



 **NKC Geotech Ltd**

engineering geologist specialising in the investigation and treatment of disused mineworkings

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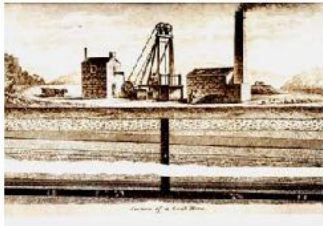
Coal Mining Investigation



Rear of 9A Stanley Road, Ponciau

Leighton Davies
251 Chester Road
Flint
Flintshire
CH6 5ED

1942
1 September 2020



NKC Geotech Ltd

Site

A plot for the development of three dwellings at the rear of 9A Stanley Road, Ponciau, Wrexham.

Risk Assessment by

Neil Catlow B.Sc F.G.S Engineering geologist.

Summary of relevant mining information

Publication CIRIA32 'Construction over Abandoned Mineworkings'
Coal Authority Report 51000371963001 dated 16th September 2013
Ordnance Survey 1:2500 First Edition 1875
Geological Survey 1:10560 plans

Nkc Geotech Ltd investigations with relevance to this site:

0540 Stanley Road June 2005
9048 Bernfels Court August 1990
9313 Stanley Road March 1993
3582 Bernfels, Fennant Road July 1983

Assessment of risk that coal mining poses to the proposed development

Geology

The site lies on Carboniferous Westphalian rocks that form the Wrexham Coalfield, dipping to the east at 1 in 8. These rocks are predominantly shales and sandstones laid down in a tropical delta environment when Europe lay on the equator as part of the continent of Pangea. Westphalian strata contains seams of coal upto 4.5m in thickness at vertical intervals typically varying from 4.0m to 20.0m. Those coal seams which were of economic importance were given an identity when they were of sufficient quality and thickness to justify extraction by mining. Typical names for local coal seams reflect primarily on quality and thickness, for example Main Coal, Yard Coal and Wall & Bench Coal.

The deepest worked coal seam is the Wall & Bench Coal at 110m below the site, but there are three shallower coal seams known to have been mined here. The shallowest seam is the Main Coal, 2.5m thick. From my previous investigations in Ponciau, this seam was thought to be present at a possible depth of 25m below the site. The Nkc site 9048 at Bernfels Court in 1990 proved the Main Coal to be deeper than 30m. The next deepest coal seam is 6m below the Main Coal and locally known as the Brassey Coal. I have encountered extensive workings in both the Main and the Brassey Coals on many sites to the west of Stanley Road in Ponciau.

Past underground coal mining

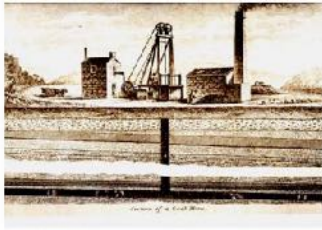
Coal mining in Rhos is recorded in 1410, most probably in the Main Coal at the Delph immediately east of High Street when the area was part of the medieval Bersham Waste, ie common land. Industrial mining deeper than the outcrop workings and simple bell pits of the 'cole farms' in the Waste dates from the 16th century. The last legal coal mining in Rhos was at Coppi Brickworks where the Llwyneinion Half Yard Coal was mined in conjunction with the underlying fireclay in 1971. The Wall & Bench Coal was mined illegally by robbing historic old workings and sold locally during the miners' strike of 1985 from outcrops at Llwyneinion.

There is one mine royalty plan of 1854 for Aberderfyn Chain Colliery under the site of workings in the Brassey Coal from No.9 Pit, 18m east of the site, but there are no plans of any workings in the Main Coal. The coal seams deeper than the Brassey Coal were principally worked in the 19th century to supply Ponciau Furnace at Gutter Hill.

Recorded mine entries on or within 20m of the site boundary

There is one recorded mine entry on or within 20m of the site.

Shaft 329346-488, Aberderfyn Chain Colliery No 9 Pit, is shown 18m east of the site close to the adjacent Bernfels Court access road. I located this shaft in July 1983 during an investigation into serious subsidence of the former dwelling Bernfels. This property was demolished and shaft treated by the NCB in February 1986. The shaft lining brickwork was



NKC Geotech Ltd

found at shallow depth immediately under the house foundations at the gable wall. The shaft was subsequently proved by drilling by NCB contractors to be sunk to the Brassey Coal at a depth of 39.6m.

