Haigh Huddleston & Associates
Civil & Structural Engineering Consultants
Firth Buildings, 99 -101 Leeds Road, Dewsbury, WF12 7BU
t 01924 464342 f 01924 450662 e martin@haighhuddleston.co.uk

Our Ref: E19/7366/MD/007

Date: 22 December 2021

FAO Stewart Brown
Stewart@yorkshirecountryproperties.co.uk

Dear Sir,

Further Site Investigation for Site at Station Road, Skelmanthorpe

Further to the initial site investigation works, as documented in HHA Intrusive Site Investigation Report Ref E19/7366/R001 dated April 2019, further investigation works were recommended in HHA Remediation Method Statement Ref E19/7366/MD/05 sated June 2021. Please find attached our findings in relation to these additional investigation works.

1. FIELDWORK

1.1 The additional fieldwork comprised of a trial trench and site scrape undertaken with an 8 tonne 360 tracked excavator. In addition to this, a total of nineteen rotary boreholes were sunk. The location of the trial pits and boreholes are indicated on Drawing E21/7786/03/01D.

1.2 Further to the previous investigation, the supplementary works were undertaken to determine the following:

- 1.2.1 Rotary drilling to determine the presence of the shallow mining beneath the site to provide additional comfort that the shallow coal outside the former opencast mine was unworked.
- 1.2.2 Trial trenching and site scrape to determine the presence of suspected high wall features to the former opencast mine in the north-east of the site.
- 1.2.3 Additional topsoil sampling to confirm that the existing topsoil on site was suitable for re-use in domestic garden areas.

1.3 Materials encountered within the trial pits and boreholes were examined and categorised. The trial pit logs and boreholes are contained within Appendix B at the rear of the report.

1.4 The boreholes were sunk to a maximum depth of 15m, a minimum of 1m below the coal seam, to determine the presence of historical shallow mining on the site.

1.5 In addition to the trial pits and boreholes, four samples were taken from the topsoil by hand and submitted for chemical analysis.

2. RESULTS OF THE INVESTIGATION

2.1 Presence of Shallow Mine Working

2.1.1 As discussed in the original report, an unworked 0.7-0.8m thick seam of coal was encountered at 6.4-11.4m below existing ground levels.

2.1.2 The purpose of the additional works were to determine if this coal seam had been worked at shallow depth beneath the site, outside the footprint of the former opencast mine.

2.1.3 Except BH13-BH15, the boreholes generally proved 0.2m of topsoil overlying 1.3-2.5m of clay with a mudstone bedrock encountered at 2.3-2.7m below existing ground levels.

2.1.4 BH10, BH11 and BH16-BH18 proved a single 0.9-1.0m thick coal seam at depths of 7.8-11.3m below existing ground levels.

2.1.5 BH12 and BH19-BH27 proved two coal seams within the mudstone strata.

- The upper coal seam was 0.3-0.8m thick and encountered at 1.5-8.7m below existing ground levels.
- The lower coal seam was 0.6-0.9m thick and encountered at 8.5-13.0m below existing ground levels.

2.1.6 BH13-BH15 were undertaken in the assumed former opencast mine and proved 4.7-7.9m of made ground, dipping towards the north eastern boundary, underlain by mudstone. In BH13 an intact 1m thick coal seam was encountered at 8.8-9.8m below existing ground levels.

2.1.7 There was no evidence of either coal seams having been worked beneath the site.

2.2 Further Trial Pitting and Site Scrape

2.2.1 During the initial site investigation works, BH02 proved an 8.1m depth of made ground. It was therefore surmised that the historical opencast coal mining recorded to the north east of the site had encroached onto the development.

2.2.2 A site scrape was undertaken in the vicinity of BH02 and proved an approximately 9m wide strip of re-engineered ground extending from the north eastern boundary into the development. The depth of re-engineered ground got shallower as it extended into the site and boreholes undertaken proved the coal here had been unworked.

2.2.3 This feature has been surveyed to enable an accurate plan of the made ground area to be overlaid on the planning layout to determine how it will affect the proposed development.

2.2.4 The investigation works indicate that this is not an extension of the opencast mineworks into the site, however, it is suspected of being a ramped access to the

base of the opencast mineworkings. No other evidence of historical mineworking was proved during the site scrape.

