SIMPSON MINING AND GEOTECHNICAL LTD

CONSULTING MINING & GEOTECHNICAL ENGINEERS

Tel/Fax: 01786 833562
email: simpsongeotec@aol.com

55 Westerlea Drive
Bridge of Allan
FK9 4DQ

MINING RISK ASSESSMENT REPORT

FOR SITE AT

BURNIEBRAE ROAD, CHAPELHALL

Client : **Mr & Mrs Andrew Milligan**
per ADR Ltd
The Nurseries
Tak-Ma-Doon Road
Kilsyth
G65 0RS

Report No : **5007/IS**

Engineer : **W. Simpson**

Issued : **31 October 2017**

2. CONTENTS.

3. SCOPE OF STUDY..

This report details the results of our investigations into the mining stability of the above site. Our report and conclusions has been based on a desk study.

It is intended to construct a new dwelling house and garage within the site boundaries.

4. DESK STUDY.

The desk study comprised an examination and study of the following maps and publications.

1. The Geological Survey of Scotland, Lanarkshire, Sheet 8 SW, 1 : 10,560, 1922.

2. The British Geological Survey, Environmental Geology Maps, Sheets NS 76 NE, 1 : 10,000, 1985.

3. The Economic Geology of the Central Coalfield of Scotland, Area 5, H.M.S.O., 1926.

4. Various mine abandonment plans held by the British Geological Survey, Edinburgh.

5. Bore numbers 4481/5 and 4481/6 obtained from the archives of the British Geological Survey.

6. The Coal Authority Interactive Maps

5. GEOLOGY.

The desk study revealed the site to be underlain by approximately 4 metres of alluvial sands and gravels which rest in turn on rock strata of the Middle Coal Measures.

The strata dip to the south-west at approximately 1 in 6.

6. FAULTS.

There are no known faults within the site boundaries or influencing distances from them.

7. SHAFTS AND ADITS.

There are no known shafts or adits within the site boundaries or influencing distances from them.

8. OPEN-CAST MINING.

No open-cast mining has taken place within 200 metres of the site boundaries.

9. REMEDIAL WORKS.

The Client has indicated that no remedial works have been carried out by the Coal Authority within the site boundaries or influencing distances from them.

10. PAST WORKING.

The desk study has revealed that no mining has taken place beneath the site, although extensive mining has taken place in the immediate site area, circa 1875-1925.

11. GAS EMISSIONS.

Since no mining has taken place beneath the site, migration of mine gases on to the site is considered to be a very low risk.

12. PRESENT.

No workings are at present taking place beneath the site.

13. FUTURE.

Workable coals lie beneath the site but given the present day attitude to deep mining it is considered that a licence to work coal beneath the site is unlikely to be given.

14. MINING STABILITY ASPECTS AND FOUNDATION DESIGN.

The general sequence of strata beneath point A, the middle of the proposed house, is approximately as given below :-

SANDS and GRAVELS	4.00
STRATA	11.00
HUMPH COAL in leaves (0.45)	11.45
STRATA	25.45
SPLINT COAL (1.17)	26.62

(All measurements in metres)

There are no records of the Splint Coal having been worked beneath the site, but in the event of unrecorded shallow workings having taken place beneath the site in this coal sufficient rock cover exists over any old workings to ensure stability. It is concluded that the site is stable with regards to this coal.

Again there are no records of the Humph Coal having been worked in this area of Chapelhall. The Humph was not a good coal being rather dirty, and being in leaves also mitigated against working it.

14. MINING STABILITY ASPECTS AND FOUNDATION DESIGN (cont).

We quote from the Mining Memoir page 77, "At Chapelhall the seam is said to be unusually variable in thickness, and this may be due to a partial "washout" which accompanied the deposition of the sandstone roof: in some places the thickness is 3 feet, but in others only 4 inches".

The British Geological Survey, Environmental Geology, Sheets NS 76 NE, also shows nomine workings beneath the site. It is concluded that the Humph Coal has not been worked beneath the site.

Other coals of workable thickness lie beneath the horizon of the Splint Coal but are deep enough to require no further consideration.

15. CONCLUSIONS AND RECOMMENDATIONS.

(1) The site is stable from a mining view point

(2) There are no known shafts or adits within the site boundaries or influencing distances from them.

(3) The engineering properties of the superficial deposits are outwith the terms of reference of this report. A trial pit investigation will be required to ascertain the engineering properties of the superficial deposits.