Intrusive investigation

The risk to any proposed development is subsidence caused by the collapse of shallow mining tunnels where there is less than 25m of rock cover to underground workings in the Main Coal. As the Main Coal is known to have been extensively mined in the past, with the deeper Brassey Coal only 6m below the Main, there is a risk of potential instability due to past shallow coal mining activity unless there is over 25m of rock cover the Main Coal workings.. An intrusive investigation by rotary drilling 3 holes to 30m depth was carried out in order to determine the extent of any hazards.

The location of Shaft 329346-488 has been proved to be off the site and no shaft investigation was carried out.

The boreholes proved the Main Coal to be deeper than 30m under the site. No coal or evidence of mineworkings was encountered and the holes were drilled through the predominantly sandstone known locally as the Main Coal Rock. The depth of 39.6m to the Brassey Coal at Shaft 488 proved by the NCB in 1986 correlates with the results of my investigations further north on Stanley Road and with the current investigation results that the Main Coal workings are deeper than 30m under the site and too deep to affect surface stability.

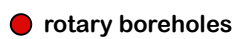
There was 1.2m of colliery derived fill overlying brown sandy clay which increases in strength with depth. Brown weathered sandstone of the Main Coal Rock lies at 3m depth. There is no necessity to take structural precautions against subsidence caused by shallow mining activity.

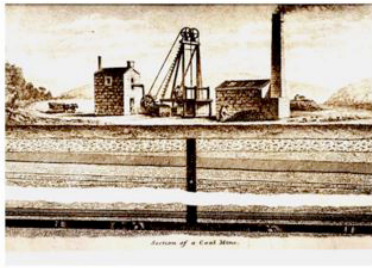
For Nkc Geotech Ltd

Neil Catlow, B.Sc, F.G.S



Scale 1:1250 @ A4





REF 1942
Bh 1

SITE
CLIENT

Rear of 9 Stanley Road, Ponciau
Leighton Davies

PRINTOUT
SCALE

25 Aug 2020
1:200

TITLE

ORIGIN

printout direct from rig on site
drilled & logged by Neil Catlow

RIG

Montabert Hydrofore

ORIENTATION

vertical

FLUSH

mains water supply

BIT

75mm T/C

DEPTH	STRATA	GRAPHIC	DESCRIPTION	SPT N value	INTERPRETATION
0.0	0.0	fill		not taken	ground level
0.5					
1.0	1.2	clay	brown, silty, with stones, firm		
1.5					
2.0					
2.5					
3.0	2.8	sandstone	brown, firm drilling		Main Coal Rock
3.5					
4.0					
4.5					
5.0					
5.5	5.6	shale	dark grey, firm drilling		
6.0					
6.5					
7.0					
7.5					
8.0	8.1	sandstone	brown, firm drilling occasional grey shale layers		
8.5					
9.0					
9.5					
10.0					
10.5					
11.0					
11.5					
12.0					
12.5					
13.0					
13.5	13.5	shale	dark grey, firm drilling		
14.0					
14.5					
15.0					
15.5					
16.0					
16.5					
17.0	17.0	sandstone	brown, firm drilling occasional grey shale layers		
17.5					
18.0					
18.5					
19.0					
19.5					
20.0					
20.5					
21.0					
21.5					
22.0					
22.5					
23.0					
23.5					
24.0	24.0	shale	dark grey, firm drilling		
24.5					
25.0					
25.5					
26.0	26.0	sandstone	brown, firm drilling occasional grey shale layers		
26.5					
27.0					
27.5					
28.0					
28.5					
29.0					
29.5					
30.0	30.0		bottom of hole		

