CAUSEWAY GEOTECH

FINAL
FOR ISSUE

City Waste – Environmental Site Investigation

Primary Author:	[redacted]
Client:	CPD
Client's Representative:	Sirius Geotechnical and Environmental Ltd.
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File Location:	16-0486 Report

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CONTENTS

APPENDICES

Document Control Sheet

Report No.:	16-0486
Project title:	City Waste – Environmental Site Investigation
Client:	CPD (Central Procurement Directorate)
Client's Representative:	Sirius Geotechnical and Environmental Ltd.

Revision	Status	Report prepared by:	Report reviewed by:	Report approved by:	Issue date
A00	Final	[redacted] MEarthSci FGS	[redacted] BSc MSc	[redacted] BEng PhD CEng MIEI	19 October 2016

The works were conducted in accordance with:

UK Specification for Ground Investigation 2nd Edition, published by ICE Publishing (2012)

British Standards Institute (2015) BS 5930:2015, Code of practice for site investigations.

METHODS OF DESCRIBING SOILS AND ROCKS

Soil and rock descriptions are based on the guidance in BS5930:2015, The Code of Practice for Site Investigation.

Abbreviations used on exploratory hole logs	
U	Nominal 100mm diameter undisturbed open tube sample
P	Nominal 100mm diameter undisturbed piston sample
B	Bulk disturbed sample
D	Small disturbed sample
W	Water sample
ES / EW	Soil sample for environmental testing / Water sample for environmental testing
SPT	Standard penetration test using a split spoon sampler (small disturbed sample obtained)
SPT (C)	Standard penetration test using 60 degree solid cone
x,x/x,x,x,x	Blows per increment during the standard penetration test. The initial two values relate to the seating drive (150mm) and the remaining four to the 75mm increments of the test length. The length achieved is stated (mm) for any test increment less than 75mm
N=X	SPT blow count 'N' given by the summation of the blows 'X' required to drive the full test length (300mm)
N=X/Z	Incomplete standard penetration test where the full test length was not achieved. The blows 'X' represent the total blows for the given test length 'Z' (mm)
V VR	Shear vane test (borehole) Hand vane test (trial pit) Shear strength stated in kPa V: undisturbed vane shear strength VR: remoulded vane shear strength
dd/mm/yy: 1.0 dd/mm/yy: dry	Date & water level at the borehole depth at the end of shift and the start of the following shift
Abbreviations relating to rock core – reference Clause 44.4.4 of BS 5930: 1999	
TCR (%)	Total Core Recovery: Ratio of rock/soil core recovered (both solid and non-intact) to the total length of core run.
SCR (%)	Solid Core Recovery: Ratio of solid core to the total length of core run. Solid core has a full diameter, uninterrupted by natural discontinuities, but not necessarily a full circumference and is measured along the core axis between natural fractures.
RQD (%)	Rock Quality Designation: Ratio of total length of solid core pieces greater than 100mm to the total length of core run.
FI	Fracture Index: Number of natural discontinuities per metre over an indicated length of core of similar intensity of fracturing.
NI	Non Intact: Used where the rock material was recovered fragmented, for example as fine to coarse gravel size particles.
AZCL	Assessed zone of core loss: The estimated depth range where core was not recovered.
DIF	Drilling induced fracture: A fracture of non-geological origin brought about by the rock coring.

City Waste, Mobuoy Road

1 AUTHORITY

On the instructions of Consulting Engineers, Sirius Geotechnical and Environmental Ltd. ("the Client's Representative"), acting on the behalf of CPD ("the Client"), a ground investigation was undertaken at the above location to provide environmental information for input to the design of remediation strategies for the City Waste site.

This report details the work carried out both on site and in the geotechnical and chemical testing laboratories; it contains a description of the site and the works undertaken, the exploratory hole logs and the laboratory test results

All information given in this report is based upon the ground conditions encountered during the site investigation works, and on the results of the laboratory and field tests performed. However, there may be conditions at the site that have not been taken into account, such as unpredictable soil strata, contaminant concentrations, and water conditions between or below exploratory holes. It should be noted that groundwater levels usually vary due to seasonal and/or other effects and may at times differ to those measured during the investigation.

This report was prepared by Causeway Geotech Ltd for the use of the Client and the Client's Representative in response to particular instructions. Any other parties using the information contained in this report do so at their own risk and any duty of care to those parties is excluded.

2 SCOPE

The extent of the investigation, as instructed by the Client's Representative, included boreholes, trial pits, environmental sampling, ground and surface water monitoring, ground gas monitoring, in-situ and laboratory testing, and the preparation of a factual report on the findings.

3 DESCRIPTION OF SITE

As shown on the exploratory hole location plan in Appendix A, the works were conducted on the grounds of a former quarry and landfill site. The site spanned the west and east sides of the Mobuoy Road, close to the River Faughan, to the east of Derry city.

4 SITE OPERATIONS

Site operations, which were conducted between 23rd May and 28th September 2016, included:

- seven percussion boreholes
- a standpipe installation in six boreholes
- seventeen trial pits
- nine permeability tests in boreholes

The exploratory holes and in situ tests were located as instructed by the Client's Representative, as shown on the exploratory hole location plan in Appendix A.

4.1 Boreholes

Seven boreholes (BH01-BH07) were put down to completion in minimum 200mm diameter using Dando light cable percussion soil boring rigs. All boreholes were terminated either at their scheduled completion depths.

Hand dug inspection pits were carried out between ground level and 1.2m depth to ensure boreholes were put down at locations clear of services or subsurface obstructions.

Environmental samples were taken at 1m depth intervals, as directed by the Client's Representative.

Any water strikes encountered during boring were recorded along with any changes in their levels as the borehole proceeded.

Appendix B presents the borehole logs.

4.2 Standpipe installations

A groundwater monitoring standpipe was installed in boreholes BH01-BH04 and BH06-BH07.

Details of the installations, including the depth range of the response zone, are provided in Appendix B on the individual borehole logs.

Following the completion of the intrusive investigation work groundwater and ground gas monitoring was undertaken at the site on three occasions. The results of the monitoring are presented in Appendix F.

Monitoring was also carried out using digital data-loggers in four boreholes (BH02, BH05, BH06 and BH122) and also in the lagoon in the south-eastern part of the site. The data has been provided separately.

4.3 Trial Pits

Seventeen trial pits (TP01-TP12 and TP15-TP19) were excavated using a 13t tracked excavator fitted with a 600mm wide bucket, to depths of up to 4.50m.

Environmental samples were taken at regular depths in each trial pit and as directed by the Client's Representative.

Any water strikes encountered during excavation were recorded along with any changes in their levels as the excavation proceeded. The stability of the trial pit walls was noted on completion.

Appendix C presents the trial pit logs with photographs of the pits and arising provided in Appendix D.

4.4 Sampling of lagoons

Sampling of the lagoon beds was carried out with the aid of a boat and grab sampler.

4.5 Driven piezometer wells

Stainless steel driven piezometer wells were installed at four locations (PIEZO1-PIEZO4) to provide groundwater monitoring points along the bank of the Faughan River.

4.6 Variable head permeability testing

A total of nine in-situ permeability tests were carried out by variable head permeability methods, following development of the wells.

Falling head tests were carried out in four boreholes (BH04-BH07), while rising head tests were carried out at five locations (BH04, BH06, BH102, BH106 and BH107).

The results are presented in Appendix E.

4.7 Weather monitoring

A weather station was set up on the site to record the local weather. However, the station was stolen after three days of recording. The results have been provided separately.

4.8 Channel flow monitoring

Channel flow monitors were installed in a stream which runs around and through the site. The data-loggers were positioned so as to record the variation of water level and flow rate in the stream close to its convergence with the River Faughan. The results from the monitoring period (9th-31st August) have been provided separately.

4.9 Drone survey

An aerial drone survey of the site was conducted by Property Services NI. The video has been issued separately.

4.10 Surveying

The as-built exploratory hole positions were surveyed following completion of site operations by a Site Engineer from Causeway Geotech. Surveying was carried out using a Trimble R6 GPS system employing VRS and real time kinetic (RTK) techniques.

The plan coordinates (UK National Grid) and ground elevation (mOD Malin) at each location are recorded on the individual exploratory hole logs. The exploratory hole plan presented in Appendix A shows these as-built positions.

5 LABORATORY WORK

Upon their receipt in the laboratory, all disturbed samples were carefully examined and accurately described and their descriptions incorporated into the borehole logs.

5.1 Geotechnical laboratory testing of soils

Laboratory testing of soils comprised the determination of porosity and bulk density of four amalgamated samples.

The tests were carried out in accordance with British Standards Institute (1990) *BS 1377:1990, Methods of test for soils for civil engineering purposes. Parts 1 to 9.*

The results are presented in Appendix G.

5.2 Environmental laboratory testing of soils

Environmental testing, as specified by the Environmental Consultant was conducted on selected environmental samples by Chemtest at its laboratory in Newmarket, Suffolk. Results of environmental testing are presented in Appendix H.

6 GROUND CONDITIONS

6.1 General geology of the area

Superficial deposits in the area predominantly consist of alluvial soils, along with glaciofluvial and glacial deposits. The underlying bedrock is composed of psammite and pelite of the Southern Highland Group.

6.2 Ground types encountered during investigation of the site

A summary of the ground types encountered in the exploratory holes is listed below, in approximate stratigraphic order:

- **Made Ground (clay/gravel cap):** most of the exploratory holes were put down through approximately 0.50-1.50m of clay or gravel fill at the surface.
- **Made Ground (fill/landfill):** reworked clay or rubble fill, often with a very high content of domestic and/or industrial waste.
- **Recent deposits (peat):** identified beneath made ground in TP18 and TP19.
- **Alluvium:** clay, sand and gravel encountered beneath made ground or peat across the site.

6.3 Groundwater

Groundwater was encountered as water strikes at varying levels in three of the boreholes and several of the trial pits.

Details of the individual groundwater strikes, along with any relative changes in levels as works proceeded, are presented on the exploratory hole logs for each location.

Groundwater and ground gas monitoring was carried out at the site on three occasions following the completion of intrusive ground investigation work. The results are included in the field and sampling records in Appendix F.

In addition, digital data-loggers were installed in boreholes BH02, BH05, BH06, BH122 and in the lagoon in the south-eastern part of the site. Groundwater data was recorded for a two month period between the 8th June and 9th August 2016. These results have been provided separately.

Continued monitoring of the six installed standpipes will give an indication of the seasonal variation in groundwater level.

7 REFERENCES

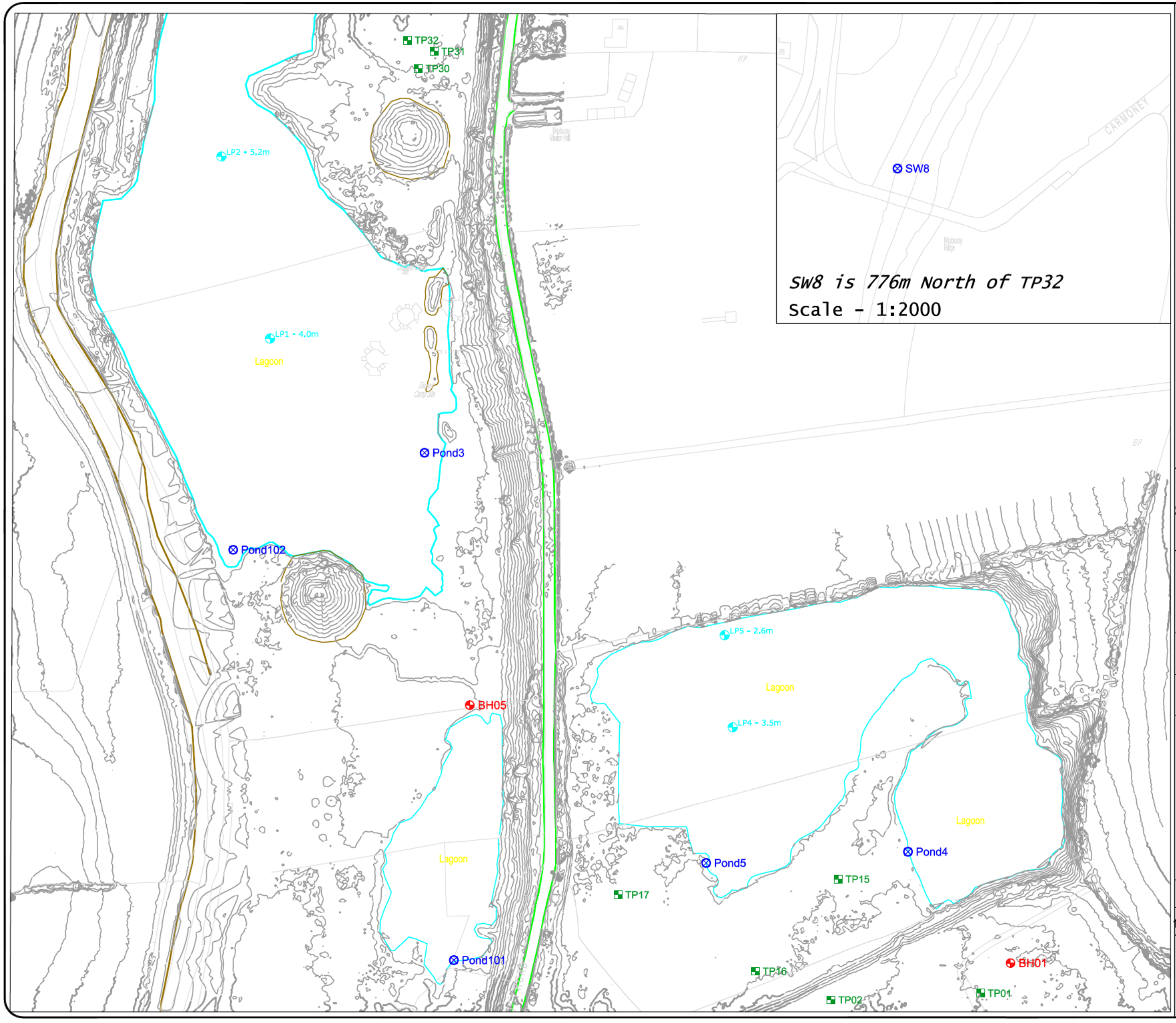
BS 1377: 1990: Methods of test for soils for civil engineering purposes. British Standards Institution.

BS 5930: 2015: Code of practice for ground investigations. British Standards Institution.

BS EN 1997-2: 2007: Eurocode 7 - Geotechnical design - Part 2 Ground investigation and testing. British Standards Institution.

BS EN ISO 14688-1: 2002: Geotechnical investigation and testing - Identification and classification of soil - Part 1 Identification and description. British Standards Institution.

