APPENDIX G

CGL exploratory hole logs

BOREHOLE LOG

Project				BOREHOLE No
45 Holmes Road, London				**BH1**
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/08696B	24-06-14 27-06-14	35.00		
Client				Sheet
GHR Construction Limited and 45 Holmes Road Limited				1 of 5

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
				34.90		0.10	Tarmac	
				34.83		0.17	[MADE GROUND]	
				34.70		0.30	Concrete	
				34.60		0.40	[MADE GROUND]	
0.40-1.20	B						Soft dark black brown slightly silty slightly sandy slightly gravelly clay. Sand is fine to coarse. Gravel is sub angular to angular fine to medium flint, brick and concrete.	
0.50	D							
0.50	ES					(0.80)	[MADE GROUND]	
							Concrete	
1.00	D						[MADE GROUND]	
1.00	ES			33.80		1.20	Soft dark black brown slightly silty slightly sandy slightly gravelly clay. Sand is fine to coarse. Gravel is sub angular to angular fine to medium flint, brick and concrete.	
1.20	SPTLS						[MADE GROUND]	
1.20		N4						
1.50	D						Very soft dark orange brown mottled grey slightly silty CLAY.	
1.50	ES						[WEATHERED LONDON CLAY FORMATION]	
							1.40 Becoming firm.	
						(2.80)		
2.70-3.30	U							
3.30-3.40	D							
3.40	SPTLS							
3.40		N13						
							3.70 Becoming stiff and sandy.	
				31.00		4.00		
4.00	D						Stiff dark brown and blue grey mottled slightly sandy slightly silty CLAY.	
4.00	ES						Sand is fine.	
							[WEATHERED LONDON CLAY FORMATION]	
4.50-5.20	U					(1.20)		
				29.80		5.20		
5.20-5.80	C						Stiff dark brown extremely closely fissured slightly silty CLAY with occasional fine selenite crystals.	
							[WEATHERED LONDON CLAY FORMATION]	

Boring Progress and Water Observations

Date	Comment	Strike Depth	Casing Depth	Casing Dia. mm	Standing Depth

General Remarks

1. Hand pit dug to 1.2m and dynamic sampling thereafter.
2. No groundwater strikes encountered as water was added to aid drilling
3. ES= Environmental sample, B= Bulk sample, D= small disturbed sample, C= core sample cut from liner, U= U70 sample, SPTLS= Standand Penetration Test (SPT) liner sample, N= SPT result.
4. Installation: 0.0-1.2m 50mm plain pipe with bentonite seal from 0.2-1.2m, 1.2-11.2m 50mm slotted pipe with gravel filter, 11.0-12.0m bentonite seal, 12.0-25m backfilled with gravel. Gas tap, bung and flush cover.

Method/ Plant Used	Field Crew	Logged By	Checked By
Beretta T44	TOR drilling	NDH	RJB

BOREHOLE LOG

Project				BOREHOLE No
45 Holmes Road, London				**BH1**
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/08696B	24-06-14 27-06-14	35.00		
Client				Sheet
GHR Construction Limited and 45 Holmes Road Limited				2 of 5

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
							Stiff dark brown extremely closely fissured slightly silty CLAY with occasional fine selenite crystals. [WEATHERED LONDON CLAY FORMATION] *(continued)*	
7.00	D							
7.00	ES							
7.30	SPTLS							
7.30		N20						
						(6.40)		
8.80-10.40	C							
10.40	D							

Boring Progress and Water Observations

Date	Comment	Strike Depth	Casing Depth	Casing Dia. mm	Standing Depth

General Remarks

1. Hand pit dug to 1.2m and dynamic sampling thereafter.
2. No groundwater strikes encountered as water was added to aid drilling
3. ES= Environmental sample, B= Bulk sample, D= small disturbed sample, C= core sample cut from liner, U= U70 sample, SPTLS= Standand Penetration Test (SPT) liner sample, N= SPT result.
4. Installation: 0.0-1.2m 50mm plain pipe with bentonite seal from 0.2-1.2m, 1.2-11.2m 50mm slotted pipe with gravel filter, 11.0-12.0m bentonite seal, 12.0-25m backfilled with gravel. Gas tap, bung and flush cover.

Method/ Plant Used	Field Crew	Logged By	Checked By
Beretta T44	TOR drilling	NDH	RJB

BOREHOLE LOG

Project				BOREHOLE No
45 Holmes Road, London				**BH1**
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/08696B	24-06-14 27-06-14	35.00		
Client				Sheet
GHR Construction Limited and 45 Holmes Road Limited				3 of 5

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
							Stiff dark brown extremely closely fissured slightly silty CLAY with occasional fine selenite crystals. [WEATHERED LONDON CLAY FORMATION] *(continued)*	
				23.40		11.60		
							Stiff dark brown grey slightly silty CLAY with occasional fine to medium selenite crystals. [LONDON CLAY FORMATION]	
11.90	SPTLS							
11.90		N21						
13.40	SPTLS							
13.40		N29						
14.00	D							
14.00	ES							
14.60-16.00	C					(7.40)		
16.00-17.50	C							
16.00	SPTLS							
16.00		N25						

Boring Progress and Water Observations

Date	Comment	Strike Depth	Casing Depth	Casing Dia. mm	Standing Depth

General Remarks

1. Hand pit dug to 1.2m and dynamic sampling thereafter.
2. No groundwater strikes encountered as water was added to aid drilling
3. ES= Environmental sample, B= Bulk sample, D= small disturbed sample, C= core sample cut from liner, U= U70 sample, SPTLS= Standand Penetration Test (SPT) liner sample, N= SPT result.
4. Installation: 0.0-1.2m 50mm plain pipe with bentonite seal from 0.2-1.2m, 1.2-11.2m 50mm slotted pipe with gravel filter, 11.0-12.0m bentonite seal, 12.0-25m backfilled with gravel. Gas tap, bung and flush cover.

Method/ Plant Used	Field Crew	Logged By	Checked By
Beretta T44	TOR drilling	NDH	RJB

BOREHOLE LOG

Project				BOREHOLE No
45 Holmes Road, London				**BH1**
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/08696B	24-06-14 27-06-14	35.00		
Client				Sheet
GHR Construction Limited and 45 Holmes Road Limited				4 of 5

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
							Stiff dark brown grey slightly silty CLAY with occasional fine to medium selenite crystals. [LONDON CLAY FORMATION] *(continued)*	
				16.00		19.00		
19.00 19.00	SPTLS	N50/ 175 mm				(0.50)	Very strong grey very fine grained CLAYSTONE. [LONDON CLAY FORMATION]	
				15.50		19.50		
							Stiff to very stiff dark brown grey slightly silty CLAY with occasional fine to medium selenite crystals. [LONDON CLAY FORMATION]	
20.00 20.00	D ES							
21.00-22.50	C							

Boring Progress and Water Observations

Date	Comment	Strike Depth	Casing Depth	Casing Dia. mm	Standing Depth

General Remarks

1. Hand pit dug to 1.2m and dynamic sampling thereafter.
2. No groundwater strikes encountered as water was added to aid drilling
3. ES= Environmental sample, B= Bulk sample, D= small disturbed sample, C= core sample cut from liner, U= U70 sample, SPTLS= Standand Penetration Test (SPT) liner sample, N= SPT result.
4. Installation: 0.0-1.2m 50mm plain pipe with bentonite seal from 0.2-1.2m, 1.2-11.2m 50mm slotted pipe with gravel filter, 11.0-12.0m bentonite seal, 12.0-25m backfilled with gravel. Gas tap, bung and flush cover.

Method/ Plant Used	Field Crew	Logged By	Checked By
Beretta T44	TOR drilling	NDH	RJB

BOREHOLE LOG

Project				BOREHOLE No
45 Holmes Road, London				**BH1**
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/08696B	24-06-14 27-06-14	35.00		
Client				Sheet
GHR Construction Limited and 45 Holmes Road Limited				5 of 5

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
						(5.50)	Stiff to very stiff dark brown grey slightly silty CLAY with occasional fine to medium selenite crystals. [LONDON CLAY FORMATION] *(continued)*	
22.50 22.50	SPTLS	N33						
				10.00		25.00		
25.00 25.00	SPTLS	N43					*(Borehole terminated at 25m)*	