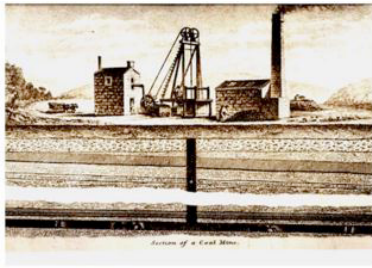


drilled and logged by
Neil Catlow B.Sc FGS

IN HOLE GAS TESTING

% O2	20.6
% CH4	0.0
% CO2	0.0
% LEL	0.0
ppm H2S	0.0
ppm CO	0.0

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www.nkc.co.uk



REF 1942
Bh 2

SITE
CLIENT

Rear of 9 Stanley Road, Ponciau
Leighton Davies

PRINTOUT
SCALE
GL AOD

26 Aug 2020
1:200

TITLE

ORIGIN

printout direct from rig on site
drilled & logged by Neil Catlow

RIG	Montabert Hydrofore
ORIENTATION	vertical
FLUSH	mains water supply
BIT	75mm T/C

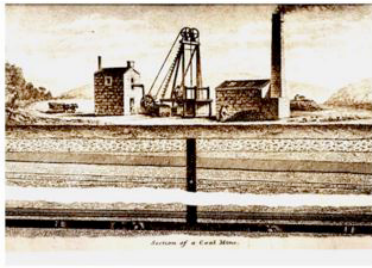
DEPTH	STRATA	GRAPHIC	DESCRIPTION	SPT N value	INTERPRETATION
0.0	0.0	fill		not taken	ground level
0.5					
1.0	1.2	clay	brown, silty, with stones, firm		
1.5					
2.0					
2.5					
3.0	3.2	sandstone	brown, firm drilling		Main Coal Rock
3.5					
4.0					
4.5					
5.0					
5.5					
6.0	6.4	shale	dark grey, firm drilling		
6.5					
7.0					
7.5					
8.0					
8.5					
9.0	8.7	sandstone	brown, firm drilling occasional grey shale layers		
9.5					
10.0					
10.5					
11.0					
11.5					
12.0					
12.5					
13.0					
13.5					
14.0					
14.5					
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24.5					
25.0					
25.5					
26.0					
26.5					
27.0					
27.5					
28.0					
28.5					
29.0					
29.5					
30.0	30.0		bottom of hole		

drilled and logged by
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IN HOLE GAS TESTING

% O ₂	20.6
% CH ₄	0.0
% CO ₂	0.0
% LEL	0.0
ppm H ₂ S	0.0
ppm CO	0.0

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REF 1942
Bh 3

SITE
CLIENT

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Leighton Davies

PRINTOUT
SCALE
GL AOD

26 Aug 2020
1:200

TITLE

ORIGIN

printout direct from rig on site
drilled & logged by Neil Catlow

RIG	Montabert Hydrofore
ORIENTATION	vertical
FLUSH	mains water supply
BIT	75mm T/C

		DEPTH	STRATA	GRAPHIC	DESCRIPTION	SPT N value	INTERPRETATION
0.0	0.0	fill				not taken	ground level
0.5							
1.0	1.2	clay			brown, silty, with stones, firm		
1.5							
2.0							
2.5							
3.0							
3.5	3.6	sandstone			brown, firm drilling occasional grey shale layers		Main Coal Rock
4.0							
4.5							
5.0							
5.5							
6.0							
6.5	6.6	shale			dark grey, firm drilling		
7.0							
7.5							
8.0							
8.5							
9.0	9.0	sandstone			brown, firm drilling occasional grey shale layers		
9.5							
10.0							
10.5							
11.0							
11.5							
12.0							
12.5	12.3	shale			dark grey, firm drilling		
13.0							
13.5							
14.0							
14.5							
15.0	15.2	sandstone			brown, firm drilling occasional grey shale layers		
15.5							
16.0							
16.5							
17.0							
17.5							
18.0							
18.5							
19.0							
19.5							
20.0							
20.5							
21.0							
21.5							
22.0							
22.5							
23.0							
23.5							
24.0	24.0	shale			dark grey, firm drilling		
24.5							
25.0							
25.5							
26.0							
26.5							
27.0							
27.5							
28.0	26.0	sandstone			brown, firm drilling occasional grey shale layers		
28.5							
29.0							
29.5							
30.0	30.0				bottom of hole		



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IN HOLE GAS TESTING

% O ₂	20.6
% CH ₄	0.0
% CO ₂	0.0
% LEL	0.0
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