2.2.5 The extent of the re-engineered ground associated with the ramp excavation is shown on drawing E18/7366/18D to the rear of this report.

2.3 Additional Soil Sampling

2.3.1 Four samples of topsoil were taken and submitted for chemical analysis, the location of the samples is indicated on drawing E18/7366/18D to the rear of this letter.

2.3.2 All four samples proved clean from heavy and phytotoxic metals as well as PAH compounds and asbestos.

2.3.3 In addition to the six samples of topsoil taken from site during the original site investigations, there are ten clean topsoil samples.

3. CONCLUSIONS AND RECOMMENDATIONS

3.1 Foundations

3.1.1 Based on the findings of the additional investigation works, we would conclude that the coal seams have not been mined at shallow depth beneath the proposed development and therefore pose a negligible risk.

3.1.2 We would therefore recommend strip/trench fill foundations will be suitable for the majority of the proposed two/three storey properties on site. However, proposed finished floor levels and the influence of the trees on foundation depth will need to be taken into account to determine the final foundation type. If the coal strata is encountered within the foundation excavation, the foundations should be extended to below the coal seam and the coal seam immediately sealed with blinding cement to prevent spontaneous combustion.

3.1.3 In addition to this, due to the incursion of the area of made ground into the footprint of Plot 26 and associated double garage, piled foundations are recommended for these two properties. The piles should be pre-drilled to ensure they are not founded on the shallow coal seams encountered beneath the site and socketed a minimum of 1m into suitable natural mudstone bedrock.

3.1.4 During site clearance works, all exposed underlying strata is to be inspected for signs of bellpits or other features that may affect the proposed construction. Further investigation works may be required should any features be encountered.

3.2 Highway Construction

3.2.1 The investigation works have proven that historical shallow mine workings will not have a detrimental effect on the proposed development and that in this instance ground stabilisation works will not be required.

3.2.2 However, the entrance ramp to the former opencast mine encroaches beneath the footprint of the adoptable highway and remedial works will be required to provide a suitable formation layer to the proposed adoptable highway.

3.2.3 As part of the development, ground levels are to be raised and lowered to achieve acceptable gradients for the proposed adoptable highway, private drives and garden area. All regrading works are to be undertaken in accordance with Earthworks Specification document E19/7366/ES01.

3.2.4 In addition to the regrading works and infilling to the former opencast access, the on-site investigations in conjunction with the proposed designs have highlighted the following highway related works on site:

- The proposed back of footpath levels at the site entrance are elevated above existing ground levels on the northern boundary by approximately 200mm. The northern boundary is formed by a single skin brick wall retaining the site approximately 700mm above the land to the north of the site. It is proposed to deepen the mass concrete footings to the proposed barrier wall at the back of the footpath to prevent additional loading from the proposed highway onto the existing boundary retaining wall.
- A 1000mm highway retaining wall is required adjacent Plot 22 due to the steep nature of the exist ground levels. A mass concrete burr wall is to be constructed beneath the proposed hard margin onto the underlying natural clays.
- Due to the low allowable surface water discharge from site, in conjunction with the lack of available space to provide attenuation outside the adoptable highway, it is proposed to use 1350mm diameter concrete pipes beneath the carriageway. These are to be put forward for adoption under a Section 104 Agreement with Yorkshire Water with AIPs and Design Check Certificates to be submitted to Kirklees Council.

3.2.5 All highway work designs and specifications are to be approved by Kirklees Council Highways prior to commencing construction and inspections undertaken by suitably qualified independent engineers.

3.2.6 The location of the features mentioned in paragraphs 3.2.2 and 3.2.4 are indicated on drawing E19/7366/044 attached to the rear of this report.

3.3 Contamination Testing

3.3.1 All four samples taken during the additional site investigation works have proved clean from contamination. In addition to the original six samples this makes a total of ten clean topsoil samples taken from site.

3.3.2 Based on an average topsoil depth of 0.29m, and a site area of 8100m^2, there is approximately 2310m^3 of topsoil on site.

3.3.3 A total of ten samples from site gives a sample per 230m^3, which is more than required by YALPAG guidance which specifies one sample per 250m^3 for a greenfield site.

3.3.4 We would therefore conclude that the existing topsoil on site is suitable for re-use within the proposed domestic gardens on site. The topsoil should be scraped and stockpiled prior to construction work starting on site to prevent cross contamination during development.

We trust that the above is sufficient for your current requirements, however should you need any further information please do not hesitate to contact me direct.

Yours faithfully,

M.Dean. BSc (Hons) HND
m.dean@haighhuddleston.co.uk

Enclosure.

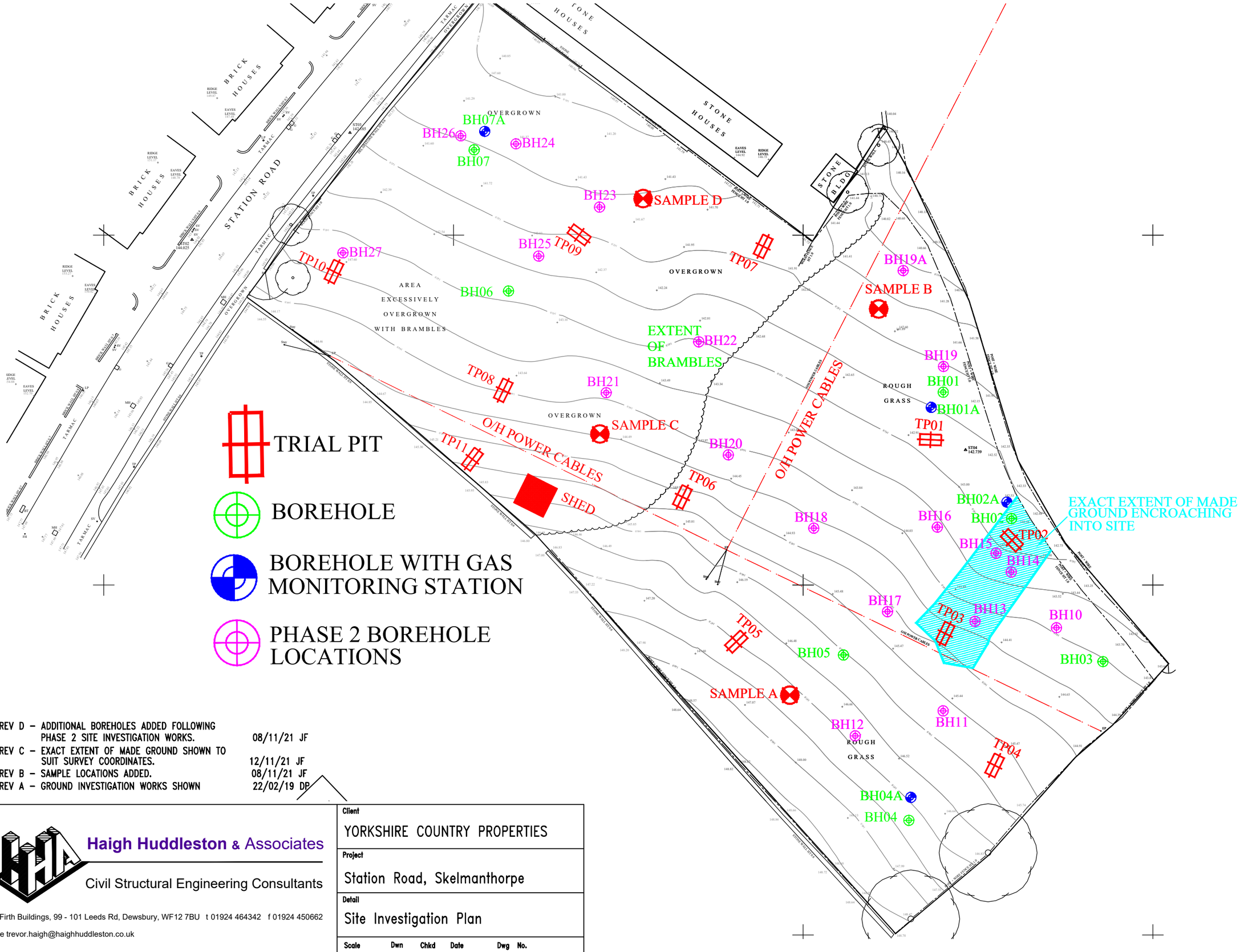
APPENDIX

SITE INVESTIGATION PLAN

BOREHOLE LOGS

CHEMICAL ANALYSIS RESULTS

HIGHWAY FEATURES/STRUCTURES PLAN



REV D – ADDITIONAL BOREHOLES ADDED FOLLOWING PHASE 2 SITE INVESTIGATION WORKS. 08/11/21 JF
REV C – EXACT EXTENT OF MADE GROUND SHOWN TO SUIT SURVEY COORDINATES. 12/11/21 JF
REV B – SAMPLE LOCATIONS ADDED. 08/11/21 JF
REV A – GROUND INVESTIGATION WORKS SHOWN 22/02/19 DP

Haigh Huddleston & Associates

Civil Structural Engineering Consultants

Firth Buildings, 99 - 101 Leeds Rd, Dewsbury, WF12 7BU t 01924 464342 f 01924 450662

e trevor.haigh@haighhuddleston.co.uk

Client: YORKSHIRE COUNTRY PROPERTIES

Project: Station Road, Skelmanthorpe

Detail: Site Investigation Plan

Scale	Dwn	Chkd	Date	Dwg No.
1/500@A3	DP	JM	14-01-19	E18/7366/03D

GSS UK

DRILLING LOG SHEET

SITE: Station road

CREW INITIALS: GP MH RIG: C6

LEAD DRILLER INITIALS	LEAD DRILLER SIGNED
GP	

DATE: 23-11-21 SHEET: 1 OF 1

EQUIPMENT USED:

BH	DEPTH	STRATA DESCRIPTION
10	000 - 0·20	Soil
	0·20 - 2·60	Clay
	2·60 - 9·00	mudstone
	9·00 - 10·10	Coal
	10·10 - 12·00	mudstone
11	000 - 0·20	Soil
	0·20 - 2·30	Clay
	2·30 - 10·30	mudstone
	10·30 - 11·30	Coal
	11·30 - 13·60	mudstone
12	000 - 0·20	Soil
	0·20 - 1·50	Clay
	1·50 - 1·80	Coal
	1·80 - 10·60	mudstone
	10·60 - 11·50	Coal
	11·50 - 13·00	mudstone
13	000 - 4·70	made ground
	4·70 - 8·80	mudstone
	8·80 - 9·80	Coal
	9·80 - 11·00	mudstone
14	000 - 7·60	made ground
	7·60 - 11·00	Hard strata
15	000 - 7·90	made ground
	7·90 - 11·00	Hard strata

BH	DEPTH	STRATA DESCRIPTION
16	000 - 0·20	Soil
	0·20 - 2·40	Clay
	2·40 - 7·80	mudstone
	7·80 - 8·80	Coal
	8·80 - 11·00	mudstone
17	000 - 0·20	Soil
	0·20 - 2·40	Clay
	2·40 - 9·30	mudstone
	9·30 - 10·20	Coal
	10·20 - 11·00	mudstone

BH	CASING DIA	CASING DEPTH

GAS READING	

TOTALS	BH's	DRILL	CASE	CORE
TODAY	8	93		
PREVIOUS	—	—		
TO DATE	8	93		

GSS UK

DRILLING LOG SHEET

SITE: Station road

CREW INITIALS: GP TP | RIG: C6

LEAD DRILLER INITIALS	LEAD DRILLER SIGNED
GP	GP

DATE: 24-11-21 | SHEET: 1 OF 2

EQUIPMENT USED:

BH	DEPTH	STRATA DESCRIPTION
18	000 - 0·20	Soil
	0·20 - 2·70	Clay
	2·70 - 9·20	mudstone
	9·20 - 10·20	Coal
	10·20 - 12·00	mudstone
19	000 - 0·20	Soil
	0·20 - 2·40	Clay
	2·40 - 6·00	mudstone
	6·00 - 6·60	Coal
	6·60 - 9·60	mudstone
	9·60 - 10·20	Coal
	10·20 - 12·00	mudstone
19A	000 - 0·20	Soil
	0·20 - 2·30	Clay
	2·30 - 4·30	mudstone
	4·30 - 4·70	Coal
	4·70 - 8·50	mudstone
	8·50 - 9·30	Coal
	9·30 - 12·00	mudstone
20	000 - 0·20	Soil
	0·20 - 2·40	Clay
	2·40 - 8·40	mudstone
	8·40 - 8·70	Coal
	8·70 - 12·40	mudstone
	12·40 - 13·00	Coal
	13·00 - 15·00	mudstone

BH	DEPTH	STRATA DESCRIPTION
22	000 - 0·20	Soil
	0·20 - 2·40	Clay
	2·40 - 7·00	mudstone
	7·00 - 7·80	Coal
	7·80 - 11·50	mudstone
	11·50 - 12·10	Coal
	12·10 - 14·00	mudstone
21	000 - 0·20	Soil
	0·20 - 2·30	Clay
	2·30 - 8·00	mudstone
	8·00 - 8·60	Coal
	8·60 - 12·40	mudstone
	12·40 - 13·00	Coal
	13·00 - 14·00	mudstone
25	000 - 0·20	Soil
	0·20 - 2·60	Clay
	2·60 - 6·00	mudstone
	6·00 - 6·60	Coal
	6·60 - 10·30	mudstone
	10·30 - 11·00	Coal
	11·00 - 12·00	mudstone
23	000 - 0·20	Soil
	0·20 - 2·40	Clay
	2·40 - 5·50	mudstone
	5·50 - 6·10	Coal
	6·10 - 9·80	mudstone

BH	CASING DIA	CASING DEPTH

GAS READING	

TOTALS	BH's	DRILL	CASE	CORE
TODAY				
PREVIOUS				
TO DATE				

GSS UK

DRILLING LOG SHEET

SITE: Station road

CREW INITIALS: GP TP | RIG: C6

LEAD DRILLER INITIALS	LEAD DRILLER SIGNED
GP	

DATE: 24-11-21 | SHEET: 2 OF 2

EQUIPMENT USED:

BH	DEPTH	STRATA DESCRIPTION
23ext	9.80 - 10.50	Coal
	10.50 - 12.00	mudstone
24	000 - 0.20	Soil
	0.20 - 2.20	Clay
	2.20 - 4.60	mudstone
	4.60 - 5.20	Coal
	5.20 - 8.80	mudstone
	8.80 - 9.40	Coal
	9.40 - 11.00	mudstone
26	000 - 0.20	Soil
	0.20 - 2.20	Clay
	2.20 - 4.30	mudstone
	4.30 - 4.90	Coal
	4.90 - 9.60	mudstone
	9.60 - 10.30	Coal
	10.30 - 12.00	mudstone
27	000 - 0.20	Soil
	0.20 - 2.00	Clay
	2.00 - 5.10	mudstone
	5.10 - 5.70	Coal
	5.70 - 9.40	mudstone
	9.40 - 10.00	Coal
	10.00 - 11.00	mudstone

BH	DEPTH	STRATA DESCRIPTION

BH	CASING DIA	CASING DEPTH

GAS READING	

TOTALS	BH's	DRILL	CASE	CORE
TODAY	11	137		
PREVIOUS	8	93		
TO DATE	19	230		

Certificate of Analysis

Certificate Number	21-24092	*Issued:*	19-Nov-21

Client Haigh Huddleston & Associates Ltd
Firth Buildings
99-101 Leeds Road
Dewsbury
WF12 7BU

Our Reference	21-24092
Client Reference	7366
Order No	(not supplied)
Contract Title	Skelmanthorpe
Description	4 Soil samples.
Date Received	11-Nov-21
Date Started	11-Nov-21
Date Completed	19-Nov-21
Test Procedures	Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Adam Fenwick
Contracts Manager

mCERTS
THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

UKAS TESTING
2139

Summary of Chemical Analysis
Matrix Descriptions

Our Ref 21-24092
Client Ref 7366
Contract Title Skelmanthorpe

Sample ID	Depth	Lab No	Completed	Matrix Description
A	0.2	1933164	19/11/2021	Dark brown slightly gravelly, sandy CLAY including odd rootlets
B	0.2	1933165	19/11/2021	Dark brown slightly gravelly, sandy CLAY including odd rootlets
C	0.2	1933166	19/11/2021	Dark brown slightly gravelly, sandy CLAY including odd rootlets
D	0.2	1933167	19/11/2021	Dark brown slightly gravelly, sandy CLAY including odd rootlets

Summary of Chemical Analysis
Soil Samples

Our Ref 21-24092
Client Ref 7366
Contract Title Skelmanthorpe

			Lab No	1933164	1933165	1933166	1933167
			.Sample ID	A	B	C	D
			Depth	0.20	0.20	0.20	0.20
			Other ID				
			Sample Type	SOIL	SOIL	SOIL	SOIL
			Sampling Date	04/11/2021	04/11/2021	04/11/2021	04/11/2021
			Sampling Time	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**				
Metals							
Arsenic	DETSC 2301#	0.2	mg/kg	17	16	26	29
Cadmium	DETSC 2301#	0.1	mg/kg	0.3	0.2	0.3	0.5
Chromium	DETSC 2301#	0.15	mg/kg	31	20	21	21
Copper	DETSC 2301#	0.2	mg/kg	34	32	49	47
Lead	DETSC 2301#	0.3	mg/kg	48	56	95	150
Mercury	DETSC 2325#	0.05	mg/kg	0.08	0.07	0.40	0.38
Nickel	DETSC 2301#	1	mg/kg	19	17	18	19
Selenium	DETSC 2301#	0.5	mg/kg	0.5	0.7	0.8	< 0.5
Zinc	DETSC 2301#	1	mg/kg	83	77	140	240
Inorganics							
pH	DETSC 2008#		pH	6.1	5.7	4.8	5.8
Thiocyanate	DETSC 2130#	0.6	mg/kg	1.8	5.0	8.7	2.8
Sulphide	DETSC 2024*	10	mg/kg	< 10	< 10	12	12
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.09	0.09	0.12	0.11
PAHs							
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.1	0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.3	1.2
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	0.2
Fluoranthene	DETSC 3301	0.1	mg/kg	0.2	0.2	0.5	1.6
Pyrene	DETSC 3301	0.1	mg/kg	0.2	0.3	0.5	1.4
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.3	0.7
Chrysene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.2	0.7
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.4	0.5
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.2	0.3
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.4	0.6
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.5	0.5
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.2	0.2
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.3	0.3
PAH Total	DETSC 3301	1.6	mg/kg	< 1.6	< 1.6	4.0	8.6
Phenols							
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	0.7	1.0	1.1	1.1

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Asbestos Analysis
Soil Samples

Our Ref 21-24092
Client Ref 7366
Contract Title Skelmanthorpe

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
1933164	A 0.20	SOIL	NAD	none	Keith Wilson
1933165	B 0.20	SOIL	NAD	none	Keith Wilson
1933166	C 0.20	SOIL	NAD	none	Keith Wilson
1933167	D 0.20	SOIL	NAD	none	Keith Wilson

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 21-24092
Client Ref 7366
Contract Skelmanthorpe

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1933164	A 0.20 SOIL	04/11/21	PT 1L		Naphthalene, PAH FID
1933165	B 0.20 SOIL	04/11/21	GJ 250ml, PT 1L		
1933166	C 0.20 SOIL	04/11/21	GJ 250ml, PT 1L		
1933167	D 0.20 SOIL	04/11/21	GJ 250ml, PT 1L		

