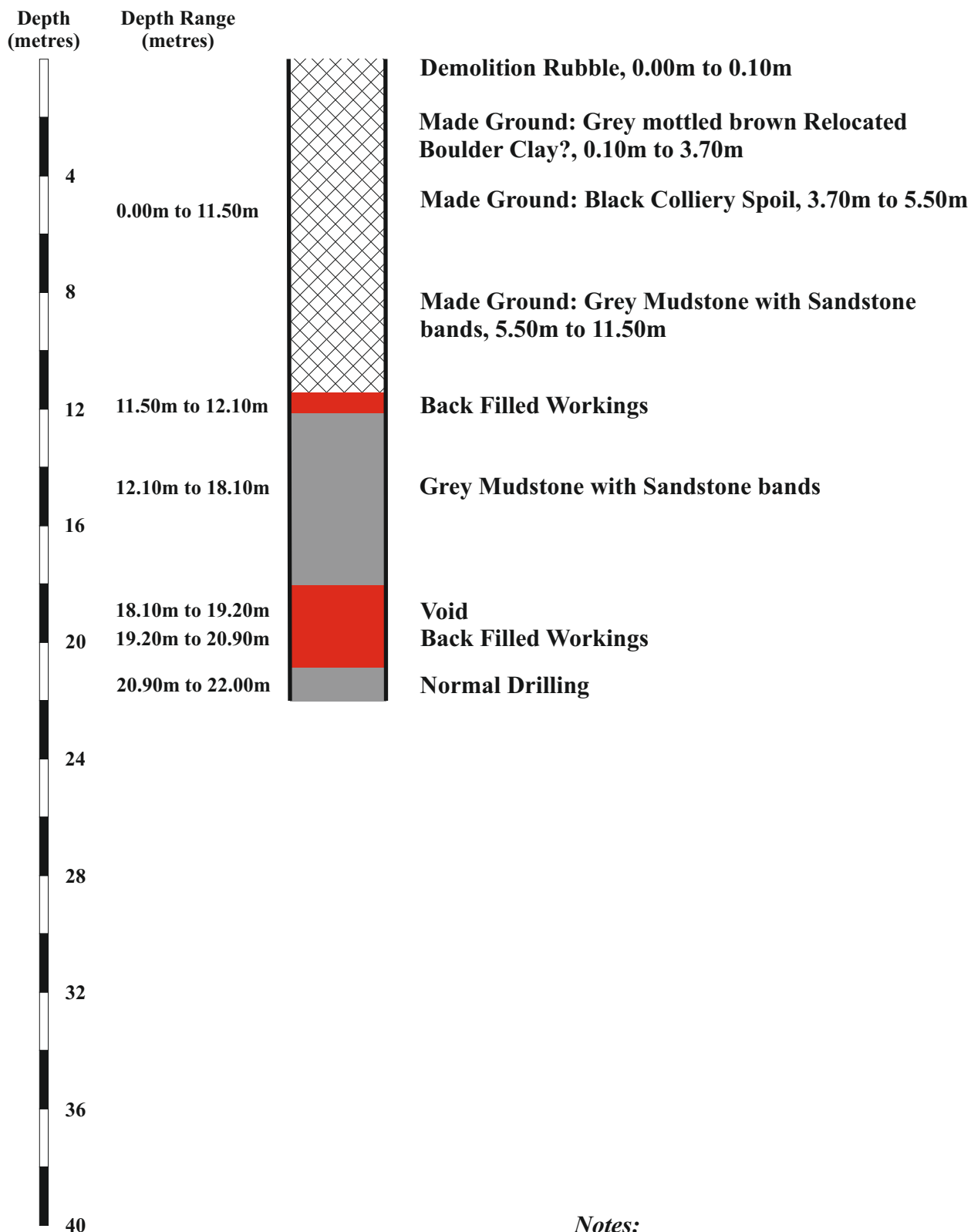
- 1. Total depth of borehole, 22.0m.***
- 2. Borehole dry.***
- 3. Casing 4.2m.***
- 4. Based on driller's descriptions.***

Study on Land at Plot 1, Greenacres.

