

Ground Gas and Groundwater Monitoring Record Sheet



JOB DETAILS:

Client: Hartwood Estates Ltd
Site: Sheffield Road, Birdwell
Date: 09/05/2008

Job No: C1634
Visit No: 1 of 6
Operator: SA **Project Manager:** MB

	GAS CONCENTRATIONS												VOLATILES		FLOW DATA				WELL AND WATER DATA			Strata sealed into
Monitoring Point	Methane (%v/v)		%LEL		Carbon dioxide (%v/v)		Carbon monoxide (ppmv)		Hydrogen sulphide (ppmv)		Oxygen (%v/v)		PID Peak (ppm)	Product thickness (mm)	Flow rate (l/hr)		Differential borehole Pressure (Pa)	Time for flow to equalise (secs)	Water level (mbgl)	Depth of well (m)	Response Zone	
	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady			Peak	Steady						
BHR1	Readings not available due to missing gas tap																				0.50m to 2.00m	Made Ground
BHR1A	ND	ND	ND	ND	1.1	1.1	2.0	2.0	ND	ND	18.5	18.5	1.0	ND	ND	ND	ND	ND	Dry	5.00	1.00m to 5.00m	Sandstone
BHR2	ND	ND	ND	ND	1.7	1.7	6.0	6.0	ND	ND	13.3	13.3	4.9	ND	ND	ND	ND	ND	Dry	4.00	1.00m to 4.00m	Made Ground
BHR3	0.4	0.4	9.1	9.1	1.3	1.3	21.0	21.0	26.0	26.0	18.2	18.2	27.3	ND	ND	ND	ND	ND	12.30	30.00	2.00m to 30.00m	Sandstone
Max	0.4	0.4	9.1	9.1	1.7	1.7	21.0	21.0	26.0	26.0	18.5	18.5	27.3	ND	ND	ND	ND	ND	12.30	30.00		
Min	ND	ND	ND	ND	1.1	1.1	2.0	2.0	ND	ND	13.3	13.3	1.0	ND	ND	ND	ND	ND	Dry	4.00		
GSV (l/hr)	0.0004				0.0017																	

METEOROLOGICAL AND SITE INFORMATION:

(Select correct box with X or enter data, as applicable)

State of ground: ☒ Dry ☐ Moist ☐ Wet ☐ Snow ☐ Frozen
 Wind: ☐ Calm ☒ Light ☐ Moderate ☐ Strong
 Cloud cover: ☐ None ☐ Slight ☒ Cloudy ☐ Overcast
 Precipitation: ☒ None ☐ Slight ☐ Moderate ☐ Heavy
 Barometric pressure (mbar): ☐ 999 Before ☐ 999 After
 Pressure trend: ☐ Falling ☐ Steady ☐ Rising
 Air Temperature (Deg. C): ☐ Before ☐ After

INSTRUMENTATION TECHNICAL SPECIFICATIONS:

Ground gas meter: GFM 430

Gas concentration: **CH₄** 0.2% @ 5%, 1.0% @ 30%, 3.0% @ 100%

CO₂ 0.1% @ 10%, 3.0% @ 30%, 3.0% @ 100%

O₂ 0.50%

Gas Range: **CH₄** 0 - 100% **CO₂** 0 - 100% **O₂** 0 - 25%

Gas Flow range: (+/-) 30 l/hour

Differential Pressure: (+/-) 1000 Pa

Date of last calibration: 27/09/2007

Date of next calibration: 27/09/2008

PID: Phocheck 3000

Calibrated range: 0.1 - 10,000 ppm

Calibration gas: i - C₂H₆

Response time: < 1 sec

Accuracy: (+/-) 5%

Date of last calibration: 24/10/2007

Date of next calibration: 24/10/2008

Ground Gas and Groundwater Monitoring Record Sheet



JOB DETAILS:

Client: Hartwood Estates Ltd
Site: Sheffield Road, Birdwell
Date: 23/05/2008

Job No: C1634
Visit No: 2 of 6
Operator: SA

Project Manager: MB

		GAS CONCENTRATIONS												VOLATILES		FLOW DATA				WELL AND WATER DATA			Strata sealed into
Monitoring Point	Methane (%v/v)		%LEL		Carbon dioxide (%v/v)		Carbon monoxide (ppmv)		Hydrogen sulphide (ppmv)		Oxygen (%v/v)		PID Peak (ppm)	Product thickness (mm)	Flow rate (l/hr)		Differential borehole Pressure (Pa)	Time for flow to equalise (secs)	Water level (mbgl)	Depth of well (m)	Response Zone		
	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady			Peak	Steady							
BHR1	ND	ND	ND	ND	ND	ND	2.0	2.0	ND	ND	21.2	21.2	2.0	ND	ND	ND	ND	Dry	1.00	0.50m to 2.20m	Made Ground		
BHR1A	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	21.2	21.2	0.6	ND	ND	ND	ND	Dry	5.00	1.00m to 5.00m	Sandstone		
BHR2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	21.0	21.0	8.4	ND	ND	ND	ND	Dry	4.00	1.00m to 4.00m	Made Ground		
BHR3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	21.2	21.2	12.2	ND	ND	ND	ND	13.36	30.00	2.00m to 30.00m	Sandstone		
Max	ND	ND	ND	ND	ND	ND	2.0	2.0	ND	ND	21.2	21.2	12.2	ND	ND	ND	ND	13.36	30.00				
Min	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	21.0	21.0	0.6	ND	ND	ND	ND	Dry	1.00				
GSV (l/hr)	NA				NA																		

METEOROLOGICAL AND SITE INFORMATION:

(Select correct box with X or enter data, as applicable)

State of ground: ☒ Dry ☐ Moist ☐ Wet ☐ Snow ☐ Frozen
 Wind: ☐ Calm ☒ Light ☐ Moderate ☐ Strong
 Cloud cover: ☐ None ☒ Slight ☒ Cloudy ☐ Overcast
 Precipitation: ☒ None ☐ Slight ☐ Moderate ☐ Heavy
 Barometric pressure (mbar): Before After
 Pressure trend: ☐ Falling ☐ Steady ☐ Rising
 Air Temperature (Deg. C): Before After

INSTRUMENTATION TECHNICAL SPECIFICATIONS:

Ground gas meter: GFM 430
 Gas concentration: **CH₄** 0.2% @ 5%, 1.0% @ 30%, 3.0% @ 100% **CO₂** 0.1% @ 10%, 3.0% @ 30%, 3.0% @ 100% **O₂** 0.50%
 Gas Range: **CH₄** 0 - 100% **CO₂** 0 - 100% **O₂** 0 - 25%
 Gas Flow range: (+/-) 30 l/hour
 Differential Pressure: (+/-) 1000 Pa
Date of last calibration: 27/09/2007
Date of next calibration: 27/09/2008
PID: Phocheck 3000
 Calibrated range: 0.1 - 10,000 ppm
 Calibration gas: i - C₂H₆
 Response time: < 1 sec
 Accuracy: (+/-) 5%
Date of last calibration: 24/10/2007
Date of next calibration: 24/10/2008

Ground Gas and Groundwater Monitoring Record Sheet



JOB DETAILS:

Client: Hartwood Estates Ltd
Site: Sheffield Road, Birdwell
Date: 06/06/2008

Job No: C1634
Visit No: 3 of 6
Operator: SA

Project Manager: MB

	GAS CONCENTRATIONS												VOLATILES		FLOW DATA				WELL AND WATER DATA				Response zone, sealed into
Monitoring Point	Methane (%v/v)		%LEL		Carbon dioxide (%v/v)		Carbon monoxide (ppmv)		Hydrogen sulphide (ppmv)		Oxygen (%v/v)		PID Peak (ppm)	Product thickness (mm)	Flow rate (l/hr)		Differential borehole Pressure (Pa)	Time for flow to equalise (secs)	Water level (mbgl)	Depth of well (m)	Response Zone		
	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady			Peak	Steady							
BHR1	ND	ND	ND	ND	ND	ND	1.0	1.0	ND	ND	20.7	20.7	ND	ND	ND	ND	ND	ND	Dry	1.00	0.50m to 2.20m	Made Ground	
BHR1A	ND	ND	ND	ND	ND	ND	3.0	3.0	ND	ND	20.5	20.5	0.9	ND	ND	ND	ND	ND	Dry	5.00	1.00m to 5.00m	Sandstone	
BHR2	ND	ND	ND	ND	ND	ND	3.0	3.0	ND	ND	21.1	21.1	0.2	ND	ND	ND	ND	ND	Dry	4.00	1.00m to 4.00m	Made Ground	
BHR3	ND	ND	ND	ND	3.0	3.0	4.0	4.0	ND	ND	9.6	9.6	12.7	ND	ND	ND	ND	ND	12.00	30.00	2.00m to 30.00m	Sandstone	
Max	ND	ND	ND	ND	3.0	3.0	4.0	4.0	ND	ND	21.1	21.1	12.7	ND	ND	ND	ND	ND	12.00	30.00			
Min	ND	ND	ND	ND	ND	ND	1.0	1.0	ND	ND	9.6	9.6	ND	ND	ND	ND	ND	ND	Dry	1.00			
GSV (l/hr)	NA				0.003																		