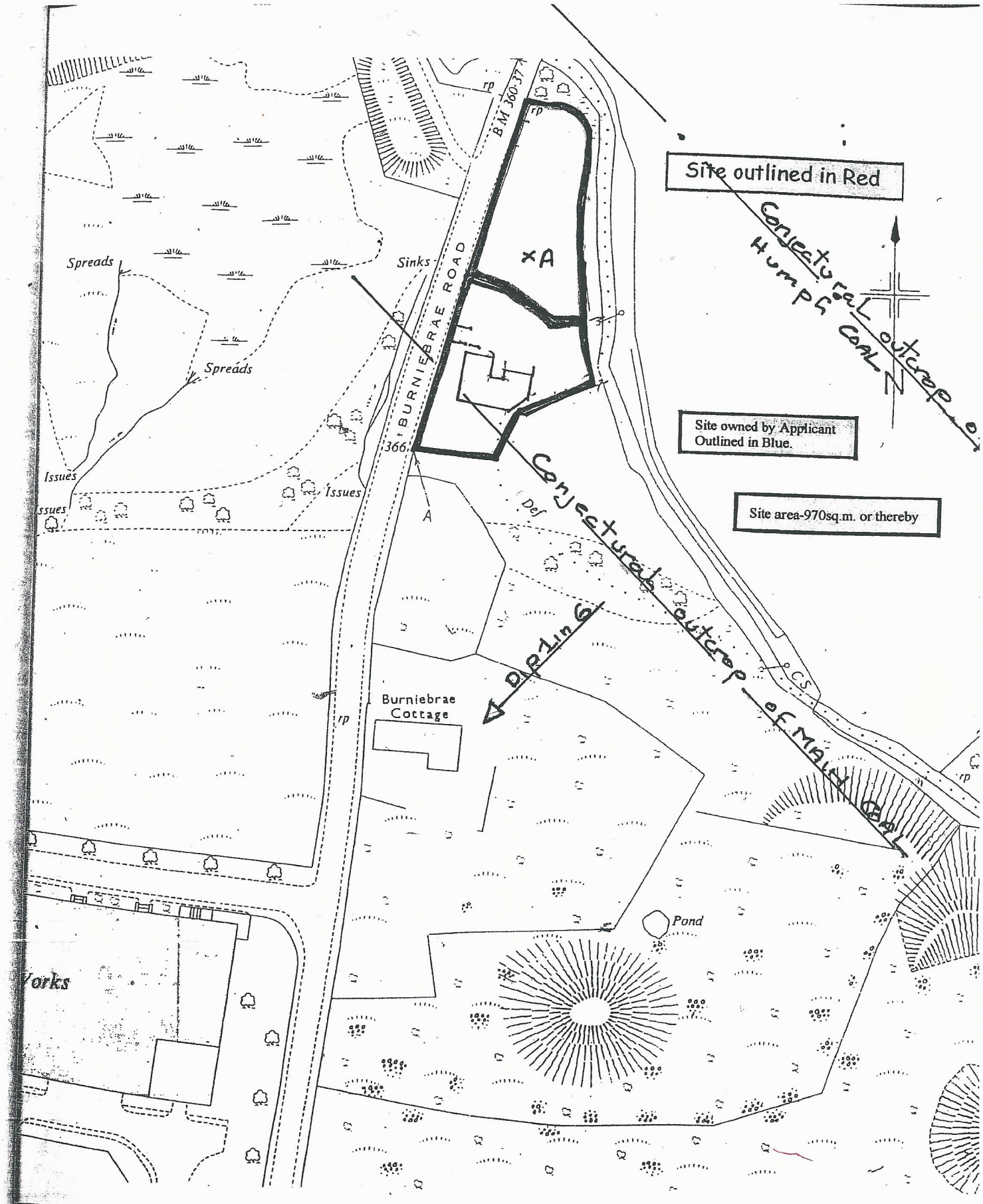
(4) No precautions are necessary in the design of the foundations from a mining view point.

W SIMPSON B.Sc.(Mining), M.Sc., C. Eng., MICE, MIHT, F.G.S.

APPENDIX

APPENDIX 1

SOLID GEOLOGY OF SITE AREA



ORDNANCE SURVEY REFERENCE	NS 7863 NW/SW

Proposed New Detached Dwelling House Adjacent Burniebrae House, Burniebrae Road, Chapelhall, Airdrie. ML6 8QB. for Mr & Mrs Andrew Milligan.