Borehole No. 25***Notes:***

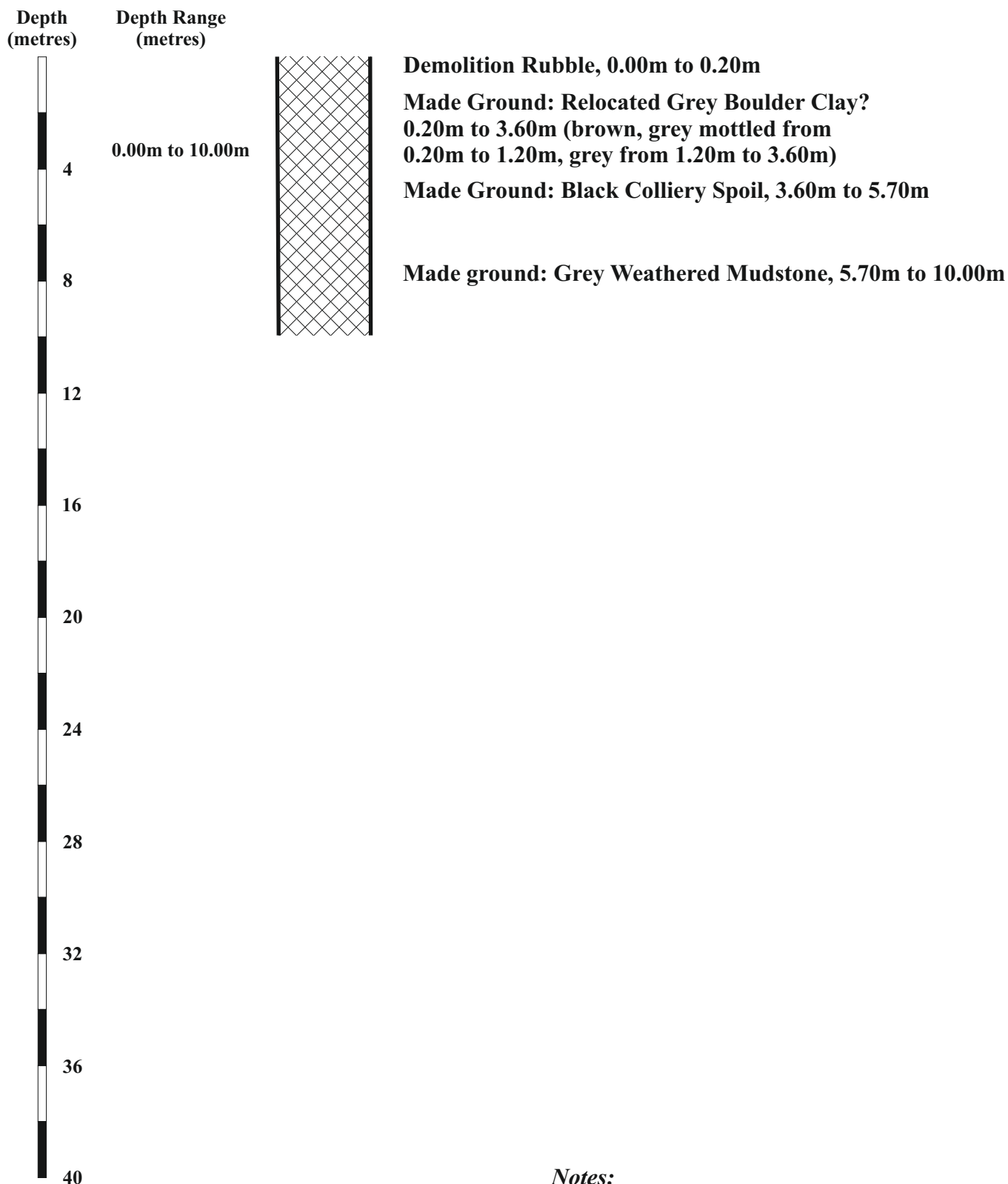
- 1. Total depth of borehole, 22.0m.***
- 2. Borehole dry.***
- 3. Casing 4.2m.***
- 4. Based on driller's descriptions.***

Study on Land at Plot 1, Greenacres.