METEOROLOGICAL AND SITE INFORMATION:

(Select correct box with X or enter data, as applicable)

State of ground: ☒ Dry ☐ Moist ☐ Wet ☐ Snow ☐ Frozen
 Wind: ☐ Calm ☒ Light ☐ Moderate ☐ Strong
 Cloud cover: ☐ None ☐ Slight ☒ Cloudy ☐ Overcast
 Precipitation: ☒ None ☐ Slight ☐ Moderate ☐ Heavy
 Barometric pressure (mbar): ☐ 1001 Before ☐ 1001 After
 Pressure trend: ☒ Falling ☐ Steady ☐ Rising
 Air Temperature (Deg. C): ☐ Before ☐ After

INSTRUMENTATION TECHNICAL SPECIFICATIONS:

Ground gas meter: GFM 430

Gas concentration: **CH₄** 0.2% @ 5%, 1.0% @ 30%, 3.0% @ 100%

CO₂ 0.1% @ 10%, 3.0% @ 30%, 3.0% @ 100%

O₂ 0.50%

Gas Range: **CH₄** 0 - 100% **CO₂** 0 - 100% **O₂** 0 - 25%

Gas Flow range: (+/-) 30 l/hour

Differential Pressure: (+/-) 1000 Pa

Date of last calibration: 27/09/2007

Date of next calibration: 27/09/2008

PID: Phocheck 3000

Calibrated range: 0.1 - 10,000 ppm

Calibration gas: i - C₂H₆

Response time: < 1 sec

Accuracy: (+/-) 5%

Date of last calibration: 24/10/2007

Date of next calibration: 24/10/2008

Ground Gas and Groundwater Monitoring Record Sheet



JOB DETAILS:

Client: Hartwood Estates Ltd
Site: Sheffield Road, Birdwell
Date: 20/06/2008

Job No: C1634
Visit No: 4 of 6
Operator: SA

Project Manager: MB

	GAS CONCENTRATIONS												VOLATILES		FLOW DATA				WELL AND WATER DATA			Comments
Monitoring Point	Methane (%v/v)		%LEL		Carbon dioxide (%v/v)		Carbon monoxide (ppmv)		Hydrogen sulphide (ppmv)		Oxygen (%v/v)		PID Peak (ppm)	Product thickness (mm)	Flow rate (l/hr)		Differential borehole Pressure (Pa)	Time for flow to equalise (secs)	Water level (mbgl)	Depth of well (m)	Response Zone	
	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady			Peak	Steady						
BHR1	ND	ND	ND	ND	ND	ND	1.0	1.0	ND	ND	20.7	20.7	ND	NA	ND	ND	ND		Dry	1.00	0.50m to 2.20m	Made Ground
BHR1A	ND	ND	ND	ND	ND	ND	3.0	3.0	ND	ND	20.5	20.5	0.9	NA	ND	ND	ND		Dry	5.00	1.00m to 5.00m	Sandstone
BHR2	ND	ND	ND	ND	ND	ND	3.0	3.0	ND	ND	21.1	21.1	0.2	NA	ND	ND	ND		Dry	4.00	1.00m to 4.00m	Made Ground
BHR3	ND	ND	ND	ND	3.0	3.0	4.0	4.0	ND	ND	9.6	9.6	12.7	NA	ND	ND	ND		12.00	30.00	2.00m to 30.00m	Sandstone
Max	ND	ND	ND	ND	3.0	3.0	4.0	4.0	ND	ND	21.1	21.1	12.7	NA	ND	ND	ND		12.00	30.00		
Min	ND	ND	ND	ND	ND	ND	1.0	1.0	ND	ND	9.6	9.6	ND	NA	ND	ND	ND		Dry	1.00		
GSV (l/hr)	NA				0.003																	

METEOROLOGICAL AND SITE INFORMATION:

(Select correct box with X or enter data, as applicable)

State of ground:	☒ Dry	☐ Moist	☐ Wet	☐ Snow	☐ Frozen
Wind:	☐ Calm	☒ Light	☐ Moderate	☐ Strong	
Cloud cover:	☐ None	☒ Slight	☐ Cloudy	☐ Overcast	
Precipitation:	☐ None	☒ Slight	☐ Moderate	☐ Heavy	
Barometric pressure (mbar):		1001 Before		1001 After	
Pressure trend:		☐ Falling	☒ Steady	☐ Rising	
Air Temperature (Deg. C):		☐ Before		☐ After	

INSTRUMENTATION TECHNICAL SPECIFICATIONS:

Ground gas meter: GFM 430

Gas concentration: **CH₄** 0.2% @ 5%, 1.0% @ 30%, 3.0% @ 100%

CO₂ 0.1% @ 10%, 3.0% @ 30%, 3.0% @ 100%

O₂ 0.50%

Gas Range: **CH₄** 0 - 100% **CO₂** 0 - 100% **O₂** 0 - 25%

Gas Flow range: (+/-) 30 l/hour

Differential Pressure: (+/-) 1000 Pa

Date of last calibration: 27/09/2007

Date of next calibration: 27/09/2008

PID: Phocheck 3000

Calibrated range: 0.1 - 10,000 ppm

Calibration gas: i - C₂H₈

Response time: < 1 sec

Accuracy: (+/-) 5%

Date of last calibration: 24/10/2007

Date of next calibration: 24/10/2008

Ground Gas and Groundwater Monitoring Record Sheet



JOB DETAILS:

Client: Hartwood Estates Ltd
Site: Sheffield Road, Birdwell
Date: 03/07/2008

Job No: C1634
Visit No: 5 of 6
Operator: JCC

Project Manager: MB

		GAS CONCENTRATIONS												VOLATILES		FLOW DATA				WELL AND WATER DATA			Comments
Monitoring Point	Methane (%v/v)		%LEL		Carbon dioxide (%v/v)		Carbon monoxide (ppmv)		Hydrogen sulphide (ppmv)		Oxygen (%v/v)		PID Peak (ppm)	Product thickness (mm)	Flow rate (l/hr)		Differential borehole Pressure (Pa)	Time for flow to equalise (secs)	Water level (mbgl)	Depth of well (m)	Response Zone		
	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady			Peak	Steady							
BHR1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	20.6	20.7	ND	ND	-2.3	ND	-13	3	Dry	1.00	0.50m to 2.20m		
BHR1A	ND	ND	ND	ND	2.1	2.1	ND	ND	ND	ND	17.2	17.2	5.4	ND	ND	ND	ND	ND	Dry	5.00	1.00m to 5.00m		
BHR2	ND	ND	ND	ND	0.4	0.4	ND	ND	ND	ND	19.9	19.9	3.3	ND	ND	ND	ND	ND	3.61	4.00	1.00m to 4.00m		
BHR3	1.2	1.1	20.5	17.5	4.2	4.2	ND	ND	ND	ND	10.9	11.1	7.0	ND	ND	ND	ND	ND	13.29	30.00	2.00m to 30.00m		
Max	1.2	1.1	20.5	17.5	4.2	4.2	ND	ND	ND	ND	20.6	20.7	7.0	ND	ND	ND	ND	3	13.29	30.00			
Min	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10.9	11.1	ND	ND	ND	ND	ND	ND	3.61	1.00			
GSV (l/hr)	0.0012				0.0042																		

METEOROLOGICAL AND SITE INFORMATION:

(Select correct box with X or enter data, as applicable)

State of ground: ☐ Dry ☐ Moist ☒ Wet ☐ Snow ☐ Frozen
 Wind: ☒ Calm ☐ Light ☐ Moderate ☐ Strong
 Cloud cover: ☐ None ☒ Slight ☐ Cloudy ☐ Overcast
 Precipitation: ☒ None ☐ Slight ☐ Moderate ☐ Heavy
 Barometric pressure (mbar): Before After
 Pressure trend: ☐ Falling ☒ Steady ☐ Rising
 Air Temperature (Deg. C): Before After

INSTRUMENTATION TECHNICAL SPECIFICATIONS:

Ground gas meter: GFM 430

Gas concentration: **CH₄** 0.2% @ 5%, 1.0% @ 30%, 3.0% @ 100%

CO₂ 0.1% @ 10%, 3.0% @ 30%, 3.0% @ 100%

O₂ 0.50%

Gas Range: **CH₄** 0 - 100% **CO₂** 0 - 100% **O₂** 0 - 25%

Gas Flow range: (+/-) 30 l/hour

Differential Pressure: (+/-) 1000 Pa

Date of last calibration: 27/09/2007

Date of next calibration: 27/09/2008

PID: Phoccheck 3000

Calibrated range: 0.1 - 10,000 ppm

Calibration gas: i - C₂H₈

Response time: < 1 sec

Accuracy: (+/-) 5%

Date of last calibration: 24/10/2007

Date of next calibration: 24/10/2008

Ground Gas and Groundwater Monitoring Record Sheet



JOB DETAILS:

Client: Hartwood Estates Ltd
Site: Sheffield Road, Birdwell
Date: 04/08/2008

Job No: C1634
Visit No: 6 of 6
Operator: SA

Project Manager: MB

	GAS CONCENTRATIONS												VOLATILES		FLOW DATA				WELL AND WATER DATA			Comments
Monitoring Point	Methane (%v/v)		%LEL		Carbon dioxide (%v/v)		Carbon monoxide (ppmv)		Hydrogen sulphide (ppmv)		Oxygen (%v/v)		PID Peak (ppm)	Product thickness (mm)	Flow rate (l/hr)		Differential borehole Pressure (Pa)	Time for flow to equalise (secs)	Water level (mbgl)	Depth of well (m)	Response Zone	
	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady			Peak	Steady						
BHR1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	20.6	20.6	NA	NA	ND	ND	ND	ND	Dry	1.00	0.50m to 2.20m	Made Ground
BHR1A	ND	ND	ND	ND	0.9	0.9	ND	ND	ND	ND	19.4	19.4	NA	NA	ND	ND	ND	ND	Dry	5.00	1.00m to 5.00m	Sandstone
BHR2	ND	ND	ND	ND	0.3	0.3	ND	ND	ND	ND	20.5	20.5	NA	NA	ND	ND	ND	ND	Dry	4.00	1.00m to 4.00m	Made Ground
BHR3	ND	ND	ND	ND	4.7	4.7	ND	ND	2.0	2.0	13.0	13.0	NA	NA	ND	ND	ND	ND	13.05	30.00	2.00m to 30.00m	Sandstone
Max	ND	ND	ND	ND	4.7	4.7	ND	ND	2.0	2.0	20.6	20.6	NA	NA	ND	ND	ND	ND	13.05	30.00		
Min	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	13.0	13.0	NA	NA	ND	ND	ND	ND	13.05	1.00		
GSV (l/hr)	NA				0.0047																	

METEOROLOGICAL AND SITE INFORMATION:

(Select correct box with X or enter data, as applicable)

State of ground: ☒ Dry ☐ Moist ☐ Wet ☐ Snow ☐ Frozen
 Wind: ☐ Calm ☒ Light ☐ Moderate ☐ Strong
 Cloud cover: ☐ None ☒ Slight ☒ Cloudy ☐ Overcast
 Precipitation: ☒ None ☐ Slight ☐ Moderate ☐ Heavy
 Barometric pressure (mbar): ☐ 1001 Before ☐ 1001 After
 Pressure trend: ☐ Falling ☒ Steady ☐ Rising
 Air Temperature (Deg. C): ☐ Before ☐ After

INSTRUMENTATION TECHNICAL SPECIFICATIONS:

Ground gas meter: GFM 430
 Gas concentration: **CH₄** 0.2% @ 5%, 1.0% @ 30%, 3.0% @ 100% **CO₂** 0.1% @ 10%, 3.0% @ 30%, 3.0% @ 100% **O₂** 0.50%
 Gas Range: **CH₄** 0 - 100% **CO₂** 0 - 100% **O₂** 0 - 25%
 Gas Flow range: (+/-) 30 l/hour
 Differential Pressure: (+/-) 1000 Pa
Date of last calibration: 27/09/2007
Date of next calibration: 27/09/2008

PID: Phocheck 3000
 Calibrated range: 0.1 - 10,000 ppm
 Calibration gas: i - C₂H₆
 Response time: < 1 sec
 Accuracy: (+/-) 5%
Date of last calibration: 24/10/2007
Date of next calibration: 24/10/2008