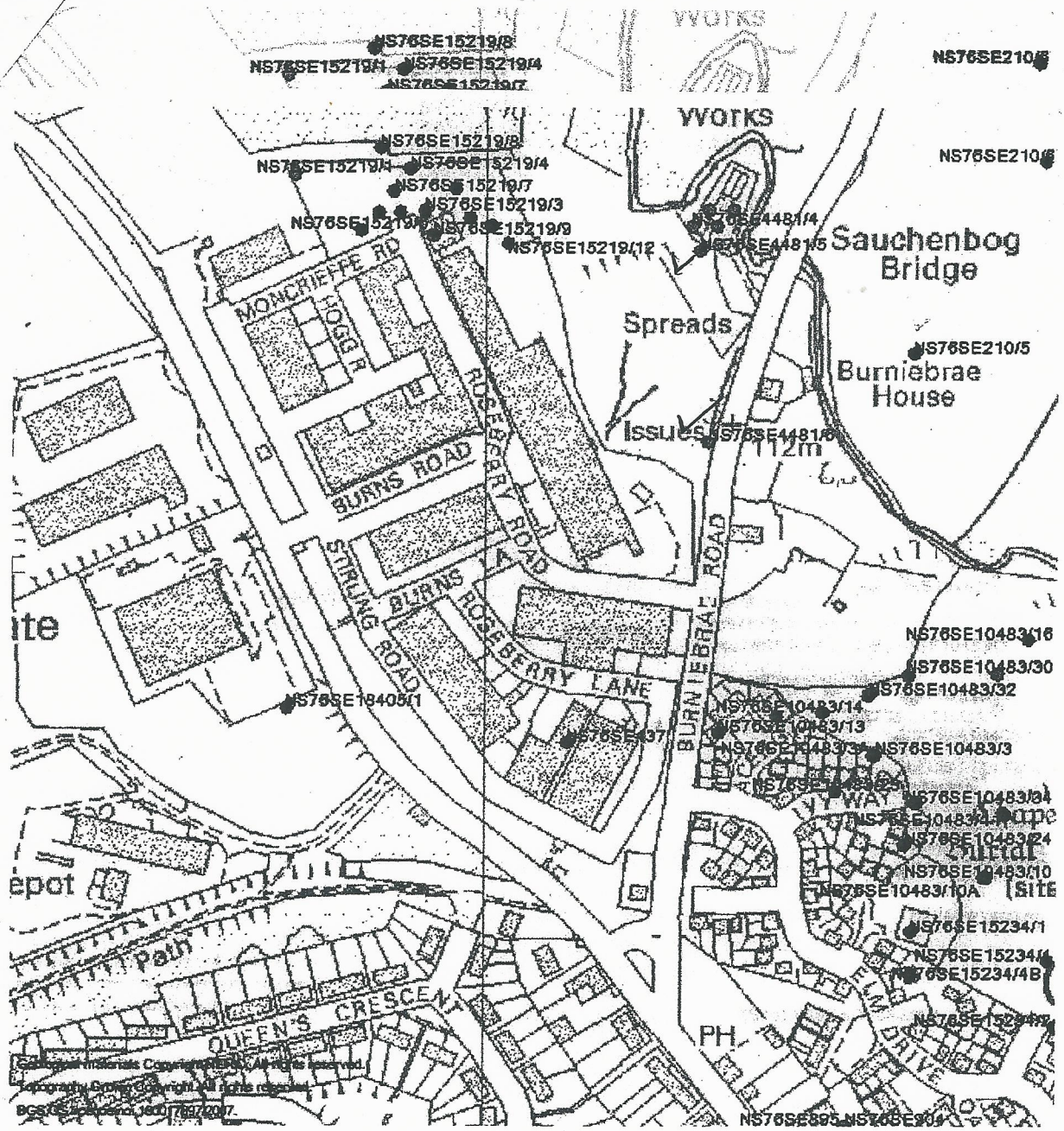
Drawing: **LOCATION PLAN**

Date	Scale	Job No.	Drawing No.	Rev.
08.17	1250	324	324/03	
By Dr				

ADR (Design) Ltd
The Nurseries
5 Tak-Ma-Doon Road
KILSYTH G65 0RS
Telephone/Fax 01236 827749

APPENDIX 2

BORE NUMBERS 4481/5 and 4481/6 OBTAINED FROM THE ARCHIVES OF THE BRITISH GEOLOGICAL SURVEY


NS76SE15219/8
NS76SE15219/1
NS76SE15219/4
NS76SE15219/7
NS76SE15219/3
NS76SE15219/9
NS76SE15219/12
NS76SE210/6
Works
NS76SE4481/4
NS76SE4481/5
Sauchenbog Bridge
Spreads
NS76SE210/5
Burniebrae House
Issues
NS76SE4481/6
112m
MONCRIEFFE RD
HOGG
BURNS ROAD
ROSEBERRY ROAD
STIRLING ROAD
BURNS ROSEBERRY LANE
BURNIEBRAE ROAD
NS76SE10483/16
NS76SE10483/30
NS76SE10483/32
NS76SE10483/14
NS76SE10483/13
NS76SE10483/3
NS76SE10483/34
NS76SE10483/24
NS76SE10483/10
NS76SE10483/10A
NS76SE15234/1
NS76SE15234/4
NS76SE15234/4B
NS76SE15234/2
NS76SE1840/1
NS76SE37
NS76SE895
NS76SE904
QUEEN'S CRESCENT
PH
DRIVE

1:4000

British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

BGS ID: 1000931 : BGS Reference: NS76SE4481/5
British National Grid (27700) : 278130,663665

Report an issue with this borehole

<< < Prev Page 1 of 2 ▼ Next > >>

BOREHOLE RECORD

LOCATION: Burniebrae Connecting Sewer JOB NO.: 4851 DATES: COMMENCED: 9.5.84 WATER LEVELS: INITIAL: Dry
BOREHOLE NO.: 5 DIAMETER: 150 mm SURFACE LEVEL: 108.78 m COMPLETED: 9.5.84 FINAL: Dry

Description	Depth (m)	Thickness (m)	Level (m)	Samples	N	w (%)	ρ (Mg/m³)	c (kN/m²)	φ (deg.)	LL (%)	PL (%)	PI (%)	Indicated Safe Bearing Capacity (kN/m²) Strip	Square
Topsoil	0.02	0.02	108.76											
Filling:- Blaes	1.30	1.28	107.48	D 0.50										
Firm brown very sandy clay	2.20	0.90	106.58	D 1.50										
Compact broken and weathered sandstone	2.50	0.30	106.28	D 2.30										
Very soft grey shaley sandstone	2.75	0.25	106.03	D 2.60										
Soft grey shale with thin layers of shaley sandstone	3.45	0.70	105.33	D 3.00										
Hard sandstone	3.50	0.05	105.28											

Remarks: SO_3 at 0.50metres = 0.01% pH at 0.50metres = 7.5
SO_3 at 1.50metres = 0.01% pH at 1.50metres = 7.0

Symbols: N - Number of blows in Standard Penetration Test w - Natural moisture content ρ - Natural bulk density c - Apparent cohesion φ - Angle of internal friction
LL - Liquid limit PL - Plastic limit PI - Plasticity index U - 100 mm diameter undisturbed sample D - Disturbed sample B - Bulk sample

NICHOLSON (SITE INVESTIGATION) LIMITED, BATHGATE ROAD, ARMADALE

British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

BGS ID: 1000932 : BGS Reference: NS76SE4481/6
British National Grid (27700) : 278135,663545
Report an issue with this borehole

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BOREHOLE RECORD

LOCATION: Burnlebrae Connecting Sewer JOB NO.: 4851 DATES: COMMENCED: 9.5.84 WATER LEVELS: INITIAL: Dry
BOREHOLE NO.: 6 DIAMETER: 150 mm SURFACE LEVEL: 115.43 m COMPLETED: 9.5.84 FINAL: Dry

Description	Depth (m)	Thickness (m)	Level (m)	Samples	N	w (%)	ρ (Mg/m³)	c (kN/m²)	φ (deg.)	LL (%)	PL (%)	PI (%)	Indicative Safe Bearing Capacity (kN/m²) Strip	Square
Filling:- Topsoil and clay	0.25	0.25	115.18	D 0.50										
Filling:- Compact broken shale and sandstone with brown very sandy clay	0.90	0.65	114.53	D 1.50										
Firm brown silty sandy clay with traces of broken and weathered sandstone	2.15	1.25	113.28	D 2.50										
Stiff dark brown changing to dark grey sandy boulder clay	6.00	3.85	109.43	D 3.50 D 4.50 D 5.50										

Remarks. SO_3 at 0.50metres = 0.01% pH at 0.50metres = 7.0
SO_3 at 1.50metres = 0.01% pH at 1.50metres = 7.0

Symbols: N - Number of blows in Standard Penetration Test w - Natural moisture content ρ - Natural bulk density c - Apparent cohesion φ - Angle of internal friction
LL - Liquid limit PL - Plastic limit PI - Plasticity index U - 100 mm diameter undisturbed sample D - Disturbed sample B - Bulk sample

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