Appendix A
Site and exploratory hole location plans



KEY:

- BH - Borehole
- - Piezo Pipe
- - Water sampling points
- TP - Trial Pit

N

ENGINEER:

Sirius Geotechnical and Environmental Ltd

CLIENT:

CPD

PROJECT NAME:

City Waste Environmental Investigations

SITE ADDRESS (IF APPLICABLE):

Mobouy Road, Londonderry

TITLE:

Exploratory hole location plan

SCALE:		DATE:	
1:2000 @ A3		04/08/16	
DWG No:	REV:	DRWN:	CHCK:
16-0486-EHLoc-001		MD	MFG

CAUSEWAY GEOTECH
Causeway Geotech
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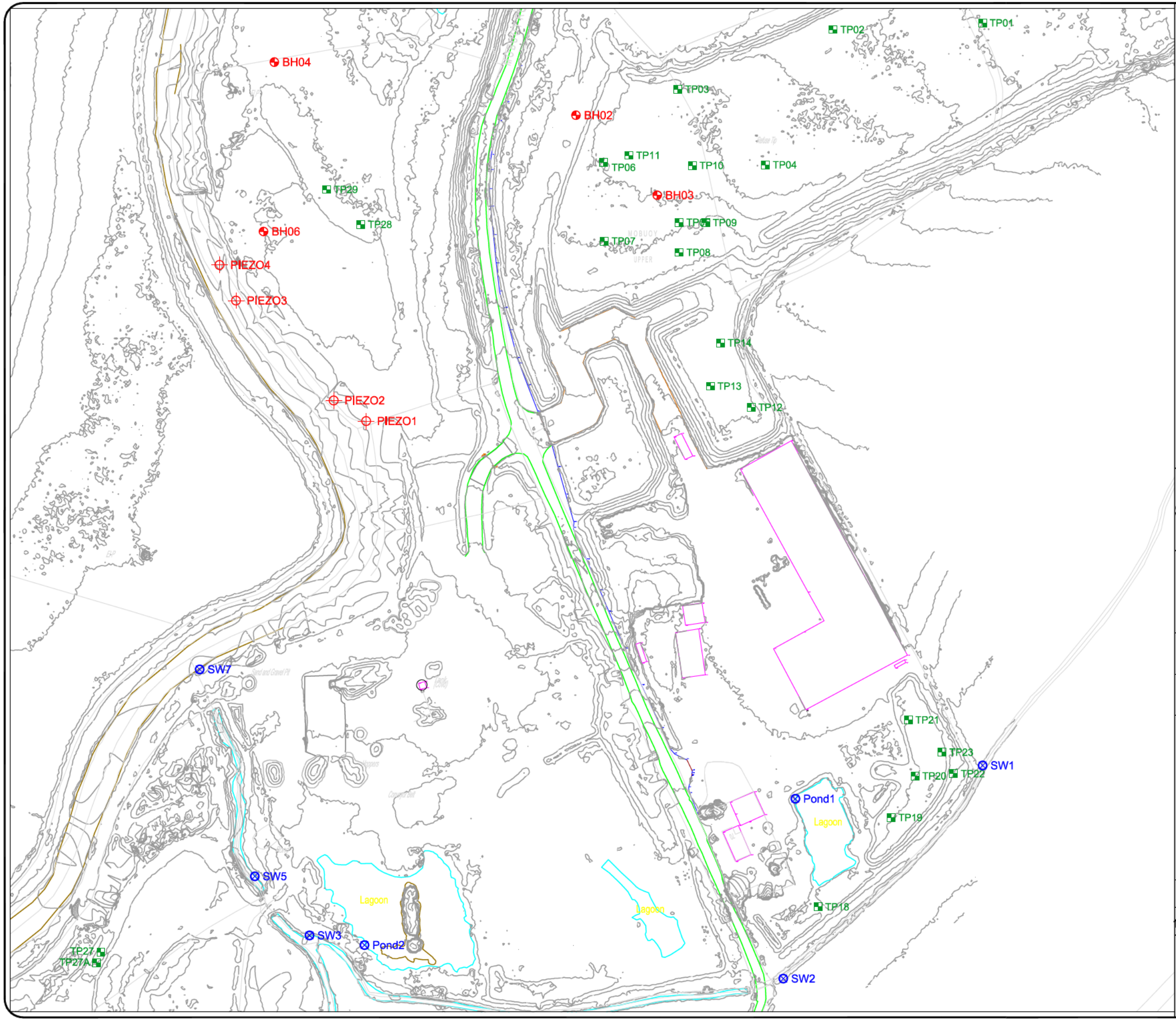

KEY:

BH - Borehole

- Piezo Pipe

- Water sampling points

TP - Trial Pit

N

ENGINEER:

Sirius Geotechnical and Environmental Ltd

CLIENT:

CPD

PROJECT NAME:

City Waste Environmental Investigations

SITE ADDRESS (IF APPLICABLE):

Mobouy Road, Londonderry

TITLE:

Exploratory hole location plan

SCALE:		DATE:	
1:2000 @ A3		17/08/16	
DWG NO:	REV:	DRWN:	CHCK:
16-0486-EHLoc-002		MD	MFG

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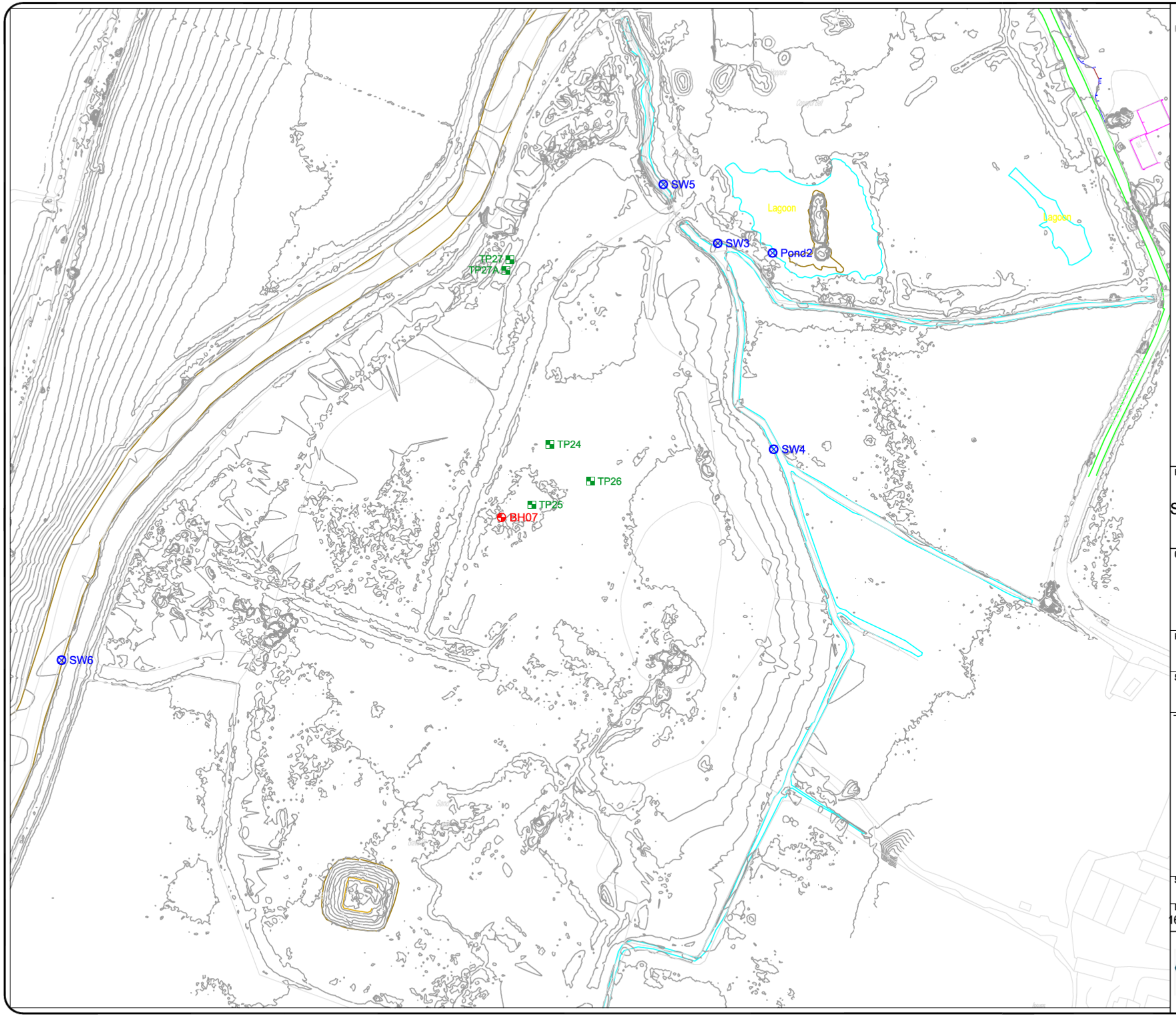

KEY:

BH - Borehole

- Piezo Pipe

- Water sampling points

TP - Trial Pit

N

ENGINEER:

Sirius Geotechnical and Environmental Ltd

CLIENT:

CPD

PROJECT NAME:

City Waste Environmental Investigations

SITE ADDRESS (IF APPLICABLE):

Mobouy Road, Londonderry

TITLE:

Exploratory hole location plan

SCALE:	DATE:		
1:2000 @ A3	04/08/16		
DWG NO: 16-0486-EHLoc-003	REV:	DRWN: MD	CHCK: MFG

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Appendix B
Borehole logs

CAUSEWAY GEOTECH

Project No.: 16-0486	**Project Name:** City Waste Environmental Investigations		**Borehole No.:** BH01
Coordinates: 248053.33 E 418072.76 N	**Client:** CPD		Sheet 1 of 2
Method: Cable Percussion	**Client's Representative:** Sirius Geotechnical and Environmental Ltd		**Scale:** 1:50
Plant: Dando 2000	**Ground Level:** 23.40 mOD	**Dates:** 24/05/2016 -	**Driller:** AH
			Logger: MFG

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description
						(0 30)		MADE GROUND - Clay Fill
					23.10	0 30		MADE GROUND - Clay fill with bags of timber steel and carpet
1 00	ES1							
2 00	ES2							
3 00	ES3							
4 00	ES4							
5 00	ES5					(9 90)		
6 00	ES6							
7 00	ES7							
8 00	ES8							
9 00	ES9							
~~10.00~~	~~ES10~~							

Water | Backfill

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0 9.5

Remarks

Water Added		Water Strike - General			
From (m)	To (m)	Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
		12.50	12.50	20	10. 0

Casing Details		Chiselling Details		
To (m)	Diam (mm)	From (m)	To (m)	Time (hh mm)
12.50	200	5.00	7.00	00:30

CAUSEWAY GEOTECH

Project No.: 16-0486	**Project Name:** City Waste Environmental Investigations	**Borehole No.:** BH01
Coordinates: 248053.33 E 418072.76 N	**Client:** CPD	Sheet 2 of 2
Method: Cable Percussion	**Client's Representative:** Sirius Geotechnical and Environmental Ltd	**Scale:** 1:50
Plant: Dando 2000	**Ground Level:** 23.40 mOD	**Dates:** 24/05/2016 -	**Driller:** AH
			Logger: MFG

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description	Water	Backfill
					13 20	10.20		MADE GROUND - Clay fill with bags of timber steel and carpet		
								Grey sandy GRAVEL with occasional cobbles. Gravel is subangular to subrounded medium.		
11.00	ES11					(2 30)				
12.00	ES12									
					10 90	12.50		End of Borehole at 12.50m		

Remarks

Water Added		Water Strike - General			
From (m)	To (m)	Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
		12.50	12.50	20	10. 0

Casing Details		Chiselling Details		
To (m)	Diam (mm)	From (m)	To (m)	Time (hh mm)
12.50	200	5.00	7.00	00:30

CAUSEWAY GEOTECH

Project No.: 16-0486	**Project Name:** City Waste Environmental Investigations		**Borehole No.:** BH02
Coordinates: 247823.04 E 418008.17 N	**Client:** CPD		Sheet 1 of 2
Method: Cable Percussion	**Client's Representative:** Sirius Geotechnical and Environmental Ltd		**Scale:** 1:50
Plant: Dando 3000	**Ground Level:** 16.07 mOD	**Dates:** 26/05/2016 -	**Driller:** AH
			Logger: MFG

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description
						(0 90)		MADE GROUND - Clay fill
1 00	ES1				15.17	0 90		MADE GROUND - Household waste timber, tin and bags
2 00	ES2							
3 00	ES3							
4 00	ES4							
5 00	ES5					(11.60)		
6 00	ES6							
7 00	ES7							
8 00	ES8							
9 00	ES9							
~~10.00~~	~~ES10~~							

Water | Backfill

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0 9.5

Remarks

Water Added		Water Strike - General			
From (m)	To (m)	Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Casing Details		Chiselling Details		
To (m)	Diam (mm)	From (m)	To (m)	Time (hh mm)
14.00	200	5.00 9.30	6.00 10.20	01:30 01:00

CAUSEWAY GEOTECH

Project No.: 16-0486	**Project Name:** City Waste Environmental Investigations	**Borehole No.:** BH02
Coordinates: 247823.04 E 418008.17 N	**Client:** CPD	Sheet 2 of 2
Method: Cable Percussion	**Client's Representative:** Sirius Geotechnical and Environmental Ltd	**Scale:** 1:50
Plant: Dando 3000	**Ground Level:** 16.07 mOD	**Dates:** 26/05/2016 -	**Driller:** AH
			Logger: MFG

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description
								MADE GROUND - Household waste timber, tin and bags
11.00	ES11							
12.00	ES12							
					3.57	12.50		Firm grey sandy GRAVEL
13.00	ES13					(1 50)		
14.00	ES14				2.07	14.00		End of Borehole at 14.00m

Water | Backfill

10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5 15.0 15.5 16.0 16.5 17.0 17.5 18.0 18.5 19.0 19.5

Remarks

Water Added		Water Strike - General			
From (m)	To (m)	Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Casing Details		Chiselling Details		
To (m)	Diam (mm)	From (m)	To (m)	Time (hh mm)
14.00	200	5.00 9.30	6.00 10.20	01:30 01:00

CAUSEWAY GEOTECH

Project No.: 16-0486	**Project Name:** City Waste Environmental Investigations	**Borehole No.:** BH03
Coordinates: 247865.88 E 417966.03 N	**Client:** CPD	Sheet 1 of 2
Method: Cable Percussion	**Client's Representative:** Sirius Geotechnical and Environmental Ltd	**Scale:** 1:50
Plant: Dando 3000	**Ground Level:** 18.81 mOD	**Dates:** 27/05/2016 -
		Driller: AH
		Logger: MFG

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description
						(1.10)		MADE GROUND - Clay fill
1.00	ES1				17.71	1.10		MADE GROUND - Household waste bags, tin, tyres, crisp bags and timber.
2.00	ES2							
3.00	ES3							
4.00	ES4							
5.00	ES5					(11.90)		
6.00	ES6							
7.00	ES7							
8.00	ES8							
9.00	ES9							
~~10.00~~	ES10							

Water | Backfill

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0 9.5

Remarks

Water Added		Water Strike - General			
From (m)	To (m)	Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Casing Details		Chiselling Details		
To (m)	Diam (mm)	From (m)	To (m)	Time (hh mm)
14.00	200	2.80 6.70	3.80 7.50	01:00 01:00

CAUSEWAY GEOTECH

Project No.: 16-0486	**Project Name:** City Waste Environmental Investigations		**Borehole No.:** BH03
Coordinates: 247865.88 E 417966.03 N	**Client:** CPD		Sheet 2 of 2
Method: Cable Percussion	**Client's Representative:** Sirius Geotechnical and Environmental Ltd		**Scale:** 1:50
Plant: Dando 3000	**Ground Level:** 18.81 mOD	**Dates:** 27/05/2016 -	**Driller:** AH
			Logger: MFG

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description	Water	Backfill
								MADE GROUND - Household waste bags, tin, tyres, crisp bags and timber.		
11.00	ES11									
12.00	ES12									
13.00	ES13				5.81	13.00		Firm grey very sandy GRAVEL.		
						(1 00)				
14.00	ES14				4.81	14.00		End of Borehole at 14.00m		

Remarks

Water Added		Water Strike - General			
From (m)	To (m)	Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Casing Details		Chiselling Details		
To (m)	Diam (mm)	From (m)	To (m)	Time (hh mm)
14.00	200	2.80 6.70	3.80 7.50	01:00 01:00

CAUSEWAY GEOTECH

Project No.: 16-0486	**Project Name:** City Waste Environmental Investigations		**Borehole No.:** BH04
Coordinates: 247663.95 E 418036.18 N	**Client:** CPD		Sheet 1 of 1
Method: Cable Percussion	**Client's Representative:** Sirius Geotechnical and Environmental Ltd		**Scale:** 1:50
Plant: Dando 3000	**Ground Level:** 7.31 mOD	**Dates:** 31/05/2016 -	**Driller:** AH
			Logger: MFG

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description
						(1 20)		MADE GROUND: Clay fill
1 00	ES1				6.11	1 20		MADE GROUND: Household waste bags with pieces of timber and metal.
2 00	ES2							
3 00	ES3					(3 30)		
4 00	ES4							
					2.81	4 50		Firm grey fine to coarse subrounded GRAVEL with thin beds of fine to coarse SAND.
5 00	ES5							
6 00	ES6					(3 00)		
7 00	ES7							
					-0.19	7 50		End of Borehole at 7.50m