Borehole No. 8A**Notes:**

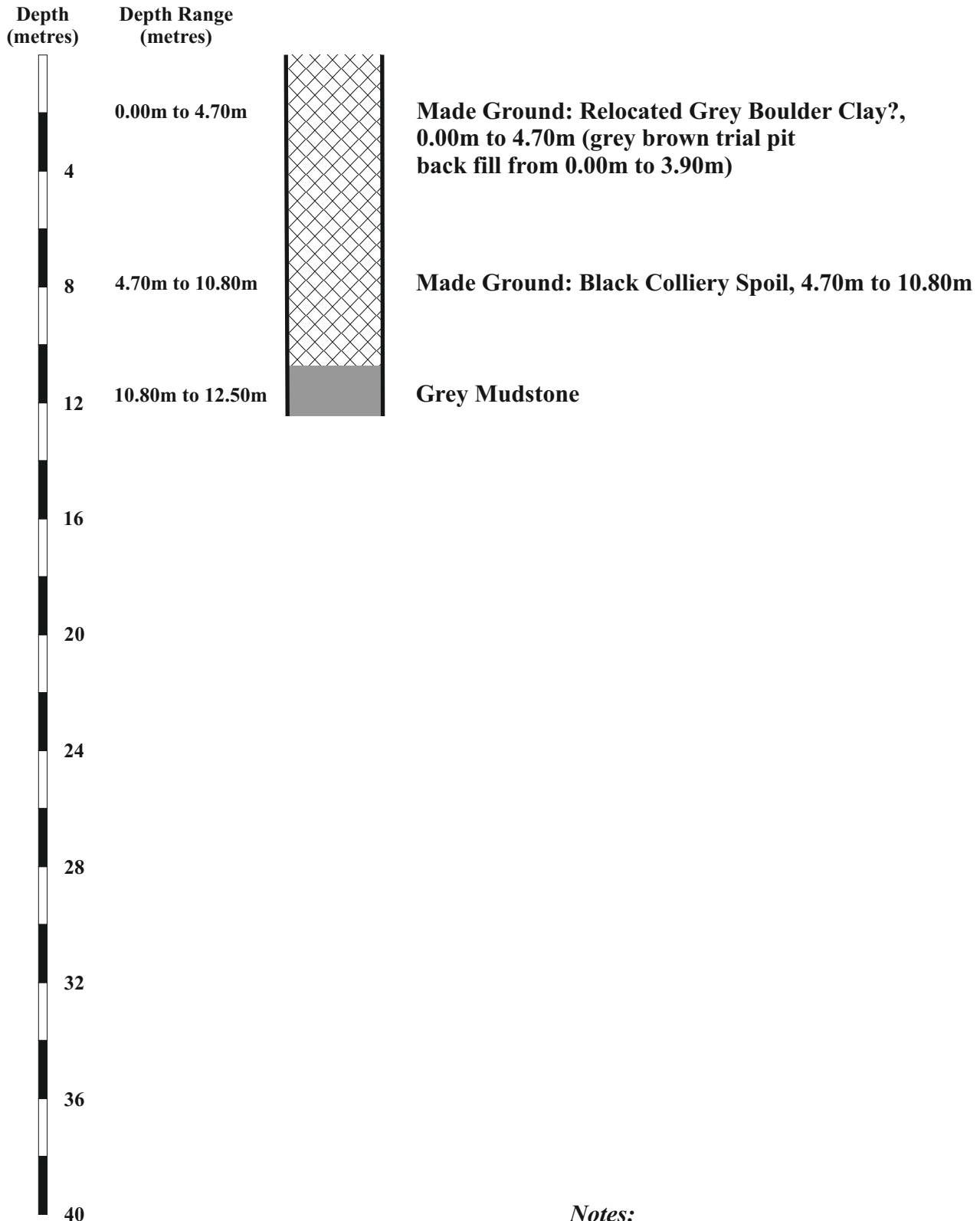
1. Total depth of borehole, 22.0m.
2. Borehole dry.
3. Casing 5.7m.
4. Based on driller's descriptions.

Study on Land at Plot 1, Greenacres.

Borehole No. 8B***Notes:***

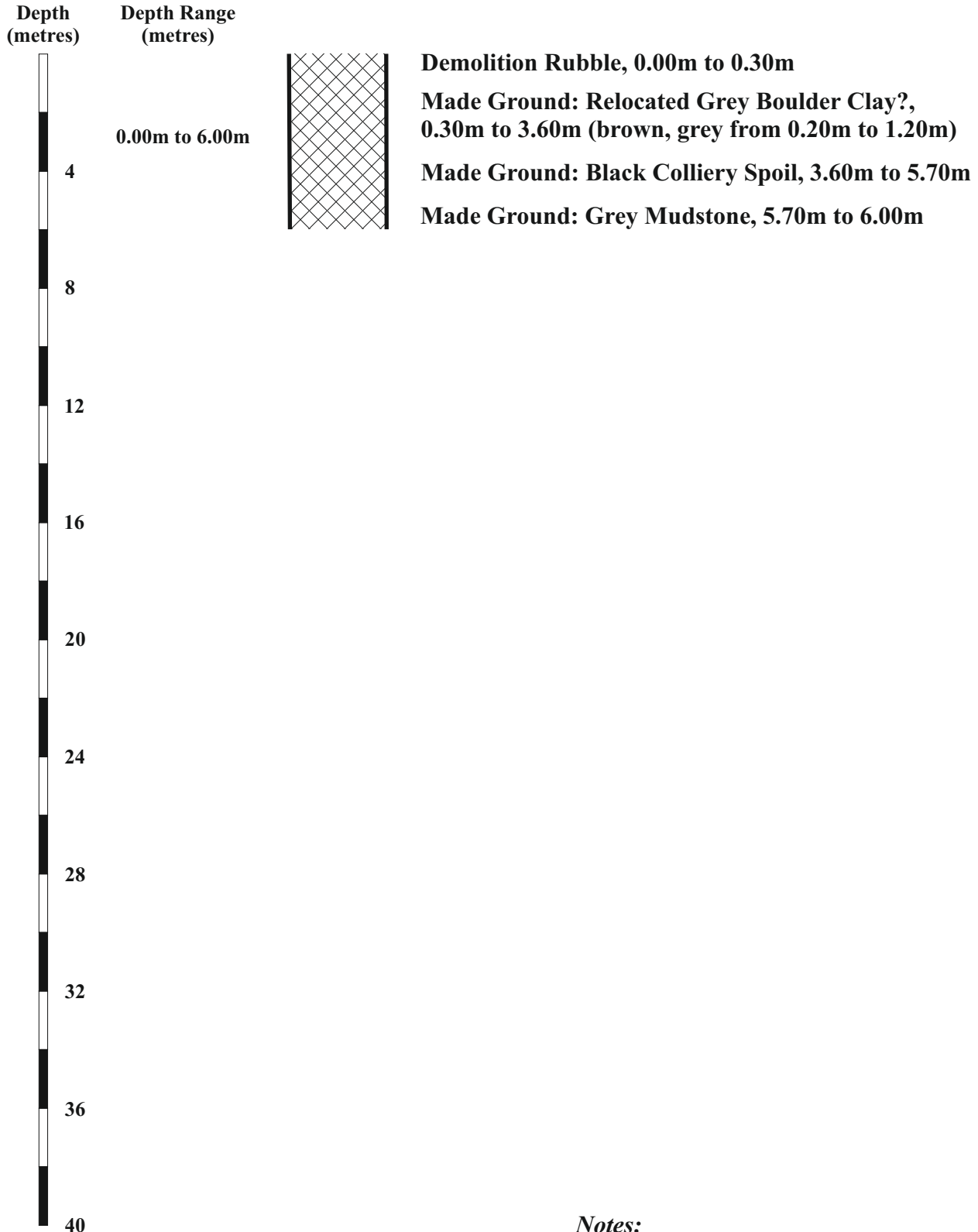
- 1. Total depth of borehole, 10.0m.***
- 2. Borehole dry.***
- 3. Casing 2.7m.***
- 4. Based on driller's descriptions.***

Study on Land at Plot 1, Greenacres.

Borehole No. 8C***Notes:***

- 1. Total depth of borehole, 12.5m.***
- 2. Borehole dry.***
- 3. Casing 5.7m.***
- 4. Based on driller's descriptions.***

Study on Land at Plot 1, Greenacres.

Borehole No. 8D***Notes:***

- 1. Total depth of borehole, 6.0m.***
- 2. Borehole dry.***
- 3. Casing 2.7m.***
- 4. Based on driller's descriptions.***

APPENDIX II

DETAILS OF MATERIALS INJECTED INTO BOREHOLES



THE ENTERPRISE CENTRE,
MERTHYR INDUSTRIAL PARK,
PENTREBACH,
MERTHYR TYDFIL,
SOUTH WALES,
CF48 4DR.

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Appendix II

Details of Materials Injected into Boreholes

BH No	Total Depth (m)	Depth to top of workings (m)	Thickness of Workings (m)	Total PFA/OPC Injected (t)	Total Chippings Injected (t)	Total tonnage (t)
1	22.0	18.2	2.7	0.44	-	1.82
2	18.0	10.9	6.1	0.275	-	2.22
3	22.0	-	-	0.275	-	0.28
4	25.0	21.3	0.6	0.44	-	2.75
5	22.0	17.8	0.4	16.85	2.0	4.73
		18.4	0.5			
6	22.0	17.9	0.5	13.65	1.0	1.1
		18.6	2.0			
7	21.00	-	-	0.33	-	0.33
8	10.00	-	-	0	-	0.28
9	22.0	11.3	0.4	0.275	-	0.50
10	22.0	-	-	0.22	-	0.22
11	25.0	21.2	0.7	3.3	-	5.5
12	22.0	18.0	0.8	18.95	-	0.44
13	22.0	17.6	1.5	10.9	-	1.76
14	22.0	-	-	1.1	-	0.22
15	25.0	17.6	4.7	1.1	3.0	16.34
16	22.0	-	-	0.22	1.0	15.95
17	22.0	17.9	1.2	7.65	-	2.97
18	22.0	18.1	1.1	20.15	-	7.70
19	22.0	17.1	1.9	29.7	-	10.07
20	22.0	17.8	3.3	5.5	0.5	0.22
21	23.0	17.9	0.9	13.65	2.0	2.75
22	22.0	-	-	0.22	-	13.20
23	22.0	17.6	0.3	0.495	1.0	9.63
24	22.0	17.9	0.2	0.44	-	0.22
25	22.0	-	-	0.22	-	0.22
8A	20.9	11.5	0.6	0.385	-	17.33
		18.1	1.8			
8B	1.0	-	-	0	-	0.22
8C	12.5	-	-	0.11	-	0.22
8D	6.0	-	-	1.98	-	1.98
Totals				131.4	15.5	147.9

APPENDIX III

GEOTECHNICAL LOG AND PHOTOGRAPHS OF TRENCH



THE ENTERPRISE CENTRE,
MERTHYR INDUSTRIAL PARK,
PENTREBACH,
MERTHYR TYDFIL,
SOUTH WALES,
CF48 4DR.

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PROJECT: Land at Plot 1, Greenacres

CLIENT: Mr and Mrs J Coccimiglio

Trial Pit: 1

Equipment Used: Tracked Tekeuchi 360 Excavator



THE ENTERPRISE CENTRE,
MERTHYR INDUSTRIAL PARK,
PENTREBACH,
MERTHYR TYDFIL,
SOUTH WALES,
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Depth	Description	Legend	Backfill/ Installations
0.90m	MADE GROUND: Very stiff, brown mottled yellow clayey GRAVEL, COBBLE and BOULDER. Gravel cobble and boulder are of sub-rounded to rounded sandstone. (Relocated Boulder Clay).		
1 1.50m to 2.40m	MADE GROUND: Very stiff, light grey clayey GRAVEL, COBBLE and BOULDER. Gravel cobble and boulder are of sub-rounded to rounded sandstone. (Relocated Boulder Clay).		
2 1.50m to 3.50m	MADE GROUND: Soft, dark grey, clayey GRAVEL of fine and medium tabular and angular mudstone and coal. (Colliery Spoil).		
3 1.50m to 3.50m			
4 4.60m	MADE GROUND: Very stiff, light grey clayey GRAVEL, COBBLE and BOULDER. Gravel cobble and boulder are of sub-rounded to rounded sandstone. (Relocated Boulder Clay).		
	Trial Pit terminated at 4.60m.		

Stability: No shoring installed but slightly unstable

Dimensions: Width: 1.00m, Length 7.50m, Depth 4.60m

Samples Collected: None

Groundwater: Slight seepage at base of Made Ground 2

Comments:

Orientation: 328 degrees

Date: 29th January 2020

Engineer: Dr Malcolm Blandford

Report No: BC/MB/10.18.01.

Photo Plate 1, Trial Pit 1



Geologists Working With The Environment....

Report No. BC/MB/10.18.01.

Study on Land at
Plot 1, Greenacres, Heolgerrig.



THE ENTERPRISE CENTRE,
MERTHYR INDUSTRIAL PARK,
PENTREBACH,
MERTHYR TYDFIL,
SOUTH WALES,
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Photo Plate 2, Trial Pit 1



Geologists Working With The Environment....

Report No. BC/MB/10.18.01.

Study on Land at
Plot 1, Greenacres, Heolgerrig.



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