Key: P-Plastic T-Tub G-Glass J-Jar

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETSC 2002	Organic matter	%	0.1	Air Dried	No	Yes	Yes
DETSC 2003	Loss on ignition	%	0.01	Air Dried	No	Yes	Yes
DETSC 2008	pH	pH Units	1	Air Dried	No	Yes	Yes
DETSC 2024	Sulphide	mg/kg	10	Air Dried	No	Yes	Yes
DETSC 2076	Sulphate Aqueous Extract as SO4	mg/l	10	Air Dried	No	Yes	Yes
DETSC 2084	Total Carbon	%	0.5	Air Dried	No	Yes	Yes
DETSC 2084	Total Organic Carbon	%	0.5	Air Dried	No	Yes	Yes
DETSC 2119	Ammoniacal Nitrogen as N	mg/kg	0.5	Air Dried	No	Yes	Yes
DETSC 2130	Cyanide free	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2130	Cyanide total	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2130	Phenol - Monohydric	mg/kg	0.3	Air Dried	No	Yes	Yes
DETSC 2130	Thiocyanate	mg/kg	0.6	Air Dried	No	Yes	Yes
DETSC 2321	Total Sulphate as SO4	%	0.01	Air Dried	No	Yes	Yes
DETSC 2325	Mercury	mg/kg	0.05	Air Dried	No	Yes	Yes
DETSC 3049	Sulphur (free)	mg/kg	0.75	Air Dried	No	Yes	Yes
DETSC2123	Boron (water soluble)	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC2301	Arsenic	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC2301	Barium	mg/kg	1.5	Air Dried	No	Yes	Yes
DETSC2301	Beryllium	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC2301	Cadmium Available	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC2301	Cadmium	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC2301	Cobalt	mg/kg	0.7	Air Dried	No	Yes	Yes
DETSC2301	Chromium	mg/kg	0.15	Air Dried	No	Yes	Yes
DETSC2301	Copper	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC2301	Manganese	mg/kg	20	Air Dried	No	Yes	Yes
DETSC2301	Molybdenum	mg/kg	0.4	Air Dried	No	Yes	Yes
DETSC2301	Nickel	mg/kg	1	Air Dried	No	Yes	Yes
DETSC2301	Lead	mg/kg	0.3	Air Dried	No	Yes	Yes
DETSC2301	Selenium	mg/kg	0.5	Air Dried	No	Yes	Yes
DETSC2301	Zinc	mg/kg	1	Air Dried	No	Yes	Yes
DETSC 3072	Ali/Aro C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C10-C12	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C10-C12	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C12-C16	mg/kg	1.2	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C12-C16	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C16-C21	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C16-C21	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETSC 3072	Aromatic C10-C12	mg/kg	0.9	As Received	No	Yes	Yes
DETSC 3072	Aromatic C10-C12	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aromatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aromatic C12-C16	mg/kg	0.5	As Received	No	Yes	Yes
DETSC 3072	Aromatic C12-C16	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aromatic C16-C21	mg/kg	0.6	As Received	No	Yes	Yes
DETSC 3072	Aromatic C16-C21	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETSC 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETS 062	Benzene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Ethylbenzene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Toluene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	m+p Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	o Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3311	C10-C24 Diesel Range Organics (DRO)	mg/kg	10	As Received	No	Yes	Yes
DETSC 3311	C24-C40 Lube Oil Range Organics (LORO)	mg/kg	10	As Received	No	Yes	Yes
DETSC 3311	EPH (C10-C40)	mg/kg	10	As Received	No	Yes	Yes

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETSC 3303	Acenaphthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Acenaphthylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(b)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(k)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(g,h,i)perylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Dibenzo(a,h)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Indeno(1,2,3-c,d)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Naphthalene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Phenanthrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3401	PCB 28 + PCB 31	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 52	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 101	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 118	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 153	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 138	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 180	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB Total	mg/kg	0.01	As Received	No	Yes	Yes

Method details are shown only for those determinands listed in Annex A of the MCERTS standard. Anything not included on this list falls outside the scope of MCERTS. No Recovery Factors are used in the determination of results. Results reported assume 100% recovery. Full method statements are available on request.

End of Report

HIGHWAY RETAINING WALL REQUIRE ALONG BACK OF FOOTPATH.
DESIGN & CONSTRUCTION TO BE APPROVED WITH KIRKLEES HIGHWAYS

Existing 2 storey terrace

1350Ø PRE-CAST CONCRETE PIPE REQUIRING AIP AND DESIGN CHECK CERTIFICATES.

Existing public footpath

Existing dry stone wall

Proposed footpath link

EXTENT OF MADE GROUND INFILL TO FORMER OPENCAST ENTRANCE RAMP TO BE RE-ENGINEERED.
DESIGN & CONSTRUCTION TO BE APPROVED WITH KIRKLEES HIGHWAYS

Max 1m HIGHWAY RETAINING WALL REQUIRE ALONG TANGENT.
DESIGN & CONSTRUCTION TO BE APPROVED WITH KIRKLEES HIGHWAYS

Haigh Huddleston & Associates

Civil Structural Engineering Consultants

Firth Buildings, 99 - 101 Leeds Rd, Dewsbury, WF12 7BU t 01924 464342 f 01924 450662

e martin@haighhuddleston.co.uk

Client	YORKSHIRE COUNTRY PROPERTIES
Project	Station Road, Skelmanthorpe
Detail	Highway Features/Structures Plan

Scale	Dwn	Chkd	Date	Dwg No.
1:500@A3	MD		Dec'21	E19/7366/044