Boring Progress and Water Observations

Date	Comment	Strike Depth	Casing Depth	Casing Dia. mm	Standing Depth

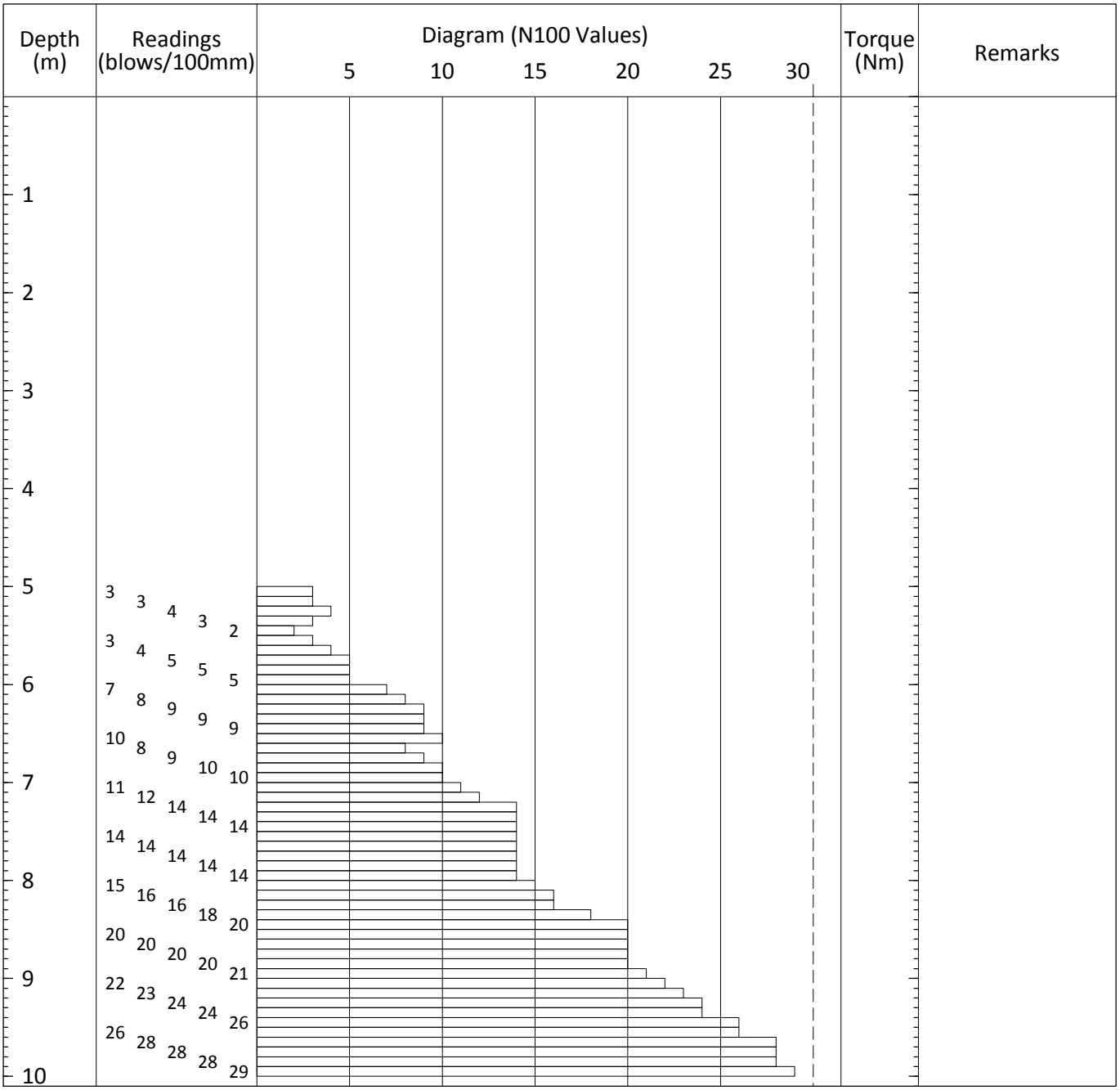
General Remarks

1. Hand pit dug to 1.2m and dynamic sampling thereafter.
2. No groundwater strikes encountered as water was added to aid drilling
3. ES= Environmental sample, B= Bulk sample, D= small disturbed sample, C= core sample cut from liner, U= U70 sample, SPTLS= Standand Penetration Test (SPT) liner sample, N= SPT result.
4. Installation: 0.0-1.2m 50mm plain pipe with bentonite seal from 0.2-1.2m, 1.2-11.2m 50mm slotted pipe with gravel filter, 11.0-12.0m bentonite seal, 12.0-25m backfilled with gravel. Gas tap, bung and flush cover.

Method/ Plant Used	Field Crew	Logged By	Checked By
Beretta T44	TOR drilling	NDH	RJB

DYNAMIC PROBE LOG

Project				PROBE No
45 Holmes Road, London				**DP1**
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/08696B	01-07-14	35.00		
Client				Sheet
GHR Construction Limited and 45 Holmes Road Limited				1 of 1



Hammer Wt (kg)	
Hammer Drop (mm)	
Cone Dia (mm)	
Cone Type	
Damper	

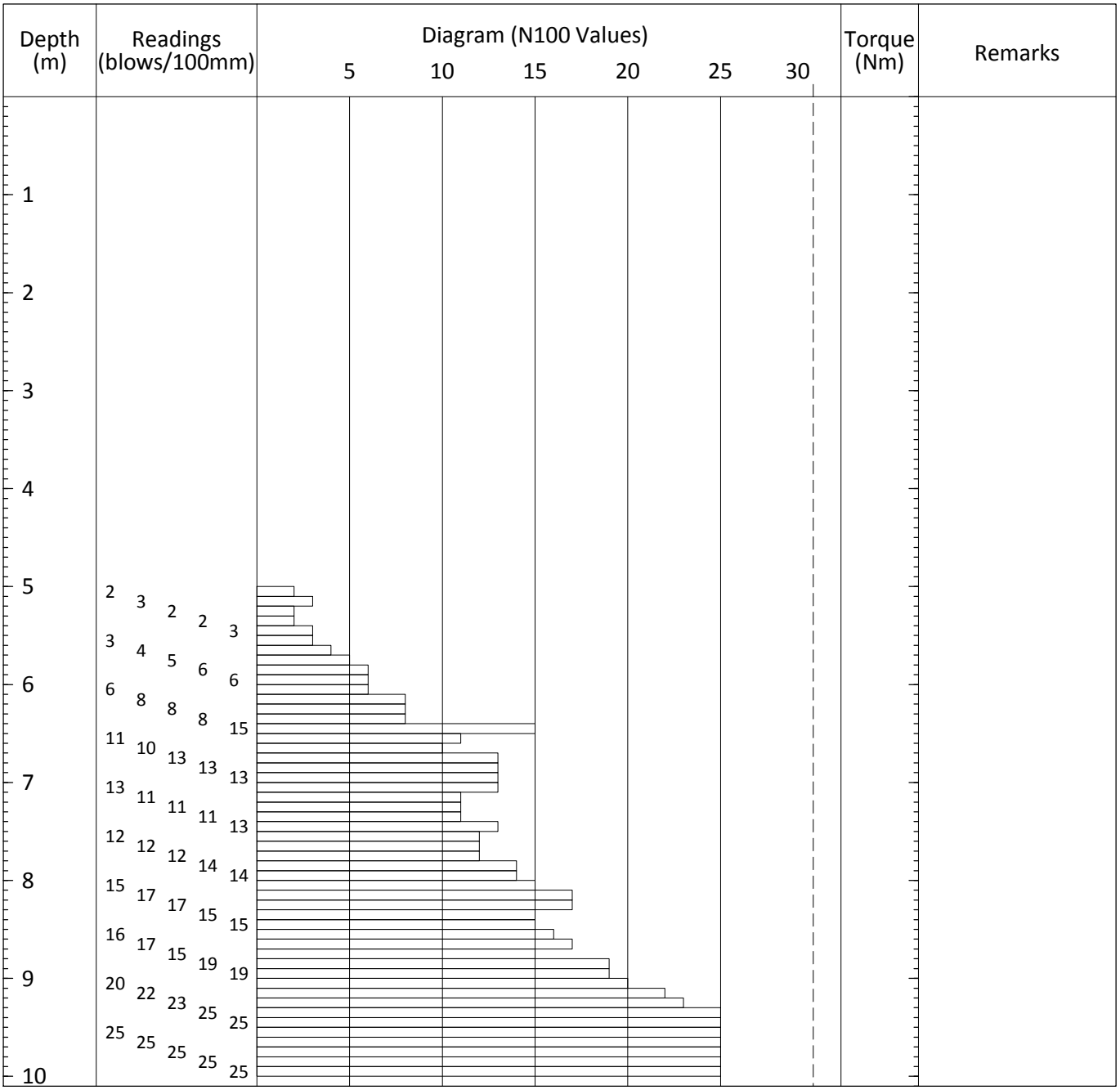
General Remarks

1. Dynamic probe commenced at 5m bgl in the base of WS1.

Method/ Plant Used	Field Crew	Logged By	Checked By
Tracked window sampler rig	RP Drilling	JJM	RJB

DYNAMIC PROBE LOG

Project				PROBE No
45 Holmes Road, London				**DP2**
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/08696B	01-07-14	35.00		
Client				Sheet
GHR Construction Limited and 45 Holmes Road Limited				1 of 1



Hammer Wt (kg)	
Hammer Drop (mm)	
Cone Dia (mm)	
Cone Type	
Damper	

General Remarks

1. Dynamic probe commenced at 5m bgl in the base of WS4.

Method/ Plant Used	Field Crew	Logged By	Checked By
Tracked window sampler rig	RP Drilling	JJM	RJB

WINDOW SAMPLE LOG

Project				HOLE No
45 Holmes Road, London				WS1
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/08696B	01-07-14	35.00		
Client				Sheet
GHR Construction Limited and 45 Holmes Road Limited				1 of 1

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result (N/kPa/ppm)		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
				34.80		0.20	Screed over concrete. Concrete is 50:50 aggregate to cement. 5mm diameter rebar noted at 0.13mbgl. [MADE GROUND]	
0.50	ES1					(0.60)	Dark brown slightly silty gravelly fine to coarse sand. Gravel is fine to coarse subrounded to subangular of brick with occasional tarmac and clinker. Occasional cobbles of brick. [MADE GROUND]	
				34.20		0.80	0.60 - 0.70 Yellow fine to coarse sand with occasional fine subangular gravel of brick.	
1.00		N7		33.90		(0.30) 1.10	Soft dark orange brown slightly sandy slightly gravelly clay. Sand is fine to coarse. Gravel is fine to coarse subrounded to subangular of brick. [MADE GROUND]	
1.20	ES2						Soft dark orange brown CLAY. [WEATHERED LONDON CLAY FORMATION]	
1.80	D1							
2.00		N8						
							2.60 Becoming firm mottled blue grey. Frequent fine selenite crystals noted.	
2.80	D2							
3.00		N10				(3.90)		
3.80	D3							
4.00		N13						
							4.50 Fine to medium selenite crystals noted.	
							4.70 Occasional partings of orange fine to coarse sand.	
4.80	D4							
				30.00		5.00	4.90 Becoming blue grey mottled orange brown.	
							(Window sample terminated at 5m)	

Boring Progress and Water Observations

Date	Strike depth	Casing depth	Comment	Time measured	Standing Depth

General Remarks

1. No groundwater strikes encountered during drilling.
2. ES= Environmental sample, D= small disturbed sample SPT 'N' = Standand Penetration Test (SPT) N value.
3. Installation details : 0.0-1.0mbgl plain pipe with bentonite seal, 1.0-5.0mbgl slotted pipe with gravel backfill. Gas tap, bung and flush cover installed.
4. Follow-on dynamic probing from 5.0mbgl.

Method/ Plant Used	Field Crew	Logged By	Checked By
Tracked window sampler rig	RP Drilling	JJM	RJB

WINDOW SAMPLE LOG

Project				HOLE No
45 Holmes Road, London				WS2
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/08696B	01-07-14	35.00		
Client				Sheet
GHR Construction Limited and 45 Holmes Road Limited				1 of 1

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result (N/kPa/ppm)		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
						(0.50)	Black gravelly fine to coarse sand. Gravel is fine to coarse subrounded to subangular of tarmac and brick. [MADE GROUND]	
0.40	ES4			34.50		0.50	0.40 - 0.50 Yellow fine to coarse sand and fine to medium subangular gravel of brick.	
0.80	ES3						Medium dense dark brown slightly silty gravelly fine to coarse sand. Gravel is fine to coarse subrounded to subangular of brick. [MADE GROUND]	
1.00		N30				(1.20)	1.20 - 1.30 Yellow fine to coarse sand and fine to medium subangular gravel of brick.	
1.50	ES5			33.30		1.70		
							Soft dark orange brown CLAY. [WEATHERED LONDON CLAY FORMATION]	
2.00		N7				(1.30)		
2.50	D5						2.70 Becoming firm.	
				32.00		3.00		
3.00		N11					*(Window sample terminated at 3m)*	

Boring Progress and Water Observations

Date	Strike depth	Casing depth	Comment	Time measured	Standing Depth

General Remarks

1. No groundwater strikes encountered during drilling.
2. ES= Environmental sample, D= small disturbed sample SPT 'N' = Standand Penetration Test (SPT) N value.
3. Borehole backfilled with arisings.
4. Borehole situated approximately 0.5m above the level of WS1, WS3 and WS4.

Method/ Plant Used	Field Crew	Logged By	Checked By
Tracked window sampler rig	RP Drilling	JJM	RJB

WINDOW SAMPLE LOG

Project				HOLE No
45 Holmes Road, London				WS3
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/08696B	01-07-14	35.00		
Client				Sheet
GHR Construction Limited and 45 Holmes Road Limited				1 of 1

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result (N/kPa/ppm)		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
				34.80		0.20	Screed over concrete. Concrete is 50:50 aggregate to cement. 5mm diameter rebar noted at 0.13mbgl. [MADE GROUND]	
				34.50		(0.30) 0.50	Dark yellow and black gravelly fine to coarse sand. Gravel is fine to coarse subrounded to subangular of brick, tarmac and occasional clinker. [MADE GROUND]	
0.60	ES6						Soft dark brown slightly gravelly sandy clay. Sand is fine to coarse. Gravel is fine to coarse subrounded to subangular of brick and chalk. [MADE GROUND]	
1.00		N7		33.70		(0.80) 1.30		
							Firm dark orange brown slightly mottled blue grey clay. Occasional partings of orange fine to coarse sand. [WEATHERED LONDON CLAY FORMATION]	
1.70	D6							
2.00		N10						
							2.50 Occasional fine selenite crystals noted.	
2.70	D7							
3.00		N11				(3.70)		
							3.40 Becoming firm to stiff.	
3.70	D8							
4.00		N11						
4.70	D9							
				30.00		5.00		
5.00		N50/ 275 mm					*(Window sample terminated at 5m)*	

Boring Progress and Water Observations

Date	Strike depth	Casing depth	Comment	Time measured	Standing Depth

General Remarks

1. No groundwater strikes encountered during drilling.
2. ES= Environmental sample, D= small disturbed sample SPT 'N' = Standand Penetration Test (SPT) N value.
3. Borehole backfilled with arisings.

Method/ Plant Used	Field Crew	Logged By	Checked By
Tracked window sampler rig	RP Drilling	JJM	RJB

WINDOW SAMPLE LOG

Project				HOLE No
45 Holmes Road, London				**WS4**
Job No	Date	Ground Level (m)	Co-Ordinates (m)	
CG/08696B	01-07-14	35.00		
Client				Sheet
GHR Construction Limited and 45 Holmes Road Limited				1 of 1

SAMPLES & TESTS			Water	STRATA				Instrument /Backfill
Depth	Type No	Test Result (N/kPa/ppm)		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
				34.86		0.14	Tarmac over concrete. Concrete is 60:40 aggregate to cement. No rebar noted. [MADE GROUND]	
0.40	ES7					(1.36)	Soft dark brown sandy gravelly clay. Sand is fine to coarse. Gravel is fine to coarse subrounded to subangular of brick and chalk. [MADE GROUND]	
1.00	ES8							
1.00		N5		33.50		1.50		
1.60	D10						Firm dark orange brown CLAY. [WEATHERED LONDON CLAY FORMATION]	
2.00		N10					2.10 Becoming mottled blue grey.	
2.60	D11							
3.00		N11				(3.50)		
3.60	D12						3.40 Occasional partings of orange fine to coarse sand. Frequent fine selenite crystals.	
4.00		N15					3.80 Becoming stiff.	
4.60	D13							
				30.00		5.00		
							(Window sample terminated at 5m)	

Boring Progress and Water Observations

Date	Strike depth	Casing depth	Comment	Time measured	Standing Depth

General Remarks

1. No groundwater strikes encountered during drilling.
2. ES= Environmental sample, D= small disturbed sample SPT 'N' = Standand Penetration Test (SPT) N value.
3. Installation details : 0.0-1.0mbgl plain pipe with bentonite seal, 1.0-5.0mbgl slotted pipe with gravel backfill. Gas tap, bung and flush cover installed.
4. Follow-on dynamic probing from 5.0mbgl.

Method/ Plant Used	Field Crew	Logged By	Checked By
Tracked window sampler rig	RP Drilling	JJM	RJB

APPENDIX H

Gas monitoring data sheets

GAS MONITORING RECORD SHEET

JOB DETAILS			
Site:	Holmes Road	Job No:	CG/08696A
Date:	09/07/2014	Engineer:	NDH
Time:	14:00	Client	GHR Construction & 45 Holmes Road Limited

METEOROLOGICAL & SITE INFORMATION

State of ground:	Dry	X	Moist		Wet				
Wind:	Calm		Light		Moderate	X	Strong		
Cloud cover:	None		Slight		Cloudy	X	Overcast		
Precipitation:	None	X	Slight		Moderate		Heavy		

Barometric pressure (mb): 1012 Local pressure system*: Falling Air temperature (°C): 22

Well No.	Time (s)	Flow (l/hr)	dA (PA)	O_2 (% vol. in air)	CO_2 (% vol. in air)	CH_4 (% vol. in air)	PID (ppm)	Depth to GW (mbgl)	Comments
BH1	0	0.0	0.0	20.4	1.7	<0.1	0.3	5.89	Depth to base of well
	15	0.0	0.0	17.3	1.7	<0.1	0.6		11.09mbgl
	30	0.0	0.0	17.1	1.7	<0.1	0.8		
	45	0.0	0.0	17.7	1.2	<0.1	1.6		
	60	0.0	0.0	17.9	1.0	<0.1	2.2		
	90	0.0	0.0	18.6	0.8	<0.1	3.5		Water bailed out until
	120	0.0	0.0	19.0	0.3	<0.1	3.8		dry, no recharge in 45
	150	0.0	0.0	19.2	0.1	<0.1	4.0		minutes
	180	0.0	0.0	19.9	<0.1	<0.1	3.7		
	240	0.0	0.0	19.6	<0.1	<0.1	3.5		
	300	0.0	0.0	19.7	<0.1	<0.1	3.3		
WS1	0	0.0	0.0	20.7	0.5	<0.1	8.3	4.91	Depth to base of well
	15	0.0	0.0	20.3	0.6	<0.1	9.1		4.99mbgl
	30	0.0	0.0	20.3	0.6	<0.1	8.8		
	45	0.0	0.0	20.3	0.6	<0.1	7.9		
	60	0.0	0.0	20.3	0.6	<0.1	6.5		
	90	0.0	0.0	20.3	0.6	<0.1	5.2		
	120	0.0	0.0	20.3	0.6	<0.1	4.1		
	150	0.0	0.0	20.3	0.6	<0.1	3.2		
	180	0.0	0.0	20.3	0.6	<0.1	1.8		
	240	0.0	0.0	20.2	0.7	<0.1	0.5		
	300	0.0	0.0	20.2	0.7	<0.1	0.0		
WS4	0	0.0	0.0	19.9	0.9	<0.1	0.9	4.92	Depth to base of well
	15	0.0	0.0	19.9	0.9	<0.1	1.7		5.01mbgl
	30	0.0	0.0	19.9	0.9	<0.1	2.0		
	45	0.0	0.0	19.9	0.9	<0.1	1.8		
	60	0.0	0.0	19.9	0.9	<0.1	1.5		
	90	0.0	0.0	19.8	0.9	<0.1	1.2		
	120	0.0	0.0	19.8	0.9	<0.1	1.3		
	150	0.0	0.0	19.8	0.9	<0.1	1.2		
	180	0.0	0.0	19.8	0.9	<0.1	1.0		
	240	0.0	0.0	19.8	0.9	<0.1	0.8		
	300	0.0	0.0	19.8	0.9	<0.1	0.5		

Notes:

The measurement of hydrogen sulphide and hydrocarbon free product is undertaken on a site specific basis, if deemed necessary.
** With reference to the Met Office rolling weather archive for* Northolt *weather station.*

GAS MONITORING RECORD SHEET

JOB DETAILS			
Site:	Holmes Road	Job No:	CG/08696A
Date:	23/07/2014	Engineer:	LOW
Time:	09:00	Client	GHR Construction & 45 Holmes Road Limited

METEOROLOGICAL & SITE INFORMATION

State of ground:	Dry	X	Moist		Wet				
Wind:	Calm		Light	X	Moderate		Strong		
Cloud cover:	None		Slight		Cloudy	X	Overcast		
Precipitation:	None	X	Slight		Moderate		Heavy		

Barometric pressure (mb): 1018 Local pressure system*: Falling Air temperature (°C): 23

Well No.	Time (s)	Flow (l/hr)	dA (PA)	O_2 (% vol. in air)	CO_2 (% vol. in air)	CH_4 (% vol. in air)	PID (ppm)	Depth to GW (mbgl)	Comments
BH1	0	0.0	0.0	15.0	2.4	<0.1	2.3	4.90	Depth to base of well
	15	0.0	0.0	14.9	2.4	<0.1	2.3		11.0
	30	0.0	0.0	15.3	2.1	<0.1	3.5		
	45	0.0	0.0	15.9	2.0	<0.1	3.4		
	60	0.0	0.0	16.5	1.7	<0.1	3.2		
	90	0.0	0.0	17.4	1.2	<0.1	3.3		
	120	0.0	0.0	18.3	0.9	<0.1	3.3		
	150	0.0	0.0	18.6	0.8	<0.1	3.4		
	180	0.0	0.0	19.2	0.6	<0.1	3.5		
	240	0.0	0.0	19.7	0.4	<0.1	3.4		
	300	0.0	0.0	19.8	0.4	<0.1	2.9		
WS1	0	0.0	0.0	19.9	0.5	<0.1	4.0	3.27	Depth to base of well
	15	0.0	0.0	20.4	0.4	<0.1	3.4		4.8
	30	0.0	0.0	20.4	0.4	<0.1	3.1		
	45	0.0	0.0	20.3	0.5	<0.1	2.9		
	60	0.0	0.0	20.2	0.5	<0.1	2.6		
	90	0.0	0.0	20.0	0.7	<0.1	2.5		
	120	0.0	0.0	20.0	0.7	<0.1	2.1		
	150	0.0	0.0	19.9	0.8	<0.1	1.9		
	180	0.0	0.0	19.9	0.8	<0.1	1.8		
	240	0.0	0.0	19.9	0.8	<0.1	1.7		
	300	0.0	0.0	19.8	0.8	<0.1	1.6		
WS4	0	0.0	0.0	19.9	0.7	<0.1	4.8	3.51	Depth to base of well
	15	0.0	0.0	19.5	0.7	<0.1	4.5		5.0
	30	0.0	0.0	19.3	1.1	<0.1	4.2		
	45	0.0	0.0	19.3	1.1	<0.1	3.6		
	60	0.0	0.0	19.2	1.2	<0.1	3.1		
	90	0.0	0.0	19.1	1.3	<0.1	2.9		
	120	0.0	0.0	19.1	1.3	<0.1	2.9		
	150	0.0	0.0	19.1	1.4	<0.1	2.3		
	180	0.0	0.0	19.1	1.4	<0.1	2.3		
	240	0.0	0.0	19.1	1.4	<0.1	2.3		
	300	0.0	0.0	19.1	1.4	<0.1	2.3		

Notes:

The measurement of hydrogen sulphide and hydrocarbon free product is undertaken on a site specific basis, if deemed necessary.
** With reference to the Met Office rolling weather archive for* Northolt *weather station.*

GAS MONITORING RECORD SHEET

JOB DETAILS			
Site:	Holmes Road	Job No:	CG/08696A
Date:	29/07/2014	Engineer:	LOW
Time:	10:48	Client	GHR Construction & 45 Holmes Road Limited

METEOROLOGICAL & SITE INFORMATION

State of ground:	Dry	X	Moist		Wet				
Wind:	Calm		Light	X	Moderate		Strong		
Cloud cover:	None	X	Slight		Cloudy		Overcast		
Precipitation:	None	X	Slight		Moderate		Heavy		

Barometric pressure (mb): 1014 Local pressure system*: Falling Air temperature (°C): 25

Well No.	Time (s)	Flow (l/hr)	dA (PA)	O_2 (% vol. in air)	CO_2 (% vol. in air)	CH_4 (% vol. in air)	PID (ppm)	Depth to GW (mbgl)	Comments
BH1	0	0.0	0.0	19.2	1.2	<0.1	NR	2.24	Depth to base of well
	15	0.0	0.0	19.3	0.9	<0.1			11.1
	30	0.0	0.0	19.3	1.1	<0.1			
	45	0.0	0.0	17.7	1.8	<0.1			
	60	0.0	0.0	16.3	2.1	<0.1			
	90	0.0	0.0	15.9	2.2	<0.1			
	120	0.0	0.0	15.7	2.3	<0.1			
	150	0.0	0.0	15.5	2.3	<0.1			
	180	0.0	0.0	15.3	2.3	<0.1			
	240	0.0	0.0	15.2	2.3	<0.1			
	300	0.0	0.0	15.3	2.3	<0.1			
WS1	0	0.0	0.0	19.9	<0.1	<0.1	NR	4.34	Depth to base of well
	15	0.0	0.0	20.2	<0.1	<0.1			5.0
	30	0.0	0.0	20.3	<0.1	<0.1			
	45	0.0	0.0	20.4	0.1	<0.1			
	60	0.0	0.0	20.4	0.1	<0.1			
	90	0.0	0.0	20.4	0.2	<0.1			
	120	0.0	0.0	20.4	0.2	<0.1			
	150	0.0	0.0	20.4	0.2	<0.1			
	180	0.0	0.0	20.4	0.2	<0.1			
	240	0.0	0.0	20.4	0.2	<0.1			
	300	0.0	0.0	20.4	0.2	<0.1			
WS4	0	0.0	0.0	20.3	0.2	<0.1	NR	4.13	Depth to base of well
	15	0.0	0.0	20.4	0.2	<0.1			5.0
	30	0.0	0.0	20.4	0.2	<0.1			
	45	0.0	0.0	20.4	0.3	<0.1			
	60	0.0	0.0	20.1	0.6	<0.1			
	90	0.0	0.0	19.9	0.8	<0.1			
	120	0.0	0.0	19.4	1.1	<0.1			
	150	0.0	0.0	19.2	1.2	<0.1			
	180	0.0	0.0	19.2	1.3	<0.1			
	240	0.0	0.0	19.1	1.3	<0.1			
	300	0.0	0.0	19.1	1.4	<0.1			

Notes:

The measurement of hydrogen sulphide and hydrocarbon free product is undertaken on a site specific basis, if deemed necessary.
** With reference to the Met Office rolling weather archive for* Northolt *weather station.*

GAS MONITORING RECORD SHEET

JOB DETAILS			
Site:	Holmes Road	Job No:	CG/08696A
Date:	06/08/2014	Engineer:	LOW
Time:	10:15:00	Client	GHR Construction & 45 Holmes Road Limited

METEOROLOGICAL & SITE INFORMATION

State of ground:	Dry		Moist	X	Wet				
Wind:	Calm		Light		Moderate	X	Strong		
Cloud cover:	None		Slight		Cloudy	X	Overcast		
Precipitation:	None	X	Slight		Moderate		Heavy		

Barometric pressure (mb): 1007 Local pressure system*: Falling Air temperature (°C): 21

Well No.	Time (s)	Flow (l/hr)	dA (PA)	O_2 (% vol. in air)	CO_2 (% vol. in air)	CH_4 (% vol. in air)	PID (ppm)	Depth to GW (mbgl)	Comments
BH1	0	0.0	0.0	19.2	0.5	<0.1	2.2	1.60	Depth to base of well
	15	0.0	0.0	19.5	1.1	<0.1	3.1		11.1
	30	0.0	0.0	19.4	1.2	<0.1	4.2		
	45	0.0	0.0	19.5	0.8	<0.1	5.9		
	60	0.0	0.0	19.7	0.7	<0.1	7.5		
	90	0.0	0.0	19.8	0.6	<0.1	7.5		
	120	0.0	0.0	19.9	0.5	<0.1	8.3		
	150	0.0	0.0	20.0	0.4	<0.1	11.4		
	180	0.0	0.0	20.2	0.2	<0.1	10.3		
	240	0.0	0.0	20.2	0.2	<0.1	8.1		
	300	0.0	0.0	20.2	0.1	<0.1	5.7		
WS1	0	0.0	0.0	20.3	0.2	<0.1	4.0	4.01	Depth to base of well
	15	0.0	0.0	19.9	0.7	<0.1	4.1		5.0
	30	0.0	0.0	19.7	0.8	<0.1	3.8		
	45	0.0	0.0	19.7	0.8	<0.1	3.4		
	60	0.0	0.0	19.7	0.8	<0.1	3.2		
	90	0.0	0.0	19.6	0.8	<0.1	2.7		
	120	0.0	0.0	19.6	0.8	<0.1	2.6		
	150	0.0	0.0	19.6	0.8	<0.1	2.3		
	180	0.0	0.0	19.6	0.8	<0.1	1.9		
	240	0.0	0.0	19.6	0.8	<0.1	1.7		
	300	0.0	0.0	19.6	0.8	<0.1	1.7		
WS4	0	0.0	0.0	19.6	0.9	<0.1	0.4	3.72	Depth to base of well
	15	0.0	0.0	19.7	1.2	<0.1	0.3		5.0
	30	0.0	0.0	19.4	1.3	<0.1	0.2		
	45	0.0	0.0	19.4	1.3	<0.1	5.2		
	60	0.0	0.0	19.4	1.3	<0.1	5.4		
	90	0.0	0.0	19.4	1.3	<0.1	4.7		
	120	0.0	0.0	19.4	1.3	<0.1	4.4		
	150	0.0	0.0	19.4	1.3	<0.1	3.6		
	180	0.0	0.0	19.4	1.3	<0.1	3.3		
	240	0.0	0.0	19.3	1.3	<0.1	2.7		
	300	0.0	0.0	19.3	1.3	<0.1	2.0		

Notes:

The measurement of hydrogen sulphide and hydrocarbon free product is undertaken on a site specific basis, if deemed necessary.
** With reference to the Met Office rolling weather archive for* Northolt *weather station.*

GAS MONITORING RECORD SHEET

JOB DETAILS			
Site:	Holmes Road	Job No:	CG/08696A
Date:	12/08/2014	Engineer:	LOW
Time:	11:20	Client	GHR Construction & 45 Holmes Road Limited

METEOROLOGICAL & SITE INFORMATION

State of ground:	Dry	X	Moist		Wet				
Wind:	Calm		Light		Moderate	X	Strong		
Cloud cover:	None		Slight		Cloudy		Overcast	X	
Precipitation:	None	X	Slight		Moderate		Heavy		

Barometric pressure (mb): 1005 Local pressure system*: Rising Air temperature (°C): 17

Well No.	Time (s)	Flow (l/hr)	dA (PA)	O_2 (% vol. in air)	CO_2 (% vol. in air)	CH_4 (% vol. in air)	PID (ppm)	Depth to GW (mbgl)	Comments
BH1	0	0.0	0.0	19.4	0.1	<0.1	1.8	1.28	Depth to base of well
	15	0.0	0.0	20.3	0.2	<0.1	2.8		11.2
	30	0.0	0.0	19.9	0.2	<0.1	4.4		
	45	0.0	0.0	19.9	0.2	<0.1	8.8		
	60	0.0	0.0	20.0	0.1	<0.1	11.3		
	90	0.0	0.0	20.0	0.1	<0.1	12.4		
	120	0.0	0.0	20.0	0.1	<0.1	14.7		
	150	0.0	0.0	20.0	0.1	<0.1	15.1		
	180	0.0	0.0	20.0	0.1	<0.1	13.8		
	240	0.0	0.0	20.1	0.1	<0.1	11.0		
	300	0.0	0.0	20.1	0.1	<0.1	8.2		
WS1	0	0.0	0.0	20.0	0.8	<0.1	5.6	3.03	Depth to base of well
	15	0.0	0.0	19.4	1.1	<0.1	4.4		5.1
	30	0.0	0.0	19.2	1.1	<0.1	3.2		
	45	0.0	0.0	19.1	1.1	<0.1	3.0		
	60	0.0	0.0	19.1	1.1	<0.1	2.7		
	90	0.0	0.0	19.1	1.1	<0.1	2.4		
	120	0.0	0.0	19.1	1.1	<0.1	2.1		
	150	0.0	0.0	19.1	1.1	<0.1	1.9		
	180	0.0	0.0	19.1	1.1	<0.1	1.9		
	240	0.0	0.0	19.1	1.1	<0.1	1.7		
	300	0.0	0.0	19.1	1.1	<0.1	1.6		
WS4	0	0.0	0.0	19.5	0.8	<0.1	2.1	3.18	Depth to base of well
	15	0.0	0.0	19.6	0.8	<0.1	2.1		5.0
	30	0.0	0.0	19.5	0.9	<0.1	2.1		
	45	0.0	0.0	19.5	0.9	<0.1	2.1		
	60	0.0	0.0	19.4	0.9	<0.1	2.1		
	90	0.0	0.0	19.4	0.9	<0.1	2.0		
	120	0.0	0.0	19.4	0.9	<0.1	1.9		
	150	0.0	0.0	19.4	0.9	<0.1	1.8		
	180	0.0	0.0	19.4	0.9	<0.1	1.8		
	240	0.0	0.0	19.4	0.9	<0.1	1.7		
	300	0.0	0.0	19.4	0.9	<0.1	1.6		

Notes:

The measurement of hydrogen sulphide and hydrocarbon free product is undertaken on a site specific basis, if deemed necessary.
** With reference to the Met Office rolling weather archive for* Northolt *weather station.*

GAS MONITORING RECORD SHEET

JOB DETAILS			
Site:	Holmes Road	Job No:	CG/08696A
Date:	18.8.14	Engineer:	LOW
Time:	12:45:00	Client	GHR Construction & 45 Holmes Road Limited

METEOROLOGICAL & SITE INFORMATION

State of ground:	Dry		Moist	x	Wet				
Wind:	Calm		Light		Moderate	x	Strong		
Cloud cover:	None		Slight		Cloudy		Overcast	x	
Precipitation:	None		Slight	x	Moderate		Heavy		

Barometric pressure (mb): 1006 Local pressure system*: Rising Air temperature (°C): 20

Well No.	Time (s)	Flow (l/hr)	dA (PA)	O_2 (% vol. in air)	CO_2 (% vol. in air)	CH_4 (% vol. in air)	PID (ppm)	Depth to GW (mbgl)	Comments
BH1	0	0.0	0.0	19.2	0.6	<0.1	0.8	1.18	Depth to base of well
	15	0.0	0.0	20.3	0.2	<0.1	0.9		11.2
	30	0.0	0.0	20.3	0.2	<0.1	0.9		
	45	0.0	0.0	20.3	0.1	<0.1	0.9		
	60	0.0	0.0	20.4	0.1	<0.1	0.9		
	90	0.0	0.0	20.4	0.1	<0.1	0.9		
	120	0.0	0.0	20.4	0.1	<0.1	0.9		
	150	0.0	0.0	20.4	<0.1	<0.1	0.9		
	180	0.0	0.0	20.4	<0.1	<0.1	0.9		
	240	0.0	0.0	20.4	<0.1	<0.1	0.9		
	300	0.0	0.0	20.4	<0.1	<0.1	0.9		
WS1	0	0.0	0.0	20.3	0.3	<0.1	1.9	3.12	Depth to base of well
	15	0.0	0.0	20.1	0.7	<0.1	1.8		5.0
	30	0.0	0.0	19.9	0.7	<0.1	1.6		
	45	0.0	0.0	19.9	0.7	<0.1	1.6		
	60	0.0	0.0	19.9	0.7	<0.1	1.5		
	90	0.0	0.0	19.9	0.7	<0.1	1.4		
	120	0.0	0.0	19.9	0.7	<0.1	1.4		
	150	0.0	0.0	19.9	0.7	<0.1	1.2		
	180	0.0	0.0	19.9	0.7	<0.1	1.1		
	240	0.0	0.0	19.9	0.7	<0.1	1.1		
	300	0.0	0.0	19.9	0.7	<0.1	1.1		
WS4	0	0.0	0.0	19.8	0.1	<0.1	2.7	2.83	Depth to base of well
	15	0.0	0.0	20.0	0.9	<0.1	2.7		5.1
	30	0.0	0.0	19.6	0.9	<0.1	2.7		
	45	0.0	0.0	19.5	1.0	<0.1	2.4		
	60	0.0	0.0	19.5	1.0	<0.1	2.2		
	90	0.0	0.0	19.5	1.0	<0.1	2.1		
	120	0.0	0.0	19.5	1.0	<0.1	1.9		
	150	0.0	0.0	19.5	1.0	<0.1	1.6		
	180	0.0	0.0	19.5	1.0	<0.1	1.6		
	240	0.0	0.0	19.5	1.0	<0.1	1.5		
	300	0.0	0.0	19.5	1.0	<0.1	1.5		

Notes:

The measurement of hydrogen sulphide and hydrocarbon free product is undertaken on a site specific basis, if deemed necessary.
** With reference to the Met Office rolling weather archive for* Northolt *weather station.*

APPENDIX I

Laboratory chemical test data

Keisha Smith
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Analytical Report Number : 14-56620

Project / Site name:	Holmes Road	**Samples received on:**	30/06/2014
Your job number:	CG-08696A	**Samples instructed on:**	01/07/2014
Your order number:		**Analysis completed by:**	09/07/2014
Report Issue Number:	1	**Report issued on:**	09/07/2014
Samples Analysed:	4 soil samples		

Signed: CCStone

Dr Claire Stone
Quality Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Rexona Rahman
Customer Services Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Analytical Report Number: 14-56620

Project / Site name: Holmes Road

Lab Sample Number				352133	352134	352135	352136	
Sample Reference				BH1	BH1	BH1	BH1	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)				0.50	1.00	8.80-10.40	16.00-17.50	
Date Sampled				22/06/2014	22/06/2014	25/06/2014	26/06/2014	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
Moisture Content	%	N/A	NONE	24	16	15	19	
Total mass of sample received	kg	0.001	NONE	1.3	0.98	2.0	2.0	
Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected	-	-	
General Inorganics								
pH	pH Units	N/A	MCERTS	7.5	7.8	7.8	8.8	
Total Cyanide	mg/kg	1	MCERTS	-	< 1	-	-	
Total Sulphate as SO_4	mg/kg	100	ISO 17025	-	520	1400	1400	
Water Soluble Sulphate (Soil Equivalent)	g/l	0.0025	MCERTS	0.085	-	1.3	1.3	
Water Soluble Sulphate as SO_4 (2:1)	mg/kg	2.5	MCERTS	85	-	1300	1300	
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.043	-	0.65	0.65	
Total Sulphur	mg/kg	100	NONE	-	-	620	3000	
Organic Matter	%	0.1	MCERTS	-	1.6	-	-	
Total Phenols								
Total Phenols (monohydric)	mg/kg	2	MCERTS	-	< 2.0	-	-	
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	
Acenaphthylene	mg/kg	0.1	MCERTS	-	< 0.10	-	-	
Acenaphthene	mg/kg	0.1	MCERTS	-	< 0.10	-	-	
Fluorene	mg/kg	0.1	MCERTS	-	< 0.10	-	-	
Phenanthrene	mg/kg	0.1	MCERTS	-	< 0.10	-	-	
Anthracene	mg/kg	0.1	MCERTS	-	< 0.10	-	-	
Fluoranthene	mg/kg	0.1	MCERTS	-	< 0.10	-	-	
Pyrene	mg/kg	0.1	MCERTS	-	< 0.10	-	-	
Benzo(a)anthracene	mg/kg	0.1	MCERTS	-	< 0.10	-	-	
Chrysene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	-	< 0.10	-	-	
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	-	< 0.10	-	-	
Benzo(a)pyrene	mg/kg	0.1	MCERTS	-	< 0.10	-	-	
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	-	< 0.10	-	-	
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	-	< 0.10	-	-	
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	
Coronene	mg/kg	0.05	NONE	-	< 0.05	-	-	
Total PAH								
Total WAC-17 PAHs	mg/kg	1.6	NONE	-	< 1.6	-	-	
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	20	-	-	
Barium (aqua regia extractable)	mg/kg	1	MCERTS	-	120	-	-	
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	1.4	-	-	
Boron (water soluble)	mg/kg	0.2	MCERTS	-	1.2	-	-	
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	< 0.2	-	-	
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	35	-	-	
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	100	-	-	
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	330	-	-	
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	0.6	-	-	
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	30	-	-	
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	< 1.0	-	-	
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	68	-	-	
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	98	-	-	

Analytical Report Number: 14-56620

Project / Site name: Holmes Road

Lab Sample Number				352133	352134	352135	352136	
Sample Reference				BH1	BH1	BH1	BH1	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)				0.50	1.00	8.80-10.40	16.00-17.50	
Date Sampled				22/06/2014	22/06/2014	25/06/2014	26/06/2014	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	µg/kg	1	MCERTS	-	< 1.0	-	-	
Toluene	µg/kg	1	MCERTS	-	< 1.0	-	-	
Ethylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	-	
p & m-xylene	µg/kg	1	MCERTS	-	< 1.0	-	-	
o-xylene	µg/kg	1	MCERTS	-	< 1.0	-	-	
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	< 1.0	-	-	
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	-	< 0.1	-	-	
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	-	< 0.1	-	-	
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	-	< 0.1	-	-	
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	< 1.0	-	-	
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	< 2.0	-	-	
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	< 8.0	-	-	
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	< 8.0	-	-	
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	< 10	-	-	
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	-	< 0.1	-	-	
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	-	< 0.1	-	-	
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	-	< 0.1	-	-	
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	< 1.0	-	-	
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	< 2.0	-	-	
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	< 10	-	-	
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	< 10	-	-	
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	< 10	-	-	

Analytical Report Number : 14-56620

Project / Site name: Holmes Road

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and topsoil/loam soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 2 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
352133	BH1	None Supplied	0.50	Brown clay and topsoil with gravel.
352134	BH1	None Supplied	1.00	Brown clay and topsoil with gravel and brick.
352135	BH1	None Supplied	8.80-10.40	Brown clay and sand.
352136	BH1	None Supplied	16.00-17.50	Brown clay and topsoil.

Analytical Report Number : 14-56620

Project / Site name: Holmes Road

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073S-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Organic matter in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by extraction with water followed by ICP-OES. Results reported corrected for extraction ratio (soil equivalent) as g/l and mg/kg; and upon the 2:1	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	ISO 17025
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	NONE
TPHCWG (Soil)	Determination of pentane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

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Analytical Report Number : 14-56622

Project / Site name:	Holmes Road	**Samples received on:**	30/06/2014
Your job number:	CG-08696A	**Samples instructed on:**	01/07/2014
Your order number:		**Analysis completed by:**	09/07/2014
Report Issue Number:	1	**Report issued on:**	09/07/2014
Samples Analysed:	1 wac multi sample		

Signed: CCStone

Dr Claire Stone
Quality Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Rexona Rahman
Customer Services Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Waste Acceptance Criteria Analytical Results

Report No:	**14-56622**						
					Client:	**CARDGEO**	
Location	**Holmes Road**						
Lab Reference (Sample Number)	352138				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	22/06/2014				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	BH1						
Depth (m)	1.00						
Solid Waste Analysis							
TOC (%)**	1.0				3%	5%	6%
Loss on Ignition (%) **	8.1				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg)	< 0.30				1	--	--
Mineral Oil (mg/kg)	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	< 1.6				100	--	--
pH (units)**	7.8				--	>6	--
Acid Neutralisation Capacity (mol / kg)	5.8				--	To be evaluated	To be evaluated
Eluate Analysis	2:1	8:1		Cumulative 10:1	Limit values for compliance leaching test		
(BS EN 12457 - 3 preparation utilising end over end leaching procedure)	mg/l	mg/l		mg/kg	using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.023	0.015		0.16	0.5	2	25
Barium *	0.044	0.030		0.31	20	100	300
Cadmium *	< 0.0005	< 0.0005		< 0.0020	0.04	1	5
Chromium *	0.0058	0.0014		0.020	0.5	10	70
Copper *	0.013	0.0063		0.071	2	50	100
Mercury *	< 0.0015	< 0.0015		< 0.010	0.01	0.2	2
Molybdenum *	0.043	0.0067		0.11	0.5	10	30
Nickel *	0.0037	0.0015		0.018	0.4	10	40
Lead *	0.043	< 0.0050		0.074	0.5	10	50
Antimony *	< 0.0050	< 0.0050		< 0.020	0.06	0.7	5
Selenium *	< 0.010	< 0.010		< 0.040	0.1	0.5	7
Zinc *	0.014	0.0016		0.032	4	50	200
Chloride *	< 4.0	< 4.0		< 15	800	4000	25000
Fluoride	0.70	0.54		5.6	10	150	500
Sulphate *	28	4.0		70	1000	20000	50000
TDS	120	50		590	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.13	< 0.13		< 0.50	1	-	-
DOC	4.5	4.6		46	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.98						
Dry Matter (%)	84						
Moisture (%)	16						
Stage 1							
Volume Eluate L2 (litres)	0.32						
Filtered Eluate VE1 (litres)	0.22						

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and I2 cannot be held responsible for any discrepencies with current legislation

*= UKAS accredited (liquid eluate analysis only)
** = MCERTS accrediited

Analytical Report Number : 14-56622

Project / Site name: Holmes Road

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and topsoil/loam soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 2 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
352138	BH1	None Supplied	1.00	Brown clay and topsoil with gravel and brick.

Analytical Report Number : 14-56622

Project / Site name: Holmes Road

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046-PL	W	NONE
BTEX (Sum of BTEX compounds) in soil	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073S-PL	W	MCERTS
Chloride in WAC leachate (BS EN 12457-3 Prep)	Determination of chloride in leachate by Gallery discrete analyser.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L082-PL	W	ISO 17025
DOC in WAC leachate (BS EN 12457-3 Prep)	Determination of dissolved organic carbon in leachate by the measurement on a non-dispersive infrared analyser of carbon dioxide released by acidification.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L037-PL	W	NONE
Fluoride in WAC leachate (BS EN 12457-3 Prep)	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L033-PL	W	NONE
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L047-PL	D	MCERTS
Metals in WAC leachate (BS EN 12457-3 Prep)	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
Mineral Oil in Soil	Determination of dichloromethane/hexane extractable hydrocarbons in soil by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
PCB's by GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	NONE
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Phenol Index in WAC leachate (BS EN 12457-3 Prep)	Determination of monohydric phenols in leachate by continuous flow analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Seciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate in WAC leachate (BS EN 12457-3 Prep)	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
TDS in WAC leachate (BS EN 12457-3 Prep)	Determination of total dissolved solids in leachate by electrometric measurement.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L004-PL	W	NONE
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS

Analytical Report Number : 14-56622

Project / Site name: Holmes Road

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

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Analytical Report Number : 14-56652

Project / Site name:	45 Holmes Road	**Samples received on:**	02/07/2014
Your job number:	CG08696A	**Samples instructed on:**	02/07/2014
Your order number:	1052	**Analysis completed by:**	11/07/2014
Report Issue Number:	1	**Report issued on:**	11/07/2014
Samples Analysed:	9 soil samples		

Signed:

Dr Claire Stone
Quality Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Rexona Rahman
Customer Services Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Analytical Report Number: 14-56652

Project / Site name: 45 Holmes Road
Your Order No: 1052

Lab Sample Number				352400	352401	352402	352403	352404
Sample Reference				WS1	WS1	WS1	WS2	WS2
Sample Number				ES1	ES2	T2	ES4	ES5
Depth (m)				0.50	1.20	2.80	0.80	1.50
Date Sampled				01/07/2014	01/07/2014	01/07/2014	01/07/2014	01/07/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	6.5	12	15	5.8	8.3
Total mass of sample received	kg	0.001	NONE	0.99	1.2	0.67	1.2	0.97
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	-	-	Not-detected	Not-detected
General Inorganics								
pH	pH Units	N/A	MCERTS	9.6	8.3	8.1	8.4	8.3
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	-	< 1	< 1
Total Sulphate as SO_4	mg/kg	100	ISO 17025	4700	840	1200	3400	3700
Water Soluble Sulphate (Soil Equivalent)	g/l	0.0025	MCERTS	-	-	0.71	-	-
Water Soluble Sulphate as SO_4 (2:1)	mg/kg	2.5	MCERTS	-	-	710	-	-
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	-	0.36	-	-
Total Sulphur	mg/kg	100	NONE	-	-	380	-	-
Organic Matter	%	0.1	MCERTS	1.1	1.9	-	1.5	1.8
Total Phenols								
Total Phenols (monohydric)	mg/kg	2	MCERTS	< 2.0	< 2.0	-	< 2.0	< 2.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	0.08	< 0.05	-	0.45	0.87
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	-	0.85	1.5
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	-	0.41	0.93
Fluorene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	-	1.3	2.0
Phenanthrene	mg/kg	0.1	MCERTS	0.55	< 0.10	-	12	20
Anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	-	6.0	6.1
Fluoranthene	mg/kg	0.1	MCERTS	1.6	< 0.10	-	20	22
Pyrene	mg/kg	0.1	MCERTS	1.4	< 0.10	-	17	18
Benzo(a)anthracene	mg/kg	0.1	MCERTS	0.79	< 0.10	-	8.2	11
Chrysene	mg/kg	0.05	MCERTS	1.3	< 0.05	-	6.9	9.9
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	0.95	< 0.10	-	7.3	9.9
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	0.30	< 0.10	-	4.4	5.8
Benzo(a)pyrene	mg/kg	0.1	MCERTS	0.78	< 0.10	-	7.0	9.4
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	0.20	< 0.10	-	3.2	4.3
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	-	0.45	0.95
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.41	< 0.05	-	4.4	5.6
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	-	0.87	0.65
Total PAH								
Total WAC-17 PAHs	mg/kg	1.6	NONE	8.4	< 1.6	-	100	130
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12	19	-	30	17
Barium (aqua regia extractable)	mg/kg	1	MCERTS	150	130	-	580	220
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.6	1.4	-	1.5	0.6
Boron (water soluble)	mg/kg	0.2	MCERTS	1.7	1.9	-	1.9	2.1
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	-	0.4	< 0.2
Chromium (hexavalent)	mg/kg	1.2	MCERTS	-	< 1.2	-	-	-
Chromium (III)	mg/kg	1	NONE	-	39	-	-	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	18	39	-	29	22
Copper (aqua regia extractable)	mg/kg	1	MCERTS	67	60	-	200	100
Lead (aqua regia extractable)	mg/kg	1	MCERTS	180	280	-	1100	1400
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	-	0.8	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	21	21	-	30	21
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	47	67	-	67	47
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	100	150	-	350	140

Analytical Report Number: 14-56652

Project / Site name: 45 Holmes Road
Your Order No: 1052

Lab Sample Number				352400	352401	352402	352403	352404
Sample Reference				WS1	WS1	WS1	WS2	WS2
Sample Number				ES1	ES2	T2	ES4	ES5
Depth (m)				0.50	1.20	2.80	0.80	1.50
Date Sampled				01/07/2014	01/07/2014	01/07/2014	01/07/2014	01/07/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	< 1.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1	-	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	-	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	-	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	2.6	< 2.0	-	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	-	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	-	< 8.0	9.3
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	-	< 10	< 10
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1	-	< 0.1	< 0.1
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	-	< 0.1	< 0.1
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	-	< 0.1	< 0.1
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	-	4.7	24
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	-	66	140
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	11	< 10	-	110	230
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	11	< 10	-	180	400

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Your Order No: 1052

Lab Sample Number				352405	352406	352407	352408	
Sample Reference				WS3	WS3	WS4	WS4	
Sample Number				ES6	T8	ES7	T13	
Depth (m)				0.60	3.70	0.40	4.60	
Date Sampled				01/07/2014	01/07/2014	01/07/2014	01/07/2014	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
Moisture Content	%	N/A	NONE	18	18	17	15	
Total mass of sample received	kg	0.001	NONE	1.2	0.64	0.52	0.52	
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	-	Not-detected	-	
General Inorganics								
pH	pH Units	N/A	MCERTS	8.3	8.1	8.1	7.7	
Total Cyanide	mg/kg	1	MCERTS	< 1	-	< 1	-	
Total Sulphate as SO_4	mg/kg	100	ISO 17025	1200	1000	1100	7000	
Water Soluble Sulphate (Soil Equivalent)	g/l	0.0025	MCERTS	-	0.80	-	4.8	
Water Soluble Sulphate as SO_4 (2:1)	mg/kg	2.5	MCERTS	-	800	-	4800	
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	0.40	-	2.4	
Total Sulphur	mg/kg	100	NONE	-	400	-	2700	
Organic Matter	%	0.1	MCERTS	2.2	-	2.9	-	
Total Phenols								
Total Phenols (monohydric)	mg/kg	2	MCERTS	< 2.0	-	< 2.0	-	
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	-	< 0.10	-	
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	-	< 0.10	-	
Fluorene	mg/kg	0.1	MCERTS	< 0.10	-	< 0.10	-	
Phenanthrene	mg/kg	0.1	MCERTS	< 0.10	-	0.67	-	
Anthracene	mg/kg	0.1	MCERTS	< 0.10	-	0.13	-	
Fluoranthene	mg/kg	0.1	MCERTS	< 0.10	-	1.1	-	
Pyrene	mg/kg	0.1	MCERTS	< 0.10	-	0.84	-	
Benzo(a)anthracene	mg/kg	0.1	MCERTS	< 0.10	-	0.54	-	
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-	0.77	-	
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	-	0.59	-	
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	-	0.41	-	
Benzo(a)pyrene	mg/kg	0.1	MCERTS	< 0.10	-	0.49	-	
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10	-	< 0.10	-	
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10	-	< 0.10	-	
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	
Coronene	mg/kg	0.05	NONE	< 0.05	-	< 0.05	-	
Total PAH								
Total WAC-17 PAHs	mg/kg	1.6	NONE	< 1.6	-	5.6	-	
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	31	-	23	-	
Barium (aqua regia extractable)	mg/kg	1	MCERTS	130	-	140	-	
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.4	-	1.2	-	
Boron (water soluble)	mg/kg	0.2	MCERTS	5.0	-	1.0	-	
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-	
Chromium (hexavalent)	mg/kg	1.2	MCERTS	-	-	-	-	
Chromium (III)	mg/kg	1	NONE	-	-	-	-	
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	36	-	27	-	
Copper (aqua regia extractable)	mg/kg	1	MCERTS	150	-	110	-	
Lead (aqua regia extractable)	mg/kg	1	MCERTS	570	-	530	-	
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	1.1	-	1.6	-	
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	31	-	23	-	
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	78	-	57	-	
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	120	-	160	-	

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Lab Sample Number				352405	352406	352407	352408	
Sample Reference				WS3	WS3	WS4	WS4	
Sample Number				ES6	T8	ES7	T13	
Depth (m)				0.60	3.70	0.40	4.60	
Date Sampled				01/07/2014	01/07/2014	01/07/2014	01/07/2014	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	
Toluene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	
p & m-xylene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	
o-xylene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	-	< 1.0	-	

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	-	
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	-	
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	-	
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	-	< 2.0	-	
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	-	< 8.0	-	
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	-	< 8.0	-	
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	-	< 10	-	

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	-	
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	-	
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	-	
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	-	< 2.0	-	
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	-	< 10	-	
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	-	11	-	
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	-	11	-	

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* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and topsoil/loam soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 2 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
352400	WS1	ES1	0.50	Brown rubble. **
352401	WS1	ES2	1.20	Brown clay and topsoil with gravel and vegetation.
352402	WS1	T2	2.80	Brown clay.
352403	WS2	ES4	0.80	Brown rubble. **
352404	WS2	ES5	1.50	Brown rubble. **
352405	WS3	ES6	0.60	Brown clay and topsoil with gravel.
352406	WS3	T8	3.70	Brown clay.
352407	WS4	ES7	0.40	Brown clay and topsoil with gravel.
352408	WS4	T13	4.60	Brown clay.

** Non MCerts Matrix

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Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073S-PL	W	MCERTS
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Organic matter in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by extraction with water followed by ICP-OES. Results reported corrected for extraction ratio (soil equivalent) as g/l and mg/kg; and upon the 2:1	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	ISO 17025
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	NONE
TPHCWG (Soil)	Determination of pentane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

APPENDIX J

Contamination assessment

APPENDIX J – SUMMARY CONTAMINATION TABLES

Table I1 below sets out CGL's rationale for generic assessment criteria (GAC) adoption in order to evaluate risks posed to potential receptors at 45 Holmes Road from identified chemical contamination. Potential receptors have been identified with reference to the Part IIA regime and associated DEFRA guidance. As with the Part IIA regime, under the planning regime all receptors (humans, controlled waters, ecology, crops/livestock and buildings) have been considered if there is the potential for them to be adversely affected by exposure to contamination. The results of the assessment for 45 Holmes Road are then presented in Table I2 of this appendix.

Table J1. Rationale for Assessment Criteria Adoption

Source / Media	CGL's Approach & Rationale
Risks to Human Health (long-term chronic risks)	
Soil contaminants	• Laboratory test results have been compared against Generic Assessment Criteria (GACs) derived in-house by CGL using the Contaminated Land Exposure Assessment (CLEA) model and version 1.06 of the CLEA software. Where Soil Guideline Values (SGVs) have been published previously by the Environment Agency, the CGL GACs have updated these based on current exposure parameters (e.g. updated inhalation rates). • The GACs have been generated assuming a sandy loam soil type and a Soil Organic Material of 2.5% for the Made Ground (measured range 1.1 – 2.9% with only one test result marginally exceeding 2.5% organic matter). • In the event impacts are identified on a site above the GAC level for arsenic, cadmium, chromium VI, benzene or benzo(a)pyrene, the results have been compared to the applicable Category 4 Screening Level (C4SL) published by DEFRA to further assess risks. • The exception to the above relates to lead. The SGV for lead has been withdrawn and the C4SL for lead is used by CGL directly as a first tier of assessment. • The CGL GACs represent conservative screening criteria (set at acceptable or minimal risk) and have generally been calculated using the default parameters for the standard land use scenarios set out in the CLEA technical report and toxicological inputs in line with the requirements of Science Report SC050021/SR2 and, in the case of petroleum hydrocarbons, Science Report P5-080/TR3. • Where a CGL GAC has not been derived alternative assessment criteria will be sourced from current commercially-available sources (including international standards where no suitable UK assessment criteria exists). • Where the dataset is of appropriate size, assessment against the applicable GAC or C4SL is carried out at the 95th percentile of the sample mean (designated US_{95}), which is considered to represent a reasonable worst-case scenario. An assessment of the normality of the data has been undertaken. Where datasets are normally distributed the one sample t-test has been applied to calculate the US_{95}. In the case of non-parametric datasets, the Chebychev Theorem has been applied. The Grubbs Test has also been used to identify potential outliers within datasets. • It is noted that the British Geological Survey has published background levels for a number of organic and inorganic constituents. In the event that the C4SL or a GAC is found to be exceeded, the risk may still be considered to be low, unlikely to meet the definition of contaminated land under Part IIA and potentially suitable for use from a development perspective, if the contaminant concentrations are below local background levels, assuming no other contributing factors. • At this time an authoritative GAC is not available for asbestos fibres in soil. A positive identification of asbestos fibres in a soil sample by the laboratory is considered sufficient to warrant additional assessment of risks. Laboratory identification and quantification by microscopy may be required subject to source of material.
Ground gas	• Concentrations and flow rates of carbon dioxide and methane in ground gas are converted to Gas Screening Values (GSVs) in accordance with CIRIA (2007). Potential risks associated with gas chemistry are evaluated in accordance with guidance presented in CIRIA (2007), NHBC (2007), BSI (2007).
Radon	• Risks from the radon content of soil gas are evaluated in accordance with BRE (2011).

Table J1 (continued). Rationale for Assessment Criteria Adoption

Risks to Buildings & Structures	
Water supply pipes	• The evaluation of water supply pipe requirements at the site has been undertaken in general accordance with guidance and criteria produced by the UK Water Industry (2011).
Sulfate & pH conditions	• The evaluation of risks to buried concrete has followed the guidance and criteria produced by BRE (2005).

Table J2. Soil risks to human health (residential land use without homegrown produce)

Determinand	GAC SOM = 2.5%	C4SL (based on 6% SOM)[1]	Note on SSL[2]	Measured range (mg/kg)	US_{95} (mg/kg)	US_{95} > Assessment Criteria? (Y/N) #- outlier detected
Arsenic	35	40	-	12.0 to 31.0	28.27	N
Barium	*	*	-	120 to 580	540	*#
Beryllium	88	*	-	0.6 to 1.5	1.46	N
Boron	*	*	-	1.0 to 5.0	4.74	*#
Cadmium	87	150	-	<0.2 to 0.4	0.38	N#
Total Chromium	*	*	-	18 to 36	33.66	*
Chromium (III)	3,300	*	-	39	¥	-
Chromium (VI)	6.3	21	-	<1.2	¥	-
Copper	9,400	*	-	67 to 200	159.75	N
Lead[3]	**310**	**310**	**-**	**180 to 1400**	**1071.15**	**Y**
Mercury (inorganic)	250	*	-	<0.3 to 1.36	1.2	N
Nickel	190	*	-	21 to 31	39.96	N
Selenium	600	*	-	<1.0	1.0	N
Vanadium	1,100	*	-	47 to 78	70.95	N
Zinc	20,000	*	-	98 to 350	331.19	N#
Benzene	1.6	3.3	-	<0.001	0.001	N
Toluene	1,900	*	(c)	<0.001	0.001	N
Ethyl benzene	1,200	*	-	<0.001	0.001	N
m-xylene[4]	500	*	-	<0.001	0.001	N
o-xylene	540	*	-	<0.001	0.001	N
p-xylene	480	*	-	<0.001	0.001	N
Phenol[5]	3,500	*	-	<2.0	2.0	N
TPH aliphatic EC5-6	130	*	-	<0.1	0.1	N
TPH aliphatic EC>6-8	340	*	-	<0.1	0.1	N
TPH aliphatic EC>8-10	82	*	-	<0.1	0.1	N
TPH aliphatic EC>10-12	5,800	*	(b)	<1.0	1.0	N
TPH aliphatic EC>12-16	6,400	*	(b)	<2.0 to 2.6	2.54	N#
TPH aliphatic EC>16-35	130,000 [21]	*	(a)	<16 to 17.3	17.16	N#
TPH aromatic EC5-7	1.6	*	-	<0.1	0.1	N
TPH aromatic EC>7-8	1,900	*	-	<0.1	0.1	N
TPH aromatic EC>8-10	130	*	-	<0.1	0.1	N

[1] *= No value currently defined.
[2] -= green; (a) = amber i.e GAC set to model output, [SSL provided in square brackets]; (b) = red i.e SSL exceeded & considered to affect interpretation. GAC calculated in accordance with CLEA Software Handbook.
[3] Published C4SL.
[4] Concentrations for total xylenes should be compared to the value for m-xylene for fresh spills and to o-xylene for all other cases.
[5] GAC relates to phenol (C_6H_5OH) only.
¥ Only one test result available so US95 cannot be calculated. Cr(III) and Ch(IV) are both lower than the GAC.
[ ] Number in square brackets is only applicable is free product was noted.

Determinand	GAC SOM = 2.5%	C4SL (based on 6% SOM)[1]	Note on SSL[2]	Measured range (mg/kg)	US_{95} (mg/kg)	US_{95} > Assessment Criteria? (Y/N) #- outlier detected
TPH aromatic EC>10-12	670	*	-	<1.0	1.0	N
TPH aromatic EC>12-16	2,500	*	(b)	<2.0 to 24	21.83	N#
TPH aromatic EC>16-21	1,900 [150]	*	(a)	<10 to 140	136.09	N
TPH aromatic EC>21-35	1,900 [12]	*	(a)	<10 to 230	225.09	N
Naphthalene	15	*	-	<0.05 to 0.87	0.86	N
Acenaphthene	4,100	*	(b)	<0.1 to 0.93	0.89	N
Fluorene	4,000	*	(b)	<0.1 to 2.0	2.09	N
Anthracene	36,000 [19]	*	(a)	<0.1 to 6.1	7.55	N
Fluoranthene	5,000 [47]	*	(a)	<0.1 to 22.0	26.18	N
Pyrene	3,700 [5.5]	*	(a)	<0.1 to 18	21.8	N
Benzo(a)anthracene	21 [4.3]	*	(a)	<0.1 to 11.0	12.09	N
Chrysene	230 [1.1]	*	(a)	<0.05 to 9.9	10.63	N
Benzo(b)fluoranthene	23 [3.0]	*	(a)	<0.05 to 9.9	10.82	N
Benzo(k)fluoranthene	23 [1.7]	*	(a)	<0.1 to 5.8	6.4	N
Benzo(a)pyrene	**3.6 [2.3]**	**5.3**	**(c)**	**<0.1 to 9.4**	**10.32**	**Y**
Indeno(1,2,3-cd)perylene	34 [0.15]	*	(a)	<0.1 to 4.3	4.72	N
Dibenzo(a,h)anthracene	2.3 [0.01]	*	(a)	<0.1 to 0.95	0.92	N
Benzo(g,h,i)perylene	230 [0.05]	*	(a)	<0.05 to 5.6	6.28	N

Table J3. Standard Water Supply Pipe Assessment

Test Group[1]	Testing Required?	PE threshold (mg/kg)	Metal Pipes / Barrier Pipe	Laboratory Detection Limit (mg/kg)	Testing UKAS accredited Y/N	Maximum concentration at proposed pipeline depth[2] (mg/kg)	Maximum site concentration[3] (mg/kg)	Locations and depths where concentrations exceed proposed pipeline threshold.
Total VOCs	**Where Preliminary Risk Assessment (PRA) has identified land potentially affected by contamination**	**0.5**	**Pass**	0.05	Y	0.45	0.87	WS2 at 1.5mbgl
Total BTEX & MTBE		**0.1**	**Pass**	0.001	Y	<0.001	<0.001	None
Total SVOCs		**2**	**Pass**	Not tested	N/A	Not tested	Not tested	N/A
EC5–EC10 aliphatic and aromatic hydrocarbons		**2**	**Pass**	0.6	Y	<0.6	<0.6	None
EC10-EC16 aliphatic and aromatic hydrocarbons		**10**	**Pass**	1.0	Y	4.7	24.0	WS2 at 1.5mbgl
EC16-EC40 aliphatic and aromatic hydrocarbons		**500**	**Pass**	8.0	Y	176.0	379.3	None
Phenols		**2**	**Pass**	2.0	Y	<2.0	<2.0	N/A
Creosols and chlorinated phenols		**2**	**Pass**	Not tested	N/A	Not tested	Not tested	Not tested
Ethers	**Only where identified**	**0.5**	**Pass**	N/A	N/A	N/A	N/A	N/A
Nitrobenzene		**0.5**	**Pass**	N/A	N/A	N/A	N/A	N/A
Ketones		**0.5**	**Pass**	N/A	N/A	N/A	N/A	N/A
Aldehydes		**0.5**	**Pass**	N/A	N/A	N/A	N/A	N/A
Amines		**Fail**	**Pass**	N/A	N/A	N/A	N/A	N/A
Corrosive	**Conductivity**	**Pass**	**Note[4]**	N/A	N/A	Not tested	Not tested	N/A
	Redox			N/A	N/A	Not tested	Not tested	N/A
	pH			N/A	N/A	7.5 to 9.6	7.5 to 9.6	None

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[1] Tests Groups as per Appendix G of UKWIR Guidance.

[2] Water pipes are normally laid 0.75-1.35 metres below finished ground level.

[3] State if liquid free product is present in soil or groundwater.

[4] Threshold: For wrapped steel, corrosive if pH<7 and conductivity >400 µs/cm. For wrapped ductile iron corrosive if pH<5, Eh not neutral and conductivity >400 µs/cm. For copper, corrosive if pH<5 or>8 and Eh positive.