Water: Backfill

Remarks

Water Added		Water Strike - General			
From (m)	To (m)	Struck at (m)	Casing to (m)	Time (min)	Rose to (m)

Casing Details		Chiselling Details		
To (m)	Diam (mm)	From (m)	To (m)	Time (hh mm)
7.50	200	1.80 4.30	2.80 4.90	01:00 00:30

CAUSEWAY GEOTECH

Project No.: 16-0486	**Project Name:** City Waste Environmental Investigations		**Borehole No.:** **BH05**
Coordinates: 247768.18 E 418208.69 N	**Client:** CPD		Sheet 1 of 1
Method: Cable Percussion	**Client's Representative:** Sirius Geotechnical and Environmental Ltd		**Scale:** 1:50
Plant: Dando 3000	**Ground Level:** 7.03 mOD	**Dates:** 01/06/2016 -	**Driller:** AH **Logger:** MRG

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description	Water	Backfill
						(0.70)		MADE GROUND - Clay fill		
					6.33	0.70		MADE GROUND - Household waste with timber, bags and rubber		
1 00	ES1									
2 00	ES2					(2 80)				
3 00	ES3									
					3.53	3 50		Firm grey subangular to subrounded GRAVEL with layers of grey sand.		
4 00	ES4									
						(2 50)				
5 00	ES5									
6 00	ES6				1.03	6 00		End of Borehole at 6.00m		

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0 9.5

Remarks

Water Added		Water Strike - General			
From (m)	To (m)	Struck at (m)	Casing to (m)	Time (min)	Rose to (m

Casing Details		Chiselling Details		
To (m)	Diam (mm)	From (m)	To (m)	Time (hh mm)

CAUSEWAY GEOTECH

Project No.: 16-0486	**Project Name:** City Waste Environmental Investigations		**Borehole No.:** BH06
Coordinates: 247658.25 E 417946.91 N	**Client:** CPD		Sheet 1 of 1
Method: Cable Percussion	**Client's Representative:** Sirius Geotechnical and Environmental Ltd		**Scale:** 1:50
Plant: Dando 3000	**Ground Level:** 8.02 mOD	**Dates:** 01/06/2016 -	**Driller:** AH
			Logger: MFG

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description
						(0 90)		MADE GROUND - Clay fill
1 00	ES1				7.12	0 90		MADE GROUND - Waste ground with bags and timber
						(0 90)		
2 00	ES2				6.22	1 80		Soft grey silty CLAY with bands of grey sand.
3 00	ES3							
4 00	ES4							
						(5.40)		
5 00	ES5							
6 00	ES6							
7 00	ES7							
					0.82	7 20		End of Borehole at 7.20m

Water

Backfill

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0 9.5

Remarks

Water Added		Water Strike - General			
From (m)	To (m)	Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
		5.30	5.30	10	5.30

Casing Details		Chiselling Details		
To (m)	Diam (mm)	From (m)	To (m)	Time (hh mm)
7.20	200	0.10	0.50	00:30

CAUSEWAY GEOTECH

Project No.: 16-0486	**Project Name:** City Waste Environmental Investigations		**Borehole No.:** BH07
Coordinates: 247568.03 E 417430.98 N	**Client:** CPD		Sheet 1 of 1
Method: Cable Percussion	**Client's Representative:** Sirius Geotechnical and Environmental Ltd		**Scale:** 1:50
Plant: Dando 3000	**Ground Level:** 7.83 mOD	**Dates:** 02/06/2016 -	**Driller:** AH
			Logger: MFG

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description
						(0 80)		MADE GROUND - Clay fill
					7.03	0 80		
1 00	ES1							MADE GROUND - Household waste, tin, rubber, timber, carpet and bags.
						(2.10)		
2 00	ES2							
					4.93	2 90		Soft grey silty sandy CLAY
						(0 90)		
					4.03	3 80		Loose fine grey gravelly SAND. Gravel is subangular to subrounded fine
4 00	ES3							
5 00	ES4							
						(3.70)		
6 00	ES5							
7 00	ES6							
					0.33	7 50		End of Borehole at 7.50m

Water | Backfill

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0 9.5

Remarks

Water Added		Water Strike - General			
From (m)	To (m)	Struck at (m)	Casing to (m)	Time (min)	Rose to (m)
		5.10	5.10	20	4.80

Casing Details		Chiselling Details		
To (m)	Diam (mm)	From (m)	To (m)	Time (hh mm)
7.50	200			

Appendix C
Trial pit logs

CAUSEWAY GEOTECH

Project No.: 16-0486	**Project Name:** City Waste Environmental Investigations		**Trial Pit No.:** **TP01**
Co-ordinates: 248037.46 E 418056.81 N	**Client:** CPD		Sheet 1 of 1
Method: Trial Pitting	**Client's Representative:** Sirius Geotechnical and Environmental Ltd		**Scale:** 1:25
Plant: Excavator 135	**Ground Level:** 22.97 mOD	**Date:** 23/05/2016	**Logger:** SC

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description	Water
				(0 30)		MADE GROUND - Firm grey sandy gravelly clay	
			22.67	0 30		MADE GROUND - Domestic waste - black plastic bags containing household rubbish, strong sulphur odour. 80% black bag from domestic use	
0 50	ES1						
				(1.40)			
		Water seepage					▼
1.70	ES2		21 27	1.70		MADE GROUND - Firm to stiff grey CLAY with pieces of domestic waste	
				(0.40)			
			20 87	2.10		MADE GROUND - Domestic waste - black bags, bottles, brick and plastic 80% black bag.	
2 20	ES3						
				(1 00)			
3 00	ES4						
			19 87	3.10		End of trial pit at 3.10m	

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5

Remarks

Trial Pit terminated on Engineers instruction

Water Strikes:

Struck at (m):	Remarks:
1.10	Water seepage

Stability: Stable but spalling

Width:

Length:

CAUSEWAY GEOTECH

Project No.: 16-0486	**Project Name:** City Waste Environmental Investigations		**Trial Pit No.:** **TP02**
Co-ordinates: 247958.72 E 418053.30 N	**Client:** CPD		Sheet 1 of 1
Method: Trial Pitting	**Client's Representative:** Sirius Geotechnical and Environmental Ltd		**Scale:** 1:25
Plant: Excavator 135	**Ground Level:** 21.48 mOD	**Date:** 23/05/2016	**Logger:** SC

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description	Water
				(0 20)		MADE GROUND - Firm grey CLAY	
			21 28	0 20		MADE GROUND - Domestic waste containing 80% of black plastic bags, car parts and bottles.	
0 50	ES1			(0 90)			
			20 38	1.10		MADE GROUND - Plastic, timber and household waste.	
1 20	ES2						
				(2.40)			
2 50	ES3						
3 30	ES4						
			17 98	3 50			
				(0 20)		Firm to stiff grey CLAY	
3.70	ES5		17.78	3.70		End of trial pit at 3.70m	

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5

Remarks

Water Strikes:	
Struck at (m):	Remarks:

Stability: Spalling

Width:

Length:

CAUSEWAY GEOTECH

Project No.: 16-0486	**Project Name:** City Waste Environmental Investigations		**Trial Pit No.:** **TP03**
Co-ordinates: 247876.79 E 418021.90 N	**Client:** CPD		Sheet 1 of 1
Method: Trial Pitting	**Client's Representative:** Sirius Geotechnical and Environmental Ltd		**Scale:** 1:25
Plant: Excavator 135	**Ground Level:** 19.97 mOD	**Date:** 23/05/2016	**Logger:** SC

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description	Water
				(1 00)		MADE GROUND - Firm to stiff grey slightly sandy gravelly CLAY with occasional subrounded to subangular cobbles	
1 00	ES1		18 97	1 00		MADE GROUND - Shredded plastic material, timber, bottles, plastic lids (general household waste)	
2 00	ES2			(2.60)			
3 00	ES3						
3 50	ES4						
			16 37	3.60		End of trial pit at 3.60m	

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5

Remarks

Water Strikes:	
Struck at (m):	Remarks:

Stability: Stable

Width:

Length:

CAUSEWAY GEOTECH

Project No.: 16-0486	**Project Name:** City Waste Environmental Investigations		**Trial Pit No.:** **TP04**
Co-ordinates: 247923.08 E 417982.04 N	**Client:** CPD		Sheet 1 of 1
Method: Trial Pitting	**Client's Representative:** Sirius Geotechnical and Environmental Ltd		**Scale:** 1:25
Plant: Excavator 135	**Ground Level:** 20.31 mOD	**Date:** 23/05/2016	**Logger:** SC

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description	Water
0 50	ES1			(0 90)		MADE GROUND - Large boulders in matrix of sandy gravelly clay.	
		Water seepage	19.41	0 90			▼
1 00	ES2					MADE GROUND - Black shredded paper, plastic and cloth with timber, tin and black bags of general household waste.	
2 00	ES3			(2 50)			
3 00	ES4						
			16 91	3.40		End of trial pit at 3.40m	

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5

Remarks

Trial Pit terminated due to large pieces of concrete

Water Strikes:

Struck at (m):	Remarks:
0.90	Water seepage

Stability: Stable

Width:

Length:

CAUSEWAY GEOTECH

Project No.: 16-0486	**Project Name:** City Waste Environmental Investigations		**Trial Pit No.:** **TP05**
Co-ordinates: 247877.49 E 417951.69 N	**Client:** CPD		Sheet 1 of 1
Method: Trial Pitting	**Client's Representative:** Sirius Geotechnical and Environmental Ltd		**Scale:** 1:25
Plant: Excavator 135	**Ground Level:** 18.20 mOD	**Date:** 23/05/2016	**Logger:** SC

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description	Water
				(0 80)		MADE GROUND - Firm to stiff light brown sandy gravelly clay with occasional subangular to angular cobbles.	
0 50	ES1						
			17.40	0 80		MADE GROUND - Reinforcing bars, concrete, timber, cloth material, bottles and glass. Visual and olfactory evidence of hydrocarbons.	
1 00	ES2			(0 50)			
			16 90	1 30		MADE GROUND - Shredded domestic waste, paper, glass, plastic bags, black bin bags containing household rubbish. Strong foul odour. Old utility bill found dating 28th June 2008.	
1 50	ES3						
2 00	ES4			(2 00)			
3 00	ES5						
			14 90	3 30		End of trial pit at 3.30m	

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5

Remarks

Water Strikes:	
Struck at (m):	Remarks:

Stability: Spalling

Width:

Length:

CAUSEWAY GEOTECH	**Project No.:** 16-0486	**Project Name:** City Waste Environmental Investigations	**Trial Pit No.:** **TP06**
	Co-ordinates: 247837.66 E 417983.32 N	**Client:** CPD	Sheet 1 of 1
Method: Trial Pitting		**Client's Representative:** Sirius Geotechnical and Environmental Ltd	**Scale:** 1:25
Plant: Excavator 135	**Ground Level:** 18.81 mOD	**Date:** 23/05/2016	**Logger:** SC

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description	Water
				(0 90)		MADE GROUND - Black bags, timber, glass bottles and plastic. Hydrocarbon odour.	
			17 91	0 90			
1 00	ES1			(0.40)		MADE GROUND - Firm to stiff light brown silty clay.	
			17 51	1 30			
1 50	ES2					MADE GROUND - Domestic waste (~80%) with plastic bags, glass, rubbish bags, air hose, car parts. Best before labels found: November 2010 (apple juice) and July 2010 (muesli).	
2 00	ES3			(1.60)			
			15 91	2 90		End of trial pit at 2.90m	

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5

Remarks

Trial Pit terminated on Engineers instruction

Water Strikes:

Struck at (m):	Remarks:

Stability: Spalling

Width:

Length:

CAUSEWAY GEOTECH

Project No.: 16-0486	**Project Name:** City Waste Environmental Investigations		**Trial Pit No.:** **TP07**
Co-ordinates: 247838.00 E 417941.84 N	**Client:** CPD		Sheet 1 of 1
Method: Trial Pitting	**Client's Representative:** Sirius Geotechnical and Environmental Ltd		**Scale:** 1:25
Plant: Excavator 135	**Ground Level:** 17.90 mOD	**Date:** 23/05/2016	**Logger:** SC

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description	Water
				(1.10)		MADE GROUND - Firm to stiff light brown sandy gravelly clay occasional pieces of household rubbish	
1 00	ES1		16 80	1.10			
				(1 20)		MADE GROUND - Black plastic bin bags (~80%). Strong foul odour.	
2 00	W2	Water strike					▼
			15.60	2 30		End of trial pit at 2.30m	

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5

Remarks

Trial Pit terminated on Engineers instruction

Water Strikes:

Struck at (m):	Remarks:
2.00	Water strike

Stability: Stable

Width:

Length:

CAUSEWAY GEOTECH

	Project No.: 16-0486	**Project Name:** City Waste Environmental Investigations	**Trial Pit No.:** **TP08**
	Co-ordinates: 247877.53 E	**Client:** CPD	Sheet 1 of 1
Method: Trial Pitting	417935.89 N	**Client's Representative:** Sirius Geotechnical and Environmental Ltd	**Scale:** 1:25
Plant: Excavator 135	**Ground Level:** 17.26 mOD	**Date:** 23/05/2016	**Logger:** SC

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description	Water
				(0 80)		MADE GROUND - Sandy gravelly CLAY	
0 50	ES1						
			16.46	0 80		MADE GROUND - Shredded household waste including paper, plastic, etc.	
						End of trial pit at 0.80m	
1 00	ES2						
				(1.60)			
			14 86	2.40			

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5

Remarks

Trial Pit terminated on Engineers instruction

Water Strikes:

Struck at (m):	Remarks:

Stability:

Width:

Length:

CAUSEWAY GEOTECH

Project No.: 16-0486	**Project Name:** City Waste Environmental Investigations		**Trial Pit No.:** **TP09**
Co-ordinates: 247891.43 E 417951.57 N	**Client:** CPD		Sheet 1 of 1
Method: Trial Pitting	**Client's Representative:** Sirius Geotechnical and Environmental Ltd		**Scale:** 1:25
Plant: Excavator 135	**Ground Level:** 17.64 mOD	**Date:** 23/05/2016	**Logger:** SC

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description	Water
				(0 30)		MADE GROUND - Sandy gravelly clay.	
			17 34	0 30		MADE GROUND - Plastic and bricks	
0 50	ES1			(0.60)			
			16.74	0 90		MADE GROUND - 40% Rubble	
1 00	ES2			(0 30)			
			16.44	1 20		MADE GROUND - 60% Domestic waste	
1 50	ES3						
				(2 00)			
			14.44	3 20		End of trial pit at 3.20m	

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5

Remarks

Trial Pit terminated on Engineers instruction

Water Strikes:

Struck at (m):	Remarks:

Stability:

Width:

Length:

CAUSEWAY GEOTECH

	Project No.: 16-0486	**Project Name:** City Waste Environmental Investigations	**Trial Pit No.:** **TP10**
	Co-ordinates: 247884.42 E	**Client:** CPD	Sheet 1 of 1
Method: Trial Pitting	417981.70 N	**Client's Representative:** Sirius Geotechnical and Environmental Ltd	**Scale:** 1:25
Plant: Excavator 135	**Ground Level:** 19.26 mOD	**Date:** 23/05/2016	**Logger:** SC

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description	Water
				(0 20)		MADE GROUND - Firm to stiff light brown clay with occasional fragments of brick and concrete.	
			19 06	0 20		MADE GROUND - Large pieces of stone, reinforcing bar, rubble, concrete in a matrix of shredded domestic waste containing tin, plastic and glass.	
				(1.60)			
			17.46	1 80		End of trial pit at 1.80m	

0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5

Remarks
No samples taken as per Engineers instruction

Trial Pit terminated on Engineers instruction

Water Strikes:

Struck at (m):	Remarks:

Stability: Stable

Width:

Length:

CAUSEWAY GEOTECH

Project No.: 16-0486	**Project Name:** City Waste Environmental Investigations		**Trial Pit No.:** **TP11**
Co-ordinates: 247851.01 E	**Client:** CPD		Sheet 1 of 1
Method: Trial Pitting	417987.04 N	**Client's Representative:** Sirius Geotechnical and Environmental Ltd	**Scale:** 1:25
Plant: EX135	**Ground Level:** 19.21 mOD	**Date:** 23/05/2016	**Logger:** SC

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description	Water
				(0.60)		MADE GROUND - Sandy clay	
			18.61	0.60		MADE GROUND - Black shredded waste, plastic bags, bin bags with household waste, glass. Coke best before Aug 2012 at 1 3m, Red Bull Aug 2010 at 1.4m. Daily Mail 10th April 2009 at 2.3m, The Sun 24th October 2009 at 2.3m	
				(2 50)			
			16.11	3.10		End of trial pit at 3.10m	

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5

Remarks
No samples taken as per Engineers instruction

Trial Pit terminated on Engineers instruction

Water Strikes:

Struck at (m):	Remarks:

Stability:

Width:

Length:

CAUSEWAY GEOTECH

Project No.: 16-0486	**Project Name:** City Waste Environmental Investigations		**Trial Pit No.:** **TP12**
Co-ordinates: 247915.48 E 417854.25 N	**Client:** CPD		Sheet 1 of 1
Method: Trial Pitting	**Client's Representative:** Sirius Geotechnical and Environmental Ltd		**Scale:** 1:25
Plant: Excavator 135	**Ground Level:** 14.05 mOD	**Date:** 23/05/2016	**Logger:** SC

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description	Water
				(0.60)		MADE GROUND - Firm light brown sandy silty gravelly clay with cobbles	
			13.45	0.60		MADE GROUND - Black plastic rubbish bags (~80%) with timber, plastic, carpets, cloth, child's car seat, manufacturing waste (Tayto and Siemens). Crisp packet best before March 2010, Chicken drumsticks best before April 2011.	
				(2 90)			
			10 55	3 50		End of trial pit at 3.50m	

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5

Remarks
No samples taken as per Engineers instruction

Trial Pit terminated on Engineers instruction

Water Strikes:

Struck at (m):	Remarks:

Stability:

Width:

Length:

CAUSEWAY GEOTECH

Project No.: 16-0486	**Project Name:** City Waste Environmental Investigations		**Trial Pit No.:** **TP15**
Co-ordinates: 247962.54 E 418116.97 N	**Client:** CPD		Sheet 1 of 1
Method: Trial Pitting	**Client's Representative:** Sirius Geotechnical and Environmental Ltd		**Scale:** 1:25
Plant: Excavator 135	**Ground Level:** 15.69 mOD	**Date:** 23/05/2016	**Logger:** SC

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description	Water
				(0 50)		MADE GROUND - Hardcore fill	
0 50	ES1		15.19	0 50		MADE GROUND - Black plastic bin bags, domestic waste, timber, plastic with shredded tyres and metals. Strong foul odour.	
1 00	ES2	Water strike - strong flow		(1 00)			
			14.19	1 50		MADE GROUND - Firm light brown silty gravelly clay.	
				(0 30)			
			13 89	1 80		MADE GROUND - Black bin bags, tin, domestic waste, timber, car tyres with some industrial packaging, car parts (bonnets, hoses and shock absorbers). Packaging dates best before August 2011, Next card valid from July 2007. Evidence of gas escape (water bubbling).	
2 00	ES3						
				(2 00)			
3 00	ES4						
3 80	ES5		11 89	3 80		End of trial pit at 3.80m	

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5

Remarks

Water Strikes:

Struck at (m):	Remarks:
1.20	Water strike - strong flow

Stability: Spalling

Width:

Length:

CAUSEWAY GEOTECH

Project No.: 16-0486	**Project Name:** City Waste Environmental Investigations		**Trial Pit No.:** **TP16**
Co-ordinates: 247918.87 E 418068.44 N	**Client:** CPD		Sheet 1 of 1
Method: Trial Pitting	**Client's Representative:** Sirius Geotechnical and Environmental Ltd		**Scale:** 1:25
Plant: Excavator 135	**Ground Level:** 15.62 mOD	**Date:** 25/05/2016	**Logger:** SC

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description	Water
						MADE GROUND - Firm light brown sandy silty gravelly clay.	
0 50	ES1			(0 90)			
		Seepages 0.90-2.10m	14.72	0 90		MADE GROUND - Domestic waste - black and blue bin bags, carpets, metals. Newspapers dated December 2011, Coke tins best before October 2012. Strong putrid smell.	▼
1 00	ES2						
				(1 20)			
2 00	ES3						
			13 52	2.10		MADE GROUND - Firm brown clay.	
				(0.40)			
2 50	ES4	Seepages 2.50-4.10m	13.12	2 50		MADE GROUND - Household waste (some shredded), black plastic bags, domestic waste, some industrial waste and a spring mattress.	▼
3 00	ES5						
				(1.60)			
3 50	ES6						
			11 52	4.10		MADE GROUND - Firm light brown sandy silty clay.	
				(0 20)			
			11 32	4 30		End of trial pit at 4.30m	

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5

Remarks

Trial Pit terminated on Engineers instruction

Water Strikes:

Struck at (m):	Remarks:
0.90	Seepages 0.90-2.10m
2.50	Seepages 2.50-4.10m

Stability: Unstable

Width:

Length:

CAUSEWAY GEOTECH

Project No.: 16-0486	**Project Name:** City Waste Environmental Investigations		**Trial Pit No.:** **TP17**
Co-ordinates: 247846.44 E 418108.70 N	**Client:** CPD		Sheet 1 of 1
Method: Trial Pitting	**Client's Representative:** Sirius Geotechnical and Environmental Ltd		**Scale:** 1:25
Plant: Excavator 135	**Ground Level:** 15.12 mOD	**Date:** 25/05/2016	**Logger:** SC

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description	Water
				(0 50)		MADE GROUND - Firm light brown sandy silty clay.	
0 50	ES1	Seepage 0 50-1 30m	14.62	0 50		MADE GROUND - Domestic waste (some shredded), black bin bags with fragments of brick and concrete.	
				(0 80)			
1 00	ES2						
			13 82	1 30		MADE GROUND - Firm light brown slightly sandy silt.	
				(0 30)			
1 50	ES3						
		Seepage 1.60-4 20m	13 52	1.60		MADE GROUND - Domestic waste (30% shredded) with black and blue bin bags. Magazine dated 13th January 2012. Strong putrid odour.	
				(2.60)			
3 00	ES4						
4 00	ES5						
			10 92	4 20		POSSIBLE MADE GROUND - Firm light brown sandy SILT.	
				(0 30)			
			10.62	4 50		End of trial pit at 4.50m	

Remarks

Trial Pit terminated on Engineers instruction

Water Strikes:

Struck at (m):	Remarks:
0.50	Seepage 0.50-1.30m
1.60	Seepage 1.60-4.20m

Stability: Spalling

Width:

Length:

CAUSEWAY GEOTECH

Project No.: 16-0486	**Project Name:** City Waste Environmental Investigations		**Trial Pit No.:** **TP18**
Co-ordinates: 247950.71 E 417591.02 N	**Client:** CPD		Sheet 1 of 1
Method: Trial Pitting	**Client's Representative:** Sirius Geotechnical and Environmental Ltd		**Scale:** 1:25
Plant: Excavator 135	**Ground Level:** 6.60 mOD	**Date:** 23/05/2016	**Logger:** SC

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description	Water
				(0 20)		TOPSOIL	
			6.40	0 20		MADE GROUND - Medium dense brown fine to coarse sand.	
				(0 30)			
0 50	ES1		6.10	0 50		MADE GROUND - Firm dark greyish brown slightly gravelly sandy CLAY containing some organic matter and fragments of brick and glass (<5%).	
1 00	ES2			(1 20)			
			4.90	1.70		Spongy dark brown fibrous PEAT.	
2 00	ES3			(0 80)			
			4.10	2 50		Light brown very sandy silty fine to coarse subrounded to rounded GRAVEL. Sand is fine to coarse.	▼
2.60	ES4			(0 50)			▽
			3.60	3 00		End of trial pit at 3.00m	

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5

Remarks

Trial Pit terminated on Engineers instruction

Water Strikes:

Struck at (m):	Remarks:
2.80	

Stability: Unstable

Width:

Length:

CAUSEWAY GEOTECH

Project No.: 16-0486	**Project Name:** City Waste Environmental Investigations		**Trial Pit No.:** **TP19**
Co-ordinates: 247989.32 E 417638.07 N	**Client:** CPD		Sheet 1 of 1
Method: Trial Pitting	**Client's Representative:** Sirius Geotechnical and Environmental Ltd		**Scale:** 1:25
Plant: Excavator 135	**Ground Level:** 9.60 mOD	**Date:** 23/05/2016	**Logger:** SC

Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m) (Thickness)	Legend	Description	Water
				(0 20)		TOPSOIL	
			9.40	0 20		MADE GROUND - Black shredded domestic waste containing metals, plastic, tyres and occasional manufacturing waste. Cat food packaging best before January 2015.	
0 50	ES1						
1 00	ES2						
				(2.60)			
2 00	ES3						▼
			6.80	2 80		MADE GROUND - Brick, rubble, lime and mortar	
				(0.10)			
			6.70	2 90		MADE GROUND - Domestic waste with plastic, metals, batteries, with small lenses of dark brown fibrous peat.	
3 00	ES4						
3 00	W5						
				(1.10)			
			5.60	4 00		Spongy dark brown pseudofibrous PEAT.	
4.10	ES6			(0 20)			
			5.40	4 20		End of trial pit at 4.20m	

Remarks

Trial Pit terminated on Engineers instruction

Water Strikes:

Struck at (m):	Remarks:
2.20	

Stability: Unstable

Width:

Length:

Appendix D
Trial pit photographs

TP01

TP01

TP02

TP02

TP03

TP03

TP04

TP04

TP05

TP05

TP06

TP06

TP07

TP07

TP08

TP08

TP09

TP09

TP10

TP10

TP11

TP11

TP12

TP12

TP12

TP15

TP15

TP15

TP15

TP16

TP16

TP16

TP17

TP17

TP18

TP18

TP19

TP19

TP19

TP19

Appendix E
Permeability test results

City Waste
16-0486
Permeability tests
05/10/2016

BH04 - Rising Head Test

Water level (mbgl)	4.69

Purging brown colour - no odour evident

Time	Volume (L)	Water level (mbgl)
1 min 30 sec	12	5.7
3 min	24	6.59
4 min 5 sec	28	6.75

Time (mins)	Water level (mbgl)
0.5	6.75
1	6.7
1.5	6.67
2	6.6
2.5	6.56
3	8.52
3.5	6.48
4	6.43
4.5	6.4
5	6.38
6	6.33
7	6.29
8	6.25
9	6.21
10	6.17
12	6.09
14	6.03
16	5.97
18	5.92
20	5.86
25	5.75
30	5.64
45	5.41
60	5.22
75	5.1
90	5.02
120	5.18

City Waste
16-0486
BH06 - Rising Head Test

Water level (mbgl)	4.78

Purging brown colour - no odour evident

Time	Volume (L)	Water level (mbgl)
1 min 30 sec	12	5.56
3 min	24	6.43
4 min 5 sec	26	6.75

Time (mins)	Water level (mbgl)
0.5	6.64
1	6.58
1.5	6.54
2	6.48
2.5	6.44
3	6.41
3.5	6.37
4	6.34
4.5	6.31
5	6.29
6	6.25
7	6.21
8	6.17
9	6.13
10	6.09
12	6.01
14	5.95
16	5.9
18	5.85
20	5.79
25	5.68
30	5.57
45	5.34
60	5.16
75	5.06
90	4.99
120	4.85

City Waste
16-0486
BH102 - Rising Head Test
Water level (mbgl) 2.35

Purging	clear - no odour	
Time	Volume (L)	Water level (mbgl)
1 min 12 secs	12	2.43
2 min 24 secs	24	2.432
3 min 36 secs	36	2.433
4 min 48 secs	48	2.433
6 min	60	2.433
7 min 12 secs	72	2.433
8 min 24 secs	84	2.433
9 min 36 secs	96	2.433
10 min 48 secs	108	2.433
12 min	120	2.433

Time (mins)	Water level (mbc)
10 secs	2.35
20 secs	2.34
30 secs	2.35

City Waste
16-0486
BH106 - Rising Head Test

Water level (mbgl)	4.665	
Purging	brown colour - no odour evident	
Time	Volume (L)	Water level (mbgl)
45 sec	5	6.215

Time (mins)	Water level (mbgl)
0.5	5.865
1	5.805
1.5	5.775
2	5.765
2.5	5.755
3	5.745
3.5	5.74
4	5.735
4.5	5.73
5	5.725
6	5.72
7	5.715
8	5.71
9	5.705
10	5.7
12	5.695
14	5.692
16	5.689
18	5.685
20	5.681
25	5.665
30	5.658
45	5.63
60	5.6
75	5.577
90	5.555
120	5.495

City Waste
16-0486
BH107 - Rising Head Test

Water level (mbgl)	4.36

Purging	Grey, high suspended solid content, odour evident	
Time	Volume (L)	Water level (mbgl)
1 min 24 secs	12	4.37
2 min 48 secs	24	4.39
4 min 12 secs	36	4.4
5 min 36 secs	48	4.4
7 min	60	4.4
8 min 24 secs	72	4.4
9 min 48 secs	84	4.4
11 min 12 secs	96	4.4
12 min 36 secs	108	4.4
14 min	120	4.4

Time (mins)	Water level (mbgl)
10 secs	4.36
20 secs	4.34
30 secs	4.36

VARIABLE HEAD PERMEABILITY TEST (BOREHOLE)

CONTRACT: City Waste Env Investigations | BOREHOLE No.: BH04 | TEST No.: 1 | DATE: 31-May-16

TYPE OF TEST: ***FALLING*** HEAD

Diameter of casing (D):	***200***	(mm)	
Height of TOP of casing above ground level:	***0.00***	(m)	
Depth to bottom of casing below ground level (m):	***6.50***	(m)	(Withdrawn to impervious layer)
Depth to bottom of borehole below ground level before test:	***7.50***	(m)	
Depth to bottom of borehole below ground level after test:	***7.50***	(m)	
Standing ground water level (mbgl):	***6.20***	(m)	on 31-May-16

DATUM:All depths to water level measured from top of casing.

i.e.SWL 6.20 m below datum.

TIME ELAPSED (mins)	WATER LEVEL* (m)	HEAD H (m)	HEAD RATIO H/Ho
0	0	6.2	1.0000
0.5	0.001	6.199	0.9998
1	0.002	6.198	0.9997
1.5	0.004	6.196	0.9994
2	0.006	6.194	0.9990
2.5	0.008	6.192	0.9987
3	0.012	6.188	0.9981
3.5	0.019	6.181	0.9969
4	0.025	6.175	0.9960
4.5	0.03	6.17	0.9952
5	0.034	6.166	0.9945
6	0.036	6.164	0.9942
7	0.037	6.163	0.9940
8	0.039	6.161	0.9937
9	0.042	6.158	0.9932
10	0.045	6.155	0.9927
12	0.047	6.153	0.9924
14	0.05	6.15	0.9919
16	0.051	6.149	0.9918
18	0.052	6.148	0.9916
20	0.053	6.147	0.9915
22	0.055	6.145	0.9911
24	0.057	6.143	0.9908
26	0.062	6.138	0.9900
30	0.067	6.133	0.9892
40	0.08	6.12	0.9871
50	0.094	6.106	0.9848
60	0.109	6.091	0.9824
70	0.113	6.087	0.9818
80	0.127	6.073	0.9795
90	0.138	6.062	0.9777
100	0.155	6.045	0.9750
120	0.162	6.038	0.9739

CALCULATION OF PERMEABILITY OF SOIL:

Employing Hvorslev formula: k = A/FT

where:

k is the permeability of soil

A is the cross-section area of borehole casing

F is the intake factor (see below)

T is the basic time lag factor

Values of intake factors (F) for various conditions,

Cases (a)-(f), are given in Figure 6 of BS 5930:1999 (p 50):

Assumed condition: Case ***D*** ,hence:

F = 2*PI*L/loge[(L/D)+{1+(L/D)^2}^0.5]

i.e. F = 2.7171 (m)

and A = 0.0314 (m^2)

and T = ***4317.983*** (mins);

(by best fitting and extraoplation of log H/Ho v Time data)

hence, k = 4.5E-08 m/s

i.e., k = 4.5×10^{-8} m/s

Causeway Geotech Ltd

VARIABLE HEAD PERMEABILITY TEST (BOREHOLE)

CONTRACT: City Waste Env Investigations | BOREHOLE No.: BH05 | TEST No.: 1 | DATE: 1-Jun-16

TYPE OF TEST: ***FALLING*** HEAD

Diameter of casing (D):	*200*	(mm)	
Height of TOP of casing above ground level:	*0.00*	(m)	
Depth to bottom of casing below ground level (m):	*5.00*	(m)	(Withdrawn to impervious layer)
Depth to bottom of borehole below ground level before test:	*6.00*	(m)	
Depth to bottom of borehole below ground level after test:	*6.00*	(m)	
Standing ground water level (mbgl):	*6.00*	(m)	on 1-Jun-16

DATUM:All depths to water level measured from top of casing. i.e.SWL 6.00 m below datum.

TIME ELAPSED (mins)	WATER LEVEL* (m)	HEAD H (m)	HEAD RATIO H/Ho
0	0	6	1.0000
0.5	0.012	5.988	0.9980
1	0.019	5.981	0.9968
1.5	0.021	5.979	0.9965
2	0.024	5.976	0.9960
2.5	0.029	5.971	0.9952
3	0.032	5.968	0.9947
3.5	0.037	5.963	0.9938
4	0.043	5.957	0.9928
4.5	0.047	5.953	0.9922
5	0.049	5.951	0.9918
6	0.055	5.945	0.9908
7	0.06	5.94	0.9900
8	0.065	5.935	0.9892
9	0.077	5.923	0.9872
10	0.087	5.913	0.9855
12	0.092	5.908	0.9847
14	0.112	5.888	0.9813
16	0.122	5.878	0.9797
18	0.135	5.865	0.9775
20	0.142	5.858	0.9763
24	0.15	5.85	0.9750
28	0.153	5.847	0.9745
32	0.16	5.84	0.9733
36	0.166	5.834	0.9723
40	0.17	5.83	0.9717

CALCULATION OF PERMEABILITY OF SOIL:

Employing Hvorslev formula: k = A/FT

where:

k is the permeability of soil

A is the cross-section area of borehole casing

F is the intake factor (see below)

T is the basic time lag factor

Values of intake factors (F) for various conditions,

Cases (a)-(f), are given in Figure 6 of BS 5930:1999 (p 50):

Assumed condition: Case ***D*** ,hence:

F = 2*PI*L/loge[(L/D)+{1+(L/D)^2}^0.5]

i.e. F = 2.7171 (m)

and A = 0.0314 (m^2)

and T = *1079.496* (mins);

(by best fitting and extraoplation of log H/Ho v Time data)

hence, k = 1.8E-07 m/s

i.e., k = 1.8×10^{-7} m/s

Causeway Geotech Ltd

VARIABLE HEAD PERMEABILITY TEST (BOREHOLE)

CONTRACT: City Waste Env Investigations | BOREHOLE No.: BH06 | TEST No.: 1 | DATE: 1-Jun-16

TYPE OF TEST: ***FALLING*** HEAD

Diameter of casing (D):	*200*	(mm)	
Height of TOP of casing above ground level:	*0.00*	(m)	
Depth to bottom of casing below ground level (m):	*6.50*	(m)	(Withdrawn to impervious layer)
Depth to bottom of borehole below ground level before test:	*7.50*	(m)	
Depth to bottom of borehole below ground level after test:	*7.50*	(m)	
Standing ground water level (mbgl):	*7.50*	(m)	on 1-Jun-16

DATUM:All depths to water level measured from top of casing.

i.e.SWL 7.50 m below datum.

TIME ELAPSED (mins)	WATER LEVEL* (m)	HEAD H (m)	HEAD RATIO H/Ho
0	0	7.5	1.0000
0.5	0.004	7.496	0.9995
1	0.006	7.494	0.9992
1.5	0.009	7.491	0.9988
2	0.012	7.488	0.9984
2.5	0.015	7.485	0.9980
3	0.017	7.483	0.9977
3.5	0.018	7.482	0.9976
4	0.02	7.48	0.9973
4.5	0.023	7.477	0.9969
5	0.026	7.474	0.9965
6	0.029	7.471	0.9961
7	0.033	7.467	0.9956
8	0.036	7.464	0.9952
9	0.038	7.462	0.9949
10	0.041	7.459	0.9945
12	0.044	7.456	0.9941
14	0.046	7.454	0.9939
16	0.049	7.451	0.9935
18	0.052	7.448	0.9931
20	0.053	7.447	0.9929
24	0.057	7.443	0.9924
28	0.064	7.436	0.9915
32	0.073	7.427	0.9903
36	0.079	7.421	0.9895
40	0.085	7.415	0.9887
45	0.093	7.407	0.9876
50	0.098	7.402	0.9869
55	0.103	7.397	0.9863
60	0.11	7.39	0.9853
70	0.118	7.382	0.9843
80	0.125	7.375	0.9833
90	0.135	7.365	0.9820

CALCULATION OF PERMEABILITY OF SOIL:

Employing Hvorslev formula: k = A/FT

where:

k is the permeability of soil

A is the cross-section area of borehole casing

F is the intake factor (see below)

T is the basic time lag factor

Values of intake factors (F) for various conditions,

Cases (a)-(f), are given in Figure 6 of BS 5930:1999 (p 50):

Assumed condition: Case ***D*** ,hence:

F = 2*PI*L/loge[(L/D)+{1+(L/D)^2}^0.5]

i.e. F = 2.7171 (m)

and A = 0.0314 (m^2)

and T = *4317.983* (mins);

(by best fitting and extraoplation of log H/Ho v Time data)

hence, k = 4.5E-08 m/s

i.e., k = 4.5×10^{-8} m/s

Causeway Geotech Ltd

VARIABLE HEAD PERMEABILITY TEST (BOREHOLE)

CONTRACT: City Waste Env Investigations | BOREHOLE No.: BH07 | TEST No.: 1 | DATE: 1-Jun-16

TYPE OF TEST: ***FALLING*** HEAD

Diameter of casing (D):	*200*	(mm)	
Height of TOP of casing above ground level:	*0.00*	(m)	
Depth to bottom of casing below ground level (m):	*6.50*	(m)	(Withdrawn to impervious layer)
Depth to bottom of borehole below ground level before test:	*7.50*	(m)	
Depth to bottom of borehole below ground level after test:	*7.50*	(m)	
Standing ground water level (mbgl):	*7.50*	(m)	on 1-Jun-16

DATUM:All depths to water level measured from top of casing. i.e.SWL 7.50 m below datum.

TIME ELAPSED (mins)	WATER LEVEL* (m)	HEAD H (m)	HEAD RATIO H/Ho
0	0	7.5	1.0000
0.5	0.005	7.495	0.9993
1	0.009	7.491	0.9988
1.5	0.014	7.486	0.9981
2	0.019	7.481	0.9975
2.5	0.022	7.478	0.9971
3	0.026	7.474	0.9965
3.5	0.031	7.469	0.9959
4	0.038	7.462	0.9949
4.5	0.045	7.455	0.9940
5	0.052	7.448	0.9931
6	0.062	7.438	0.9917
7	0.071	7.429	0.9905
8	0.077	7.423	0.9897
9	0.083	7.417	0.9889
10	0.092	7.408	0.9877
12	0.103	7.397	0.9863
14	0.107	7.393	0.9857
16	0.111	7.389	0.9852
18	0.115	7.385	0.9847
20	0.119	7.381	0.9841
24	0.124	7.376	0.9835
28	0.13	7.37	0.9827
32	0.135	7.365	0.9820
36	0.142	7.358	0.9811
40	0.152	7.348	0.9797
45	0.161	7.339	0.9785
50	0.169	7.331	0.9775
55	0.175	7.325	0.9767
60	0.18	7.32	0.9760
70	0.187	7.313	0.9751
80	0.194	7.306	0.9741
90	0.199	7.301	0.9735

CALCULATION OF PERMEABILITY OF SOIL:

Employing Hvorslev formula: k = A/FT

where:

k is the permeability of soil

A is the cross-section area of borehole casing

F is the intake factor (see below)

T is the basic time lag factor

Values of intake factors (F) for various conditions,

Cases (a)-(f), are given in Figure 6 of BS 5930:1999 (p 50):

Assumed condition: Case ***D*** ,hence:

F = 2*PI*L/loge[(L/D)+{1+(L/D)^2}^0.5]

i.e. F = 2.7171 (m)

and A = 0.0314 (m^2)

and T = *2158.991* (mins);

(by best fitting and extraoplation of log H/Ho v Time data)

hence, k = 8.9E-08 m/s

i.e., k = 8.9×10^{-8} m/s

Causeway Geotech Ltd

Appendix F
Groundwater and ground gas monitoring records

16-0486
City Waste July 2016
Water levels & observations

Location	Date	Depth to water (mbgl)	Observations
BH01	19/07/2016	9.46	Sampled
BH02	27/07/2016	11.62	Sampled
BH03	19/07/2016	Dry	
BH04	20/07/2016		Sampled
BH05	20/07/2016		Sampled
BH06	20/07/2016		Sampled
BH07	27/07/2016	2.96	Sampled
BH103	20/07/2016		Sampled
BH107	20/07/2016		Sampled
BH122	27/07/2016	3.75	Sampled
BH206	20/07/2016		Sampled
BH207	20/07/2016		Sampled
BH208	27/07/2016	1.70	Sampled
BH209	27/07/2016	2.35	Sampled
BH211	20/07/2016		Could not find
BH214	20/07/2016		Gas pressure too high to sample
BH220	20/07/2016		Sampled
Piezo 1	20/07/2016	Dry	
Piezo 2	20/07/2016	Dry	
Piezo 3	20/07/2016		Sampled
Piezo 4	27/07/2016		Sampled
Pond 1	27/07/2016		Sampled
Pond 101	20/07/2016		Sampled
Pond 102	20/07/2016		Sampled
Pond 5	27/07/2016		Sampled
SW01	19/07/2016		Sampled
SW02	19/07/2016		Sampled
SW03	19/07/2016		Sampled
SW05	19/07/2016		Sampled
SW06	20/07/2016		Sampled
SW07	19/07/2016		Sampled
SW08	20/07/2016		Sampled

16-0486
City Waste August 2016
Water levels & observations

Location	Date	Depth to water (mbgl)	Observations
BH01	10/08/2016	9.70	Slight domestic waste odour. Could not sample. Too deep for pump to lift.
BH02	10/08/2016	11.69	Very strong domestic waste odour. Could not sample. Small volume of water that did lift with peristaltic pump was very silty. Too deep for pump to lift.
BH03	10/08/2016	12.10	Very strong domestic waste odour. Could not sample. Small volume of water that did lift with peristaltic pump was very silty. Too deep for pump to lift.
BH04	09/08/2016	3.97	Strong pungent odour of water
BH05	09/08/2016	3.59	Slight odour evident.
BH06	09/08/2016	4.54	No significant evidence of contamination
BH07	09/08/2016	3.62	Slight odour evident
BH103	09/08/2016	3.67	Slight odour evident
BH107	09/08/2016	4.26	Strong pungent odour of water
BH122	10/08/2016	3.48	Slight odour evident in water.
BH206	09/08/2016		No significant evidence of contamination
BH207	09/08/2016	2.38	Strong pungent odour of water
BH208	10/08/2016	1.88	Slight odour evident in water.
BH209	10/08/2016	2.55	Odour evident in water.
BH211	10/08/2016	13.90	Could not sample. Too deep for pump to lift.
BH214	10/08/2016	4.90	Putrid, decayed domestic waste odour. Water effervescent, cola like. High gas pressure when bung was being removed to sample
BH220	09/08/2016	2.38	Strong pungent odour of water. Flow/bubbling noise from standpipe
Piezo 1	09/08/2016	-	Dry
Piezo 2-4	09/08/2016	-	Could not find as area is so overgrown & small piezo pipes extremely difficult to see
Pond 1	10/08/2016	-	Sampled
Pond 101	09/08/2016	-	Sampled
Pond 102	09/08/2016	-	Sampled
Pond 5	10/08/2016	-	Sampled
SW01 - 08	10/08/2016	-	Sampled

16-0486

City Waste September 2016

Water levels & observations

Location	Date	Depth to water (mbgl)	Observations
BH02	28/09/2016	11.69	Very strong domestic waste odour. Sampled with bailer
BH04	27/09/2016	4.69	Strong pungent odour of water
BH06	27/09/2016	4.78	No significant evidence of contamination
BH07	27/09/2016	3.62	Slight odour evident
BH102	27/09/2016	2.35	Slight odour evident
BH106	27/09/2016	4.67	Slight odour evident
BH107	27/09/2016	4.36	Strong pungent odour of water
BH206	27/09/2016	3.98	No significant evidence of contamination noted
Piezo 3	28/09/2016	-	Sampled
SW01 - 08	27/09/2016	-	Sampled

Ground Gas and Water Level Readings

Site: City Waste

Project No: 16-0486

Date: 09/08/2016

Weather: Raining

BH206

Time (sec)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	Flow (l/h)
30	10.4	18.6	2.8	10	0	0.1
60	10.4	18.7	2.8	10	0	0.1
90	10.4	18.7	2.8	10	0	0.1
120	10.4	18.7	2.8	10	0	0.1
180	10.4	18.7	2.8	10	0	0.1
240	10.4	18.7	2.8	10	0	0.1
300	10.4	18.7	2.8	10	0	0.1

BH107

Time (sec)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	Flow (l/h)
30	12.2	9.1	11.5	5	2	0.2
60	12.3	9.4	11.5	6	2	0.2
90	12.4	9.4	11.5	5	2	0.2
120	12.4	9.4	11.5	5	2	0.2
180	12.4	9.4	11.4	5	2	0.2
240	12.4	9.4	11.4	5	2	0.2
300	12.4	9.4	11.4	5	2	0.2

BH207

Time (sec)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	Flow (l/h)
30	9.4	16.5	2.0	8	1	-0.2
60	9.4	16.6	2.0	8	1	-0.2
90	9.4	16.6	2.0	8	1	-0.2
120	9.4	16.6	2.0	8	1	-0.2
180	9.4	16.6	2.0	8	1	-0.2
240	9.4	16.6	2.0	8	1	-0.2
300	9.4	16.6	2.0	8	1	-0.2

BH220

Time (sec)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	Flow (l/h)
30	40.7	22.2	7.1	2	13	-0.3
60	41.2	22.8	7.1	3	15	-0.3
90	41.2	22.8	7.1	3	15	-0.3
120	41.1	22.8	7.1	2	15	-0.3
150	41.1	22.7	7.1	2	15	-0.3
180	41.1	22.7	7.1	2	15	-0.3
240	41.1	22.7	7.1	2	15	-0.3
300	41.1	22.7	7.1	2	15	-0.3

BH04

Time (sec)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	Flow (l/h)
30	0.3	0.3	17.4	1	0	-0.2
60	0.3	0.2	17.4	1	0	-0.2
90	0.2	0.2	17.4	1	0	-0.2
120	0.2	0.2	17.4	1	0	-0.2
150	0.2	0.2	17.4	1	0	-0.2
180	0.2	0.2	17.4	1	0	-0.2
240	0.2	0.2	17.4	1	0	-0.2
300	0.2	0.2	17.4	1	0	-0.2

Ground Gas and Water Level Readings

Site: City Waste

Project No: 16-0486

Date: 09/08/2016

BH05

Time (sec)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	Flow (l/h)
30	0.3	0.5	20.0	2	0	-11.0
60	0.3	0.4	20.7	2	0	-11.0
90	0.2	0.4	20.8	2	0	-11.0
120	0.2	0.4	20.8	2	0	-11.0
150	0.2	0.4	20.8	2	0	-11.0
180	0.2	0.4	20.8	2	0	-11.0
240	0.2	0.4	20.8	2	0	-11.0
300	0.2	0.4	20.8	2	0	-11.0

BH06

Time (sec)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	Flow (l/h)
30	0.2	0.6	19.4	1	1	-0.2
60	0.2	0.6	19.4	1	1	-0.2
90	0.2	0.6	19.4	1	1	-0.2
120	0.2	0.6	19.4	1	1	-0.2
150	0.2	0.6	19.4	1	1	-0.2
180	0.2	0.6	19.4	1	1	-0.2
240	0.2	0.6	19.4	1	1	-0.2
300	0.2	0.6	19.4	1	1	-0.2

BH103

Time (sec)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	Flow (l/h)
30	0.1	0.4	18.7	1	1	-0.1
60	0.1	0.4	18.7	1	1	-0.1
90	0.2	0.4	18.7	1	1	-0.1
120	0.2	0.4	18.7	1	1	-0.1
150	0.2	0.4	18.7	1	1	-0.1
180	0.2	0.4	18.7	1	1	-0.1
240	0.2	0.4	18.7	1	1	-0.1
300	0.2	0.4	18.7	1	1	-0.1

BH07

Time (sec)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	Flow (l/h)
30	0.4	1.7	16.9	3	0	-0.3
60	0.5	1.7	16.9	3	0	-0.3
90	0.5	1.7	16.9	2	2	-0.3
120	0.5	1.8	16.9	2	2	-0.3
150	0.5	1.8	16.8	2	1	-0.3
180	0.5	1.8	16.8	3	1	-0.3
240	0.5	1.8	16.8	3	1	-0.3
300	0.5	1.8	16.8	3	1	-0.3

Ground Gas and Water Level Readings

Site: City Waste

Project No: 16-0486

Date: 10/08/2016

Weather: Raining

BH214

Time (sec)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	Flow (l/h)
30	69.4	34.4	0.5	4	16	>>>
60	69.5	34.5	0.1	4	17	
90	69.5	34.5	0.1	4	17	>>>
120	69.5	34.5	0.1	4	17	>>>
180	69.5	34.5	0.1	4	17	>>>
240	69.5	34.5	0.1	4	17	>>>
300	69.5	34.5	0.1	4	17	>>>

>>> - greater than the upper limit of the GA5000

BH02

Time (sec)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	Flow (l/h)
30	18.4	5.5	14.4	1	0	-7.0
60	19.3	5.9	13.9	1	0	-7.0
90	19.5	5.9	13.8	1	0	-7.0
120	19.6	5.9	13.8	1	0	-7.0
180	19.6	5.9	13.8	1	0	-7.0
240	19.6	5.9	13.8	1	0	-7.0
300	19.6	5.9	13.8	1	0	-7.0

BH03

Time (sec)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	Flow (l/h)
30	60.8	42.0	1.2	8	254	-0.2
60	60.9	42.3	0.2	8	261	-0.2
90	61.0	42.3	0.1	7	261	-0.2
120	61.0	42.3	0.1	7	261	-0.2
180	61.0	42.3	0.1	7	261	-0.2
240	61.0	42.3	0.1	7	261	-0.2
300	61.0	42.3	0.1	7	261	-0.2

BH01

Time (sec)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	Flow (l/h)
30	68.3	34.1	0.6	6	2	-0.3
60	68.4	34.2	0.3	6	2	-0.3
90	68.4	34.2	0.3	6	2	-0.3
120	68.4	34.2	0.3	6	2	-0.3
150	68.4	34.2	0.3	6	2	-0.3
180	68.4	34.2	0.3	6	2	-0.3
240	68.4	34.2	0.3	6	2	-0.3
300	68.4	34.2	0.3	6	2	-0.3

BH211

Time (sec)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	Flow (l/h)
30	64.4	38.3	0.7	3	10	-0.4
60	64.7	38.6	0.2	3	11	-0.4
90	64.7	38.6	0.2	3	11	-0.4
120	64.7	38.6	0.1	3	11	-0.4
150	64.7	38.6	0.1	3	11	-0.4
180	64.7	38.6	0.1	3	11	-0.4
240	64.7	38.6	0.1	3	11	-0.4
300	64.7	38.6	0.1	3	11	-0.4

Ground Gas and Water Level Readings

Site: City Waste

Project No: 16-0486

Date: 10/08/2016

BH209

Time (sec)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	Flow (l/h)
30	45.0	28.1	5.2	8	0	-2.1
60	45.1	28.3	5.1	8	0	-2.1
90	45.4	28.4	5.0	8	0	-2.1
120	46.1	28.9	4.6	9	0	-2.1
150	46.6	30.0	3.9	11	0	-2.1
180	46.9	30.1	3.8	11	0	-2.1
240	47.2	30.1	3.8	11	0	-2.1
300	47.5	30.1	3.8	12	0	-2.1
360	47.8	30.1	3.8	12	0	-2.1
420	47.8	30.1	3.8	12	0	-2.1

BH208

Time (sec)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	Flow (l/h)
30	18.8	21.1	8.0	3	1	-1.0
60	18.9	21.2	8.0	3	1	-1.0
90	19.1	21.4	8.0	3	1	-1.0
120	19.2	21.4	7.8	3	1	-1.0
150	19.2	21.4	7.8	3	1	-1.0
180	19.2	21.4	7.8	3	1	-1.0
240	19.2	21.4	7.8	3	1	-1.0
300	19.2	21.4	7.8	3	1	-1.0

BH122

Time (sec)	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)	Flow (l/h)
30	0.1	3.9	17.8	4	0	-0.4
60	0.1	3.9	17.8	4	0	-0.4
90	0.1	3.9	17.8	4	0	-0.4
120	0.1	3.9	17.8	4	0	-0.4
150	0.1	3.9	17.8	4	0	-0.4
180	0.1	3.9	17.8	4	0	-0.4
240	0.1	3.9	17.8	4	0	-0.4
300	0.1	3.9	17.8	4	0	-0.4

Product Name: Low-Flow System

Date: 2016-09-28 12:08:57

Project Information:		Pump Information:	
Operator Name		Pump Model/Type	
Company Name		Tubing Type	
Project Name	BH02	Tubing Diameter	cm
Site Name	City Waste	Tubing Length	m
Latitude	0º 0' 0"		
Longitude	0º 0' 0"		
Sonde SN	412157		
Turbidity Make/Model		Pump placement from TOC	m

Well Information:		Pumping Information:	
Well ID	BH02	Final Pumping Rate	0 mL/min
Well diameter	cm	Total System Volume	0.09 L
Well Total Depth	m	Calculated Sample Rate	60 sec
Screen Length	m	Stabilization Drawdown	0 cm
Depth to Water	m	Total Volume Pumped	0 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW m	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 3%	+/- 10		+/- 0.3	+/- 20
Last 5	12:05:37	60.12	13.68	6.98	2445.67	--	--	0.10	-124.82
Last 5	12:06:37	120.03	13.67	6.98	2450.22	--	--	0.07	-126.96
Last 5	12:07:37	180.03	13.77	6.98	2450.40	--	--	0.05	-128.46
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			-0.00	-0.00	4.55			-0.03	-2.14
Variance 2			0.09	-0.00	0.18			-0.01	-1.50

Notes

By bailer

Grab Samples

Product Name: Low-Flow System

Date: 2016-09-27 13:12:03

Project Information:		Pump Information:	
Operator Name		Pump Model/Type	
Company Name		Tubing Type	
Project Name	BH04	Tubing Diameter	cm
Site Name	City Waste	Tubing Length	m
Latitude	0º 0' 0"		
Longitude	0º 0' 0"		
Sonde SN	412157		
Turbidity Make/Model		Pump placement from TOC	m

Well Information:		Pumping Information:	
Well ID	BH04	Final Pumping Rate	0 mL/min
Well diameter	cm	Total System Volume	0.09 L
Well Total Depth	m	Calculated Sample Rate	120 sec
Screen Length	m	Stabilization Drawdown	0 cm
Depth to Water	m	Total Volume Pumped	0 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW m	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 3%	+/- 10		+/- 0.3	+/- 20
Last 5	13:03:15	600.82	12.67	7.01	4229.37	--	--	0.76	-165.09
Last 5	13:05:16	721.82	12.72	6.99	4068.99	--	--	0.72	-165.20
Last 5	13:07:16	841.82	12.63	6.99	4037.41	--	--	0.70	-166.53
Last 5	13:09:16	961.82	12.53	6.98	4010.50	--	--	0.67	-167.47
Last 5	13:11:17	1082.83	12.68	7.34	35.81	--	--	9.28	-137.26
Variance 0			-0.09	-0.01	-31.58			-0.02	-1.34
Variance 1			-0.09	-0.00	-26.91			-0.03	-0.93
Variance 2			0.14	0.36	-3974.69			8.61	30.21

Notes

Ignore final reading as I forgot to stop once stabilised

Grab Samples

Product Name: Low-Flow System

Date: 2016-09-27 12:27:46

Project Information:		Pump Information:	
Operator Name		Pump Model/Type	
Company Name		Tubing Type	
Project Name	BH06	Tubing Diameter	cm
Site Name	City Waste	Tubing Length	m
Latitude	0º 0' 0"		
Longitude	0º 0' 0"		
Sonde SN	412157		
Turbidity Make/Model		Pump placement from TOC	m

Well Information:		Pumping Information:	
Well ID	BH06	Final Pumping Rate	0 mL/min
Well diameter	cm	Total System Volume	0.09 L
Well Total Depth	m	Calculated Sample Rate	120 sec
Screen Length	m	Stabilization Drawdown	0 cm
Depth to Water	m	Total Volume Pumped	0 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW m	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 3%	+/- 10		+/- 0.3	+/- 20
Last 5	12:22:51	120.04	13.58	5.75	3169.18	--	--	0.74	64.43
Last 5	12:24:51	240.03	13.27	5.75	3179.03	--	--	0.77	63.18
Last 5	12:26:51	360.03	13.12	5.75	3172.02	--	--	0.74	63.48
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			-0.32	-0.00	9.85			0.03	-1.25
Variance 2			-0.15	-0.00	-7.01			-0.03	0.30

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2016-09-27 14:45:15

Project Information:		Pump Information:	
Operator Name		Pump Model/Type	
Company Name		Tubing Type	
Project Name	BH07	Tubing Diameter	cm
Site Name	City Waste	Tubing Length	m
Latitude	0º 0' 0"		
Longitude	0º 0' 0"		
Sonde SN	412157		
Turbidity Make/Model		Pump placement from TOC	m

Well Information:		Pumping Information:	
Well ID	BH07	Final Pumping Rate	0 mL/min
Well diameter	cm	Total System Volume	0.09 L
Well Total Depth	m	Calculated Sample Rate	120 sec
Screen Length	m	Stabilization Drawdown	0 cm
Depth to Water	m	Total Volume Pumped	0 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW m	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 3%	+/- 10		+/- 0.3	+/- 20
Last 5	14:41:03	120.05	12.54	6.87	617.51	--	--	0.36	-37.31
Last 5	14:43:03	240.03	12.32	6.85	622.69	--	--	0.28	-39.30
Last 5	14:45:03	360.03	12.21	6.83	623.74	--	--	0.25	-39.38
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			-0.22	-0.02	5.18			-0.09	-1.99
Variance 2			-0.10	-0.01	1.05			-0.03	-0.07

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2016-09-27 14:19:23

Project Information:		Pump Information:	
Operator Name		Pump Model/Type	
Company Name		Tubing Type	
Project Name	BH102	Tubing Diameter	cm
Site Name	City Waste	Tubing Length	m
Latitude	0º 0' 0"		
Longitude	0º 0' 0"		
Sonde SN	412157		
Turbidity Make/Model		Pump placement from TOC	m

Well Information:		Pumping Information:	
Well ID	BH102	Final Pumping Rate	0 mL/min
Well diameter	cm	Total System Volume	0.09 L
Well Total Depth	m	Calculated Sample Rate	120 sec
Screen Length	m	Stabilization Drawdown	0 cm
Depth to Water	m	Total Volume Pumped	0 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW m	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 3%	+/- 10		+/- 0.3	+/- 20
Last 5	14:12:43	120.05	12.03	7.31	340.43	--	--	0.50	-108.15
Last 5	14:14:43	240.03	11.66	7.21	342.44	--	--	0.43	-109.89
Last 5	14:16:43	360.03	11.48	7.16	344.32	--	--	0.40	-111.53
Last 5	14:18:43	480.03	11.47	7.13	343.91	--	--	0.37	-113.11
Last 5									
Variance 0			-0.37	-0.10	2.01			-0.07	-1.75
Variance 1			-0.18	-0.06	1.88			-0.04	-1.64
Variance 2			-0.01	-0.03	-0.41			-0.03	-1.57

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2016-09-27 11:55:08

Project Information:		Pump Information:	
Operator Name		Pump Model/Type	
Company Name		Tubing Type	
Project Name	BH106	Tubing Diameter	cm
Site Name	City Waste	Tubing Length	m
Latitude	0º 0' 0"		
Longitude	0º 0' 0"		
Sonde SN	412157		
Turbidity Make/Model		Pump placement from TOC	m

Well Information:		Pumping Information:	
Well ID	BH106	Final Pumping Rate	0 mL/min
Well diameter	cm	Total System Volume	0.09 L
Well Total Depth	m	Calculated Sample Rate	120 sec
Screen Length	m	Stabilization Drawdown	0 cm
Depth to Water	m	Total Volume Pumped	0 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW m	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 3%	+/- 10		+/- 0.3	+/- 20
Last 5	11:49:48	240.12	12.78	6.88	886.18	--	--	0.89	-137.86
Last 5	11:51:48	360.03	12.95	6.88	885.78	--	--	0.93	-136.53
Last 5	11:53:48	480.03	13.21	6.87	882.11	--	--	0.91	-135.24
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			0.16	-0.01	-0.40			0.03	1.33
Variance 2			0.27	-0.01	-3.66			-0.01	1.29

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2016-09-27 10:45:56

Project Information:		Pump Information:	
Operator Name		Pump Model/Type	
Company Name		Tubing Type	
Project Name	BH107	Tubing Diameter	cm
Site Name	City Waste	Tubing Length	m
Latitude	0º 0' 0"		
Longitude	0º 0' 0"		
Sonde SN	412157		
Turbidity Make/Model		Pump placement from TOC	m

Well Information:		Pumping Information:	
Well ID	BH107	Final Pumping Rate	0 mL/min
Well diameter	cm	Total System Volume	0.09 L
Well Total Depth	m	Calculated Sample Rate	120 sec
Screen Length	m	Stabilization Drawdown	0 cm
Depth to Water	m	Total Volume Pumped	0 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW m	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 3%	+/- 10		+/- 0.3	+/- 20
Last 5	10:37:30	480.33	12.63	7.05	4660.46	--	--	0.69	-182.63
Last 5	10:39:30	600.33	12.71	7.03	4480.54	--	--	0.81	-183.33
Last 5	10:41:30	720.33	12.72	7.02	4373.50	--	--	0.76	-183.21
Last 5	10:43:30	840.33	12.67	7.01	4336.95	--	--	0.67	-184.17
Last 5	10:45:30	960.33	12.76	7.01	4279.44	--	--	0.67	-183.90
Variance 0			0.00	-0.01	-107.04			-0.05	0.12
Variance 1			-0.04	-0.01	-36.56			-0.09	-0.96
Variance 2			0.09	-0.01	-57.51			0.00	0.27

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2016-09-27 11:19:02

Project Information:		Pump Information:	
Operator Name		Pump Model/Type	
Company Name		Tubing Type	
Project Name	BH206	Tubing Diameter	cm
Site Name	City Waste	Tubing Length	m
Latitude	0º 0' 0"		
Longitude	0º 0' 0"		
Sonde SN	412157		
Turbidity Make/Model		Pump placement from TOC	m

Well Information:		Pumping Information:	
Well ID	BH206	Final Pumping Rate	0 mL/min
Well diameter	cm	Total System Volume	0.09 L
Well Total Depth	m	Calculated Sample Rate	120 sec
Screen Length	m	Stabilization Drawdown	0 cm
Depth to Water	m	Total Volume Pumped	0 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW m	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 3%	+/- 10		+/- 0.3	+/- 20
Last 5	11:13:49	120.06	13.83	7.03	7173.05	--	--	0.80	-141.83
Last 5	11:15:49	240.03	13.66	7.03	7194.86	--	--	0.86	-142.10
Last 5	11:17:49	360.03	13.54	7.03	7218.17	--	--	0.85	-142.17
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			-0.18	0.00	21.81			0.06	-0.26
Variance 2			-0.12	0.00	23.32			-0.01	-0.08

Notes

Grab Samples

Appendix G
Geotechnical laboratory test results

LABORATORY REPORT

4043

Contract Number: PSL16/3100

Report Date: 01 August 2016

Client's Reference: 16-0486

Client Name: Causeway Geotech
8 Drumahiskey Road
Ballymoney
Co.Antrim
BT53 7QL

For the attention of: [redacted]

Contract Title: City Waste Site, Mobouy Road, Derry

Date Received: 5/7/2016
Date Commenced: 5/7/2016
Date Completed: 1/8/2016

Notes: **Opinions and Interpretations are outside the UKAS Accreditation**

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

[redacted] (Director)

[redacted] (Director)

[redacted] (Quality Manager)

[redacted] (Senior Technician)

[redacted] (Senior Technician)

[redacted] (Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
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fax: +44 (0)844 815 6642
e-mail: [redacted]

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Sample Depth m	Description of Sample
Sample 1	1	AMAL	n/a	Brown silty SAND & GRAVEL.
Sample 2	2	AMAL	n/a	Brown very sandy silty GRAVEL.
Sample 3	3	AMAL	n/a	Brown silty SAND & GRAVEL.
Sample 4	4	AMAL	n/a	Brown slightly gravelly very silty SAND.

PSL Professional Soils Laboratory	Checked / Approved	[redacted]	Date 01/08/16	Contract No:
	City Waste Site, Mobouy Road, Derry			PSL16/3100
				Client Ref:
				16-0486

SUMMARY OF POROSITY TESTS

(ISRM Suggested Method for Porosity Determination)

Hole Number	Sample Number	Sample Type	Sample Depth (m)	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Porosity %	Remarks
Sample 1	1	AMAL	n/a	10	2.29	2.08	21.3	BH01 @ 11.00m/12.00m + BH03 @ 13.00m/14.00m
Sample 2	2	AMAL	n/a	4.8	2.34	2.23	15.9	BH05 @ 2.00m/3.00m/4.00m/5.00m/6.00m
Sample 3	3	AMAL	n/a	10	2.26	2.06	21.2	BH06 @ 2.00m/3.00m/4.00m + TP28 @ 3.00m
Sample 4	4	AMAL	n/a	21	1.98	1.64	37.1	BH07 @ 4.00m/5.00m/6.00m/7.00m + TP24 @ 3.50m

PSL
Professional Soils Laboratory

Checked / Approved	[redacted]	Date	01/08/16	Contract No:
City Waste Site, Mobouy Road, Derry				PSL16/3100
				Client Ref:
				16-0486

Appendix H
Environmental laboratory test results

Chemtest
The right chemistry to deliver results
Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.co.uk

UKAS TESTING
2183

Amended Report

Report No.:	16-12298-2		
Initial Date of Issue:	02-Jun-2016	**Date of Re-Issue:**	04-Jul-2016
Client	Causeway Geotech Ltd		
Client Address:	8 Drumahiskey Road Balnamore Ballymoney County Antrim BT53 7QL		
Contact(s):	[redacted]		
Project	16-0486 - City Waste Env. Investigations, Mobuoy Road		
Quotation No.:		**Date Received:**	25-May-2016
Order No.:		**Date Instructed:**	26-May-2016
No. of Samples:	5		
Turnaround (Wkdays):	27	**Results Due:**	04-Jul-2016
Date Approved:	04-Jul-2016		
Approved By:	[redacted]		
Details:	[redacted], Laboratory Manager		

Chemtest
The right chemistry to deliver results

Results - Soil

Project: 16-0486 - City Waste Env. Investigations, Mobuoy Road

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-12298	16-12298	16-12298	16-12298	16-12298
Quotation No.:			**Chemtest Sample ID.:**		299508	299509	299514	299517	299520
Order No.:			Client Sample Ref.:		Domestic waste	Domestic waste	Inert clay	Domestic waste	Domestic waste
			Client Sample ID.:		TP01	TP02	TP03	TP03	TP04
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		3	0.5	1	3.5	2
			Date Sampled:		24-May-2016	24-May-2016	24-May-2016	24-May-2016	24-May-2016
			Asbestos Lab:		COVENTRY		COVENTRY		
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
ACM Type	U	2192		N/A	-		-		
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected		No Asbestos Detected		
Moisture	N	2030	%	0.020	14	18	20	26	43
pH	U	2010		N/A	8.0	8.1	8.4	7.9	7.5
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	1.2	0.35	0.49	1.1	3.0
Ammonium (Extractable)	U	2425	mg/kg	0.50	170	18	67	320	340
Iron (Total)	N	2430	mg/kg	100	19000	18000	21000	17000	22000
Sulphate (Total)	U	2430	%	0.010	0.59	0.21	0.11	0.56	2.2
Arsenic	U	2450	mg/kg	1.0	10	11	8.4	10	12
Cadmium	U	2450	mg/kg	0.10	0.26	0.15	0.17	0.21	2.3
Chromium	U	2450	mg/kg	1.0	28	34	110	30	83
Copper	U	2450	mg/kg	0.50	54	42	75	59	340
Mercury	U	2450	mg/kg	0.10	0.15	< 0.10	< 0.10	< 0.10	0.35
Manganese	U	2450	mg/kg	5.0	620	570	790	570	680
Nickel	U	2450	mg/kg	0.50	33	39	89	50	65
Lead	U	2450	mg/kg	0.50	75	26	43	39	130
Selenium	U	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Zinc	U	2450	mg/kg	0.50	230	110	120	190	800
Total Organic Carbon	U	2625	%	0.20	1.7	0.43	0.69	1.5	28
Naphthalene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Soil

Project: 16-0486 - City Waste Env. Investigations, Mobuoy Road

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-12298	16-12298	16-12298	16-12298	16-12298
Quotation No.:			**Chemtest Sample ID.:**		299508	299509	299514	299517	299520
Order No.:			Client Sample Ref.:		Domestic waste	Domestic waste	Inert clay	Domestic waste	Domestic waste
			Client Sample ID.:		TP01	TP02	TP03	TP03	TP04
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		3	0.5	1	3.5	2
			Date Sampled:		24-May-2016	24-May-2016	24-May-2016	24-May-2016	24-May-2016
			Asbestos Lab:		COVENTRY		COVENTRY		
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
Total Of 9 PAH's	U	2700	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Of 16 PAH's	U	2700	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Total Phenols	U	2920	mg/kg	0.30	25	3.4	30	40	3.3

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis
The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols
For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at our Coventry laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.co.uk

Chemtest
The right chemistry to deliver results
Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.co.uk

UKAS TESTING
2183

Final Report

Report No.: 16-12441-1

Initial Date of Issue: 07-Jun-2016

Client Causeway Geotech Ltd

Client Address: 8 Drumahiskey Road
Balnamore
Ballymoney
County Antrim
BT53 7QL

Contact(s): [redacted]

Project 16-0486-City Waste Site, Mobouy Road, Derry

Quotation No.:

Order No.:

No. of Samples: 8

Turnaround (Wkdays): 5

Date Approved: 07-Jun-2016

Approved By:
[redacted]

Details: [redacted] Laboratory Manager

Date Received: 26-May-2016

Date Instructed: 01-Jun-2016

Results Due: 07-Jun-2016

Chemtest
The right chemistry to deliver results

Results - Soil

Project: 16-0486-City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd		**Chemtest Job No.:**			16-12441	16-12441	16-12441	16-12441	16-12441	16-12441	16-12441	16-12441
Quotation No.:		**Chemtest Sample ID.:**			300090	300091	300092	300095	300096	300100	300103	300104
		Client Sample ID.:			TP05	TP05	TP05	TP06	TP06	TP08	TP09	TP09
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			0.50	1.00	1.50	1.00	1.50	0.50	1.00	1.50
		Date Sampled:			24-May-2016	24-May-2016	24-May-2016	24-May-2016	24-May-2016	24-May-2016	24-May-2016	24-May-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
ACM Type	U	2192		N/A	-	-		-	-	-	-	
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected	No Asbestos Detected		No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	
Moisture	N	2030	%	0.020	12	20	25	28	23	14	12	16
pH	U	2010		N/A	8.6	8.5	8.5	8.2	8.3	7.8	8.2	8.3
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	0.23	0.29	1.0	0.44	0.025	0.025	0.85	0.29
Ammonium	U	2425	mg/kg	0.50	57	170	520	350	270	3.6	59	140
Iron (Total)	N	2430	mg/kg	100	16000	17000	15000	22000	21000	20000	18000	18000
Sulphate (Total)	U	2430	%	0.010	0.17	0.76	1.3	1.6	0.99	0.012	0.77	0.73
Arsenic	U	2450	mg/kg	1.0	7.4	6.6	5.7	21	17	6.0	9.6	11
Cadmium	U	2450	mg/kg	0.10	0.17	0.22	0.22	0.30	0.27	< 0.10	0.19	0.19
Chromium	U	2450	mg/kg	1.0	13	21	16	38	41	27	28	33
Copper	U	2450	mg/kg	0.50	83	120	43	73	79	41	58	63
Mercury	U	2450	mg/kg	0.10	< 0.10	0.13	< 0.10	0.14	0.13	< 0.10	0.10	0.21
Manganese	U	2450	mg/kg	5.0	470	400	290	1400	830	580	590	610
Nickel	U	2450	mg/kg	0.50	30	33	47	66	62	32	49	64
Lead	U	2450	mg/kg	0.50	11	43	45	44	34	14	42	41
Selenium	U	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20	0.47	0.22	< 0.20	< 0.20	< 0.20
Zinc	U	2450	mg/kg	0.50	66	840	170	170	160	59	200	190
Total Organic Carbon	U	2625	%	0.20	0.34	6.6	6.2	40	5.9	0.29	3.2	1.8
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0			
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0			
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0		< 1.0	< 1.0	18	29			
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0		< 1.0	< 1.0	31	30			
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0		< 1.0	< 1.0	64	38			
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0		< 1.0	< 1.0	82	54			
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0		< 1.0	< 1.0	1800	690			
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0		< 1.0	< 1.0	62	55			
Total Aliphatic Hydrocarbons	U	2680	mg/kg	5.0		< 5.0	< 5.0	2100	890			
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0			
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0		< 1.0	< 1.0	3.3	5.8			
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0		< 1.0	< 1.0	8.1	140			
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0		< 1.0	< 1.0	33	110			
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0		< 1.0	< 1.0	33	36			
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0		< 1.0	< 1.0	54	94			
Aromatic TPH >C21-C35	N	2680	mg/kg	1.0		< 1.0	< 1.0	630	440			
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0		< 1.0	< 1.0	130	12			
Total Aromatic Hydrocarbons	U	2680	mg/kg	5.0		< 5.0	< 5.0	890	840			
Total Petroleum Hydrocarbons	U	2680	mg/kg	10		< 10	< 10	3000	1700			
Naphthalene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Chemtest
The right chemistry to deliver results

Results - Soil

Project: 16-0486-City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd					**Chemtest Job No.:**	16-12441	16-12441	16-12441	16-12441	16-12441	16-12441	16-12441
Quotation No.:					**Chemtest Sample ID.:**	300090	300091	300092	300095	300096	300100	300103	300104
					Client Sample ID.:	TP05	TP05	TP05	TP06	TP06	TP08	TP09	TP09
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.50	1.00	1.50	1.00	1.50	0.50	1.00	1.50
					Date Sampled:	24-May-2016	24-May-2016	24-May-2016	24-May-2016	24-May-2016	24-May-2016	24-May-2016	24-May-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Acenaphthylene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	0.30	< 0.10	< 0.10	0.21	0.89
Anthracene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	2700	mg/kg	0.10		< 0.10	0.24	< 0.10	3.0	< 0.10	< 0.10	0.20	1.3
Pyrene	U	2700	mg/kg	0.10		< 0.10	0.33	< 0.10	2.7	< 0.10	< 0.10	0.27	1.1
Benzo[a]anthracene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	2700	mg/kg	2.0		< 2.0	< 2.0	< 2.0	6.0	< 2.0	< 2.0	< 2.0	3.3
Dichlorodifluoromethane	U	2760	µg/kg	1.0			< 1.0		< 1.0				
Chloromethane	U	2760	µg/kg	1.0			< 1.0		< 1.0				
Vinyl Chloride	U	2760	µg/kg	1.0			< 1.0		< 1.0				
Bromomethane	U	2760	µg/kg	20			< 20		< 20				
Chloroethane	U	2760	µg/kg	2.0			< 2.0		< 2.0				
Trichlorofluoromethane	U	2760	µg/kg	1.0			< 1.0		< 1.0				
1,1-Dichloroethene	U	2760	µg/kg	1.0			< 1.0		< 1.0				
Trans 1,2-Dichloroethene	U	2760	µg/kg	1.0			< 1.0		< 1.0				
1,1-Dichloroethane	U	2760	µg/kg	1.0			< 1.0		< 1.0				
cis 1,2-Dichloroethene	U	2760	µg/kg	1.0			< 1.0		< 1.0				
Bromochloromethane	U	2760	µg/kg	5.0			< 5.0		< 5.0				
Trichloromethane	U	2760	µg/kg	1.0			< 1.0		< 1.0				
1,1,1-Trichloroethane	U	2760	µg/kg	1.0			< 1.0		< 1.0				
Tetrachloromethane	U	2760	µg/kg	1.0			< 1.0		< 1.0				
1,1-Dichloropropene	U	2760	µg/kg	1.0			< 1.0		< 1.0				
Benzene	U	2760	µg/kg	1.0			2.7	13	< 1.0	2.3			
1,2-Dichloroethane	U	2760	µg/kg	2.0			< 2.0		< 2.0				
Trichloroethene	N	2760	µg/kg	1.0			< 1.0		< 1.0				
1,2-Dichloropropane	U	2760	µg/kg	1.0			< 1.0		< 1.0				
Dibromomethane	U	2760	µg/kg	1.0			< 1.0		< 1.0				
Bromodichloromethane	U	2760	µg/kg	5.0			< 5.0		< 5.0				
cis-1,3-Dichloropropene	N	2760	µg/kg	10			< 10		< 10				
Toluene	U	2760	µg/kg	1.0			5.0	87	< 1.0	5.8			
Trans-1,3-Dichloropropene	N	2760	µg/kg	10			< 10		< 10				

Chemtest
The right chemistry to deliver results

Results - Soil

Project: 16-0486-City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd					**Chemtest Job No.:**	16-12441	16-12441	16-12441	16-12441	16-12441	16-12441	16-12441	16-12441
Quotation No.:					**Chemtest Sample ID.:**	300090	300091	300092	300095	300096	300100	300103	300104
					Client Sample ID.:	TP05	TP05	TP05	TP06	TP06	TP08	TP09	TP09
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.50	1.00	1.50	1.00	1.50	0.50	1.00	1.50
					Date Sampled:	24-May-2016	24-May-2016	24-May-2016	24-May-2016	24-May-2016	24-May-2016	24-May-2016	24-May-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
1,1,2-Trichloroethane	U	2760	µg/kg	10		< 10		< 10					
Tetrachloroethene	U	2760	µg/kg	1.0		< 1.0		< 1.0					
1,3-Dichloropropane	U	2760	µg/kg	2.0		< 2.0		< 2.0					
Dibromochloromethane	U	2760	µg/kg	10		< 10		< 10					
1,2-Dibromoethane	U	2760	µg/kg	5.0		< 5.0		< 5.0					
Chlorobenzene	U	2760	µg/kg	1.0		< 1.0		< 1.0					
1,1,1,2-Tetrachloroethane	U	2760	µg/kg	2.0		< 2.0		< 2.0					
Ethy benzene	U	2760	µg/kg	1.0		8.8	99	2.9	7.3				
m & p-Xylene	U	2760	µg/kg	1.0		22	320	11	100				
o-Xylene	U	2760	µg/kg	1.0		51	120	7.6	35				
Styrene	U	2760	µg/kg	1.0		< 1.0		< 1.0					
Tribromomethane	U	2760	µg/kg	1.0		< 1.0		< 1.0					
Isopropylbenzene	U	2760	µg/kg	1.0		1.6		< 1.0					
Bromobenzene	U	2760	µg/kg	1.0		< 1.0		< 1.0					
1,2,3-Trichloropropane	N	2760	µg/kg	50		< 50		< 50					
N-Propylbenzene	U	2760	µg/kg	1.0		< 1.0		< 1.0					
2-Chlorotoluene	U	2760	µg/kg	1.0		< 1.0		< 1.0					
1,3,5-Trimethylbenzene	U	2760	µg/kg	1.0		11		6.4					
4-Chlorotoluene	U	2760	µg/kg	1.0		< 1.0		< 1.0					
Tert-Butylbenzene	U	2760	µg/kg	1.0		< 1.0		< 1.0					
1,2,4-Trimethylbenzene	U	2760	µg/kg	1.0		7.1		4.6					
Sec-Butylbenzene	U	2760	µg/kg	1.0		< 1.0		< 1.0					
1,3-Dichlorobenzene	U	2760	µg/kg	1.0		< 1.0		< 1.0					
4-Isopropyltoluene	U	2760	µg/kg	1.0		19		5.3					
1,4-Dichlorobenzene	U	2760	µg/kg	1.0		6.3		< 1.0					
N-Butylbenzene	U	2760	µg/kg	1.0		< 1.0		< 1.0					
1,2-Dichlorobenzene	U	2760	µg/kg	1.0		< 1.0		< 1.0					
1,2-Dibromo-3-Chloropropane	U	2760	µg/kg	50		< 50		< 50					
1,2,4-Trichlorobenzene	U	2760	µg/kg	1.0		< 1.0		< 1.0					
Hexachlorobutadiene	U	2760	µg/kg	1.0		< 1.0		< 1.0					
1,2,3-Trichlorobenzene	U	2760	µg/kg	2.0		< 2.0		< 2.0					
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0		< 1.0		< 1.0					
N-Nitrosodimethylamine	N	2790	mg/kg	0.50		< 0.50		< 0.50					
Phenol	N	2790	mg/kg	0.50		< 0.50		< 0.50					
2-Chlorophenol	N	2790	mg/kg	0.50		< 0.50		< 0.50					
Bis-(2-Chloroethyl)Ether	N	2790	mg/kg	0.50		< 0.50		< 0.50					
1,3-Dichlorobenzene	N	2790	mg/kg	0.50		< 0.50		< 0.50					
1,4-Dichlorobenzene	N	2790	mg/kg	0.50		< 0.50		< 0.50					
1,2-Dichlorobenzene	N	2790	mg/kg	0.50		< 0.50		< 0.50					
2-Methylphenol	N	2790	mg/kg	0.50		< 0.50		< 0.50					

Chemtest
The right chemistry to deliver results

Results - Soil

Project: 16-0486-City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd				**Chemtest Job No.:**	16-12441	16-12441	16-12441	16-12441	16-12441	16-12441	16-12441	16-12441
Quotation No.:				**Chemtest Sample ID.:**	300090	300091	300092	300095	300096	300100	300103	300104
				Client Sample ID.:	TP05	TP05	TP05	TP06	TP06	TP08	TP09	TP09
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	0.50	1.00	1.50	1.00	1.50	0.50	1.00	1.50
				Date Sampled:	24-May-2016	24-May-2016	24-May-2016	24-May-2016	24-May-2016	24-May-2016	24-May-2016	24-May-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
Bis(2-Chloroisopropyl)Ether	N	2790	mg/kg	0.50		< 0.50		< 0.50				
Hexachloroethane	N	2790	mg/kg	0.50		< 0.50		< 0.50				
N-Nitrosodi-n-propylamine	N	2790	mg/kg	0.50		< 0.50		< 0.50				
4-Methylphenol	N	2790	mg/kg	0.50		< 0.50		< 0.50				
Nitrobenzene	N	2790	mg/kg	0.50		< 0.50		< 0.50				
Isophorone	N	2790	mg/kg	0.50		< 0.50		< 0.50				
2-Nitrophenol	N	2790	mg/kg	0.50		< 0.50		< 0.50				
2,4-Dimethylphenol	N	2790	mg/kg	0.50		< 0.50		< 0.50				
Bis(2-Chloroethoxy)Methane	N	2790	mg/kg	0.50		< 0.50		< 0.50				
2,4-Dichlorophenol	N	2790	mg/kg	0.50		< 0.50		< 0.50				
1,2,4-Trichlorobenzene	N	2790	mg/kg	0.50		< 0.50		< 0.50				
Naphthalene	N	2790	mg/kg	0.50		< 0.50		< 0.50				
4-Chloroaniline	N	2790	mg/kg	0.50		< 0.50		< 0.50				
Hexachlorobutadiene	N	2790	mg/kg	0.50		< 0.50		< 0.50				
4-Chloro-3-Methylphenol	N	2790	mg/kg	0.50		< 0.50		< 0.50				
2-Methylnaphthalene	N	2790	mg/kg	0.50		< 0.50		< 0.50				
4-Nitrophenol	N	2790	mg/kg	0.50		< 0.50		< 0.50				
Hexachlorocyclopentadiene	N	2790	mg/kg	0.50		< 0.50		< 0.50				
2,4,6-Trichlorophenol	N	2790	mg/kg	0.50		< 0.50		< 0.50				
2,4,5-Trichlorophenol	N	2790	mg/kg	0.50		< 0.50		< 0.50				
2-Chloronaphthalene	N	2790	mg/kg	0.50		< 0.50		< 0.50				
2-Nitroaniline	N	2790	mg/kg	0.50		< 0.50		< 0.50				
Acenaphthylene	N	2790	mg/kg	0.50		< 0.50		< 0.50				
Dimethylphthalate	N	2790	mg/kg	0.50		< 0.50		< 0.50				
2,6-Dinitrotoluene	N	2790	mg/kg	0.50		< 0.50		< 0.50				
Acenaphthene	N	2790	mg/kg	0.50		< 0.50		< 0.50				
3-Nitroaniline	N	2790	mg/kg	0.50		< 0.50		< 0.50				
Dibenzofuran	N	2790	mg/kg	0.50		< 0.50		< 0.50				
4-Chlorophenylphenylether	N	2790	mg/kg	0.50		< 0.50		< 0.50				
2,4-Dinitrotoluene	N	2790	mg/kg	0.50		< 0.50		< 0.50				
Fluorene	N	2790	mg/kg	0.50		< 0.50		< 0.50				
Diethyl Phthalate	N	2790	mg/kg	0.50		< 0.50		< 0.50				
4-Nitroaniline	N	2790	mg/kg	0.50		< 0.50		< 0.50				
2-Methyl-4,6-Dinitrophenol	N	2790	mg/kg	0.50		< 0.50		< 0.50				
Azobenzene	N	2790	mg/kg	0.50		< 0.50		< 0.50				
4-Bromophenylphenyl Ether	N	2790	mg/kg	0.50		< 0.50		< 0.50				
Hexachlorobenzene	N	2790	mg/kg	0.50		< 0.50		< 0.50				
Pentachlorophenol	N	2790	mg/kg	0.50		< 0.50		< 0.50				
Phenanthrene	N	2790	mg/kg	0.50		< 0.50		< 0.50				
Anthracene	N	2790	mg/kg	0.50		< 0.50		< 0.50				

Chemtest
The right chemistry to deliver results

Results - Soil

Project: 16-0486-City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd				**Chemtest Job No.:**	16-12441	16-12441	16-12441	16-12441	16-12441	16-12441	16-12441	16-12441
Quotation No.:				**Chemtest Sample ID.:**	300090	300091	300092	300095	300096	300100	300103	300104
				Client Sample ID.:	TP05	TP05	TP05	TP06	TP06	TP08	TP09	TP09
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	0.50	1.00	1.50	1.00	1.50	0.50	1.00	1.50
				Date Sampled:	24-May-2016	24-May-2016	24-May-2016	24-May-2016	24-May-2016	24-May-2016	24-May-2016	24-May-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
Carbazole	N	2790	mg/kg	0.50		< 0.50		< 0.50				
Di-N-Butyl Phthalate	N	2790	mg/kg	0.50		< 0.50		< 0.50				
Fluoranthene	N	2790	mg/kg	0.50		< 0.50		< 0.50				
Pyrene	N	2790	mg/kg	0.50		< 0.50		< 0.50				
Buty benzyl Phthalate	N	2790	mg/kg	0.50		< 0.50		< 0.50				
Benzo[a]anthracene	N	2790	mg/kg	0.50		< 0.50		< 0.50				
Chrysene	N	2790	mg/kg	0.50		< 0.50		< 0.50				
Bis(2-Ethylhexyl)Phthalate	N	2790	mg/kg	0.50		< 0.50		< 0.50				
Di-N-Octyl Phthalate	N	2790	mg/kg	0.50		< 0.50		< 0.50				
Benzo[b]fluoranthene	N	2790	mg/kg	0.50		< 0.50		< 0.50				
Benzo[k]fluoranthene	N	2790	mg/kg	0.50		< 0.50		< 0.50				
Benzo[a]pyrene	N	2790	mg/kg	0.50		< 0.50		< 0.50				
Indeno(1,2,3-c,d)Pyrene	N	2790	mg/kg	0.50		< 0.50		< 0.50				
Dibenz(a,h)Anthracene	N	2790	mg/kg	0.50		< 0.50		< 0.50				
Benzo[g,h,i]perylene	N	2790	mg/kg	0.50		< 0.50		< 0.50				
Resorcinol	U	2920	mg/kg	0.050				< 0.050				
Phenol	U	2920	mg/kg	0.050				0.24				
Cresols	U	2920	mg/kg	0.050				0.94				
Xylenols	U	2920	mg/kg	0.050				< 0.050				
1-Naphthol	N	2920	mg/kg	0.050				< 0.050				
Trimethylphenols	U	2920	mg/kg	0.050				0.46				
Total Phenols	U	2920	mg/kg	0.30	< 0.30	< 0.30	7.5	1.6	3.8	0.74	< 0.30	0.69

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis
The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols
For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at our Coventry laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.co.uk

Chemtest
The right chemistry to deliver results
Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.co.uk

UKAS TESTING
2183

Final Report

Report No.: 16-12620-1

Initial Date of Issue: 06-Jul-2016

Client Causeway Geotech Ltd

Client Address: 8 Drumahiskey Road
Balnamore
Ballymoney
County Antrim
BT53 7QL

Contact(s): [redacted]

Project 16-0486 - City Waste Env. Investigations, Mobouy Road

Quotation No.:

Order No.:

No. of Samples: 10

Turnaround (Wkdays): 3

Date Approved: 06-Jul-2016

Approved By:
[redacted]

Details: [redacted], Laboratory Manager

Date Received: 27-May-2016

Date Instructed: 30-Jun-2016

Results Due: 04-Jul-2016

Chemtest
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Results - Soil

Project: 16-0486 - City Waste Env. Investigations, Mobouy Road

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-12620	16-12620	16-12620	16-12620	16-12620	16-12620	16-12620	16-12620
Quotation No.:			**Chemtest Sample ID.:**		301031	301032	301033	301038	301041	301044	301046	301049
Order No.:			Client Sample Ref.:		TP15	TP15	TP15	TP16	TP16	TP17	TP17	TP18
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.50	1.00	2.00	1.00	3.00	1.00	3.00	1.00
			Date Sampled:		25-May-2016	25-May-2016	25-May-2016	25-May-2016	25-May-2016	25-May-2016	25-May-2016	25-May-2016
			Asbestos Lab:		COVENTRY	COVENTRY		COVENTRY		COVENTRY		COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
ACM Type	U	2192		N/A	-	Cement		-		-		-
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected	Chrysotile		No Asbestos Detected		No Asbestos Detected		No Asbestos Detected
Moisture	N	2030	%	0.020	16	26	41	26	41	39	58	29
pH	U	2010		N/A	8.5	8.4	8.4	8.5	6.7	6.9	8.4	5.8
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	< 0.010	0.25	1.2	0.38	1.2	0.65	0.42	0.17
Ammonium (Extractable)	U	2425	mg/kg	0.50	3.6	210	210	140	340	470	110	34
Iron (Total)	N	2430	mg/kg	100	19000	19000	18000	17000	16000	19000	19000	18000
Sulphate (Total)	U	2430	%	0.010	0.022	0.55	0.92	0.61	1.3	0.92	1.1	0.14
Arsenic	U	2450	mg/kg	1.0	8.5	13	13	13	7.0	22	16	12
Cadmium	U	2450	mg/kg	0.10	< 0.10	0.48	0.23	0.69	0.36	0.53	0.70	0.21
Chromium	U	2450	mg/kg	1.0	23	34	36	24	36	35	48	22
Copper	U	2450	mg/kg	0.50	31	450	71	59	78	88	96	30
Mercury	U	2450	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.18	0.18	0.18	< 0.10
Manganese	U	2450	mg/kg	5.0	510	580	580	520	280	790	600	530
Nickel	U	2450	mg/kg	0.50	26	50	39	36	59	42	47	15
Lead	U	2450	mg/kg	0.50	14	190	37	47	120	72	160	21
Selenium	U	2450	mg/kg	0.20	< 0.20	0.26	0.24	0.41	< 0.20	< 0.20	0.29	0.38
Zinc	U	2450	mg/kg	0.50	62	200	230	240	450	530	770	67
Total Organic Carbon	U	2625	%	0.20	< 0.20	5.2	25	5.9	9.3	8.3	5.4	2.2
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0			[B] < 1.0			[B] < 1.0		
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0			[B] 130			[B] 290		
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0			[B] 11			[B] 470		
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0			[B] 20			[B] 96		
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0			[B] 51			[B] 120		
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0			[B] 200			[B] 4800		
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0			[B] 1200			[B] 2600		
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0			[B] 140			[B] 130		
Total Aliphatic Hydrocarbons	U	2680	mg/kg	5.0			[B] 1700			[B] 8500		
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0			[B] < 1.0			[B] < 1.0		
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0			[B] 15			[B] < 1.0		
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0			[B] 80			[B] 760		
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0			[B] 37			[B] 380		
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0			[B] 100			[B] 490		
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0			[B] 280			[B] 870		
Aromatic TPH >C21-C35	N	2680	mg/kg	1.0			[B] 1200			[B] 2400		
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0			[B] 42			[B] 550		
Total Aromatic Hydrocarbons	U	2680	mg/kg	5.0			[B] 1700			[B] 5400		

Chemtest
The right chemistry to deliver results

Results - Soil

Project: 16-0486 - City Waste Env. Investigations, Mobouy Road

Client: Causeway Geotech Ltd					**Chemtest Job No.:**	16-12620	16-12620	16-12620	16-12620	16-12620	16-12620	16-12620	16-12620
Quotation No.:					**Chemtest Sample ID.:**	301031	301032	301033	301038	301041	301044	301046	301049
Order No.:					Client Sample Ref.:	TP15	TP15	TP15	TP16	TP16	TP17	TP17	TP18
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.50	1.00	2.00	1.00	3.00	1.00	3.00	1.00
					Date Sampled:	25-May-2016	25-May-2016	25-May-2016	25-May-2016	25-May-2016	25-May-2016	25-May-2016	25-May-2016
					Asbestos Lab:	COVENTRY	COVENTRY		COVENTRY		COVENTRY		COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Total Petroleum Hydrocarbons	U	2680	mg/kg	10			[B] 3500			[B] 14000		
Naphthalene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	2700	mg/kg	0.10	< 0.10	0.25	0.50	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	2700	mg/kg	0.10	< 0.10	0.24	0.30	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 9 PAH's	U	2700	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Of 16 PAH's	U	2700	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Dichlorodifluoromