

Our Ref C4945/25/E/7875/GM
8th August 2025

Linfit Developments Ltd
Unit 1 Linfit Court,
Huddersfield,
West Yorkshire,
HD8 9WL



For the attention of Linfit Developments Ltd,

To whom it may concern,

Ref: 11 Wood Street, Skelmanthorpe.

Further to our report on a geo-environmental investigation (C4945/25/E/7875) which was presented in June 2025, we have now completed the gas monitoring and present our findings.

Monitoring

Gas monitoring standpipes were installed to a depth of 4m in boreholes WS01, WS02 and WS03, the locations of which are provided on the site plan presented as Appendix 1 of the geo-environmental report. Visits were made to the site between the 13th June and 4th August 2025. The results of this work are tabulated below.

Table 1: Gas Monitoring								
Location	Date	CH ₄ (%)	CO ₂ (%)	O ₂ (%)	Flow	Barometric Pressure (mb)	Water Level (m)	Standpipe Depth (m)
WS01	13.06.25	0.0	0.3	21.0	0.0	1017↑	Dry	4.11
	19.06.25	0.0	0.2	21.3	0.0	1026↑	Dry	
	26.06.25	0.0	0.2	21.1	0.0	1009↓	Dry	
	30.06.25	0.0	0.2	21.1	0.0	1017↓	Dry	
	09.07.25	0.0	0.3	21.1	0.0	1022↑	Dry	
	04.08.25	0.0	0.3	21.1	0.0	1010↓	Dry	
WS02	13.06.25	0.0	0.5	20.6	0.0	1017↑	Dry	4.08
	19.06.25	0.0	0.5	20.9	0.0	1026↑	Dry	
	26.06.25	0.0	0.4	20.7	0.0	1009↓	Dry	
	30.06.25	0.0	0.4	21.1	0.0	1017↓	Dry	
	09.07.25	0.0	0.4	20.8	0.0	1022↑	Dry	
	04.08.25	0.0	0.6	20.8	0.0	1010↓	Dry	
WS03	13.06.25	0.0	2.3	18.8	0.0	1017↑	Dry	4.08
	19.06.25	0.0	2.9	18.4	0.0	1026↑	Dry	
	26.06.25	0.0	3.0	18.5	0.0	1009↓	Dry	
	30.06.25	0.0	2.0	19.2	0.0	1017↓	Dry	
	09.07.25	0.0	4.1	18.2	0.0	1022↑	Dry	
	04.08.25	0.0	2.4	19.3	0.0	1010↓	Dry	

↑ rising pressure

↓ falling pressure

→ steady pressure



Environmental
Geotechnical
Specialists

Rogers Geotechnical Services Ltd
Offices 1 & 2 Barncliffe Business Park, Near Bank, Shelley, Huddersfield, HD8 8LU
☎ 01484 604354 Company No. 5130864

The monitoring visits were undertaken using a GFM Series (serial No 13747/270525) gas monitor which was last calibrated on the 27th May 2025.

Gas Concentrations

With respect to ground gas, the results of the completed monitoring regime indicated a maximum concentration of 0.0% methane, with concentrations of carbon dioxide ranging between 0.2% and 4.1% in association with oxygen levels of between 18.2% and 21.3%. It should be appreciated that on non-contaminated sites there is generally about 20% by volume of oxygen, associated with low levels of carbon dioxide. In addition, a maximum flow rate of 0.0 litres per hour was recorded, as such, a presumed value of 0.1% will be employed in any calculations.

The principal driving force for initiating the movement of gas in the ground is a change in barometric pressure. The most onerous gas condition on a site is usually observed on days of low or falling barometric pressure, preferably below 1000mb. It has been noted that measurements undertaken solely during high pressure conditions may be of lesser value. At this site the readings undertaken to date were at atmospheric pressures of between 1017mb and 1026mb.

In view of the above, it may be appreciated that the continued gas monitoring has revealed no increases in methane concentrations or flow rates. However, levels of carbon dioxide have increased slightly during the extended monitoring, therefore, the risk assessment and remediation strategy provided in the geo-environmental report should be considered with the comments below.

Risk Assessment

In order to establish the gas screening value (GSV) for carbon dioxide or methane, the maximum gas concentration (expressed as a decimal) is multiplied by the borehole flow rate (l/hr). In this case 0.0% (0.000) methane was recorded along with 4.1% (0.041) carbon dioxide, in association with a maximum flow rate of 0.1 l/hr. This results in a negligible GSV for methane and a GSV of 0.0041 l/hr for carbon dioxide.

In accordance with Table 8.5, *Modified Wilson and Card classification* of the CIRIA report C665, *Assessing risks posed by ground gasses to building*, the site may be characterised as *Characteristic Situation Level 1*. It is therefore considered that there is a very low risk of harm to end users and site operatives and no special precautionary measures are required in accordance to Table 8.6, *Typical scope of gas protection measures*, of CIRIA report C665.

With regard to the number of monitoring visits required reference is made to Tables 5.5a and 5.5b of CIRIA report C665 (2007)¹.

¹ Adapted from tables 5.5a and 5.5b of CIRIA C665, 2007, *Assessing risks posed by hazardous ground gas to buildings*, p60.



Accepting that the proposed development is of high sensitivity (houses) and that the generation potential is very low, these tables suggest that 6 readings could be undertaken over a period of at least 3 months. However, C665 notes that *not all sites will require gas monitoring for the period and frequency indicated in Tables 5.5a and 5.5b*. In this case, a total of 6 monitoring visits were undertaken over a three-month time period.

In view of the above it is considered that with respect to gas monitoring, the site is fully characterised.

Remediation Strategy for Ground Gas

As a consequence of the above, the site may be characterised as *Characteristic Situation Level 1*. It should be appreciated that the final monitoring regime has reinforced the characterisation of a low risk. As such, no specific remediation will be required to protect against bulk ground gases.

References

- British Standards Institution (2013), BS 8576 Guidance on Investigations for Ground Gas – Permanent Gases and Volatile Organic Compounds.
- British Standards Institution (2015 +A1:2019) BS8485: *Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings*, B.S.I., London.
- CIRIA Report C665, *Assessing risks posed by ground gasses to building*.



We trust that this information is of interest and should you have any other requirements do not hesitate to contact us.

For Rogers Geotechnical Services Ltd,

Yours Faithfully,

Steven Hale BSc FGS
Geo-environmental Technician

<ENVIRONMENTAL><GEOTECHNICAL>



Rogers Geotechnical Services Ltd
Offices 1 & 2 Barncliffe Business Park, Near Bank, Shelley, Huddersfield, HD8 8LU
☎ 01484 604354 Company No. 5130864

[illegible]

[illegible]

[illegible]

Post Fieldworks Discrete Well Monitoring Site Record																																																																																																																																																																																															
Job No:	C/4945/25/E/7875					Client:	Linfit Developments Ltd.					Visit:	4	Of	6																																																																																																																																																																																
Site:	11 Wood Street, Skelmanthorpe, HD8 9BN					Date:	30.06.2025																																																																																																																																																																																								
 Rogers Geotechnical Services Ltd , Offices 1 & 2 Barncliffe Business Park, Shelley, Huddersfield, HD8 8LU Tel: 01484 604 354 enquiries@rogersgeotech.co.uk																																																																																																																																																																																															
Location ID	Methane (%)		Carbon Dioxide (%)		Carbon Monoxide (ppm)		Hydrogen Sulphide (ppm)		Oxygen (%)		VOCs (ppm)		Flowrate (l/hr)		Water Depth (m)	Well Depth (m)	Installed Depth (m)	Comments																																																																																																																																																																													
	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Minimum	Steady	Peak	Steady	Peak																																																																																																																																																																																	
1	0	0	0.2	0.2	0	0	0	0	21.1	21.2			0	0	DRY	4.11		Started at 11:47																																																																																																																																																																													
2	0	0	0.4	0.4	0	0	0	0	21.1	21.1			0	0	DRY	4.08																																																																																																																																																																															
3	0	0	2	2	0	0	0	0	19.2	19.2			0	0	DRY	4.08																																																																																																																																																																															
Max	0	0	2	2	0	0	0	0	21.1	21.2	0	0	0	0	0																																																																																																																																																																																
Min.	0	0	0.2	0.2	0	0	0	0	19.2	19.2	0	0	0	0	0																																																																																																																																																																																
ND - Not detected DRY - No water in well NM - Not Monitored (State Reason in comments)																																																																																																																																																																																															
<table border="1"> <thead> <tr> <th colspan="2">Meteorological & Site Information</th> <th colspan="8">Monitor Technical Specifications</th> <th colspan="3">Monitoring Period Summary (All Visits)</th> </tr> </thead> <tbody> <tr> <td colspan="2">General Ground Condition</td> <td colspan="8">Gas Monitor Used: GFM Series</td> <td></td> <td></td> <td></td> <td>Peak</td> <td>Steady</td> </tr> <tr> <td colspan="2">Precipitation</td> <td colspan="8">Serial No: 13747/270525</td> <td></td> <td></td> <td></td> <td>Max CH₄</td> <td>0.0</td> <td>0.0</td> </tr> <tr> <td colspan="2">Wind</td> <td colspan="8">Monitor Gas Range CH₄ 5>60 CO₂ 5<40 O₂ 21.2</td> <td></td> <td></td> <td></td> <td>Max CO₂</td> <td>3.0</td> <td>2.0</td> </tr> <tr> <td colspan="2">Temperature</td> <td colspan="8">Gas Flow Range 0-10 l/hr</td> <td></td> <td></td> <td></td> <td>Max CO</td> <td>0</td> <td>0</td> </tr> <tr> <td colspan="2">Barometric Pressure</td> <td colspan="8">Date of Calibration 27.05.2025</td> <td></td> <td></td> <td></td> <td>Max H₂S</td> <td>0</td> <td>0</td> </tr> <tr> <td colspan="2">Pressure Trend</td> <td colspan="8">PID Monitor (If used)</td> <td></td> <td></td> <td></td> <td>Max O₂</td> <td>21.3</td> <td>21.2</td> </tr> <tr> <td colspan="2"></td> <td colspan="8">PID Monitor Serial No.</td> <td></td> <td></td> <td></td> <td>Min O₂</td> <td>19.2</td> <td>19.2</td> </tr> <tr> <td colspan="2"></td> <td colspan="8">Calibration Date.</td> <td></td> <td></td> <td></td> <td>Flow rate</td> <td>0.0</td> <td>0.0</td> </tr> <tr> <td colspan="12"></td> <td></td> <td></td> <td></td> <td>Start</td> <td>End</td> </tr> <tr> <td colspan="2">Operative Details.</td> <td colspan="8">M.Tuck</td> <td></td> <td></td> <td></td> <td>Barometric Pressure</td> <td>1017</td> <td>1017</td> </tr> </tbody> </table>																			Meteorological & Site Information		Monitor Technical Specifications								Monitoring Period Summary (All Visits)			General Ground Condition		Gas Monitor Used: GFM Series											Peak	Steady	Precipitation		Serial No: 13747/270525											Max CH ₄	0.0	0.0	Wind		Monitor Gas Range CH ₄ 5>60 CO ₂ 5<40 O ₂ 21.2											Max CO ₂	3.0	2.0	Temperature		Gas Flow Range 0-10 l/hr											Max CO	0	0	Barometric Pressure		Date of Calibration 27.05.2025											Max H ₂ S	0	0	Pressure Trend		PID Monitor (If used)											Max O ₂	21.3	21.2			PID Monitor Serial No.											Min O ₂	19.2	19.2			Calibration Date.											Flow rate	0.0	0.0																Start	End	Operative Details.		M.Tuck											Barometric Pressure	1017	1017
Meteorological & Site Information		Monitor Technical Specifications								Monitoring Period Summary (All Visits)																																																																																																																																																																																					
General Ground Condition		Gas Monitor Used: GFM Series											Peak	Steady																																																																																																																																																																																	
Precipitation		Serial No: 13747/270525											Max CH ₄	0.0	0.0																																																																																																																																																																																
Wind		Monitor Gas Range CH ₄ 5>60 CO ₂ 5<40 O ₂ 21.2											Max CO ₂	3.0	2.0																																																																																																																																																																																
Temperature		Gas Flow Range 0-10 l/hr											Max CO	0	0																																																																																																																																																																																
Barometric Pressure		Date of Calibration 27.05.2025											Max H ₂ S	0	0																																																																																																																																																																																
Pressure Trend		PID Monitor (If used)											Max O ₂	21.3	21.2																																																																																																																																																																																
		PID Monitor Serial No.											Min O ₂	19.2	19.2																																																																																																																																																																																
		Calibration Date.											Flow rate	0.0	0.0																																																																																																																																																																																
															Start	End																																																																																																																																																																															
Operative Details.		M.Tuck											Barometric Pressure	1017	1017																																																																																																																																																																																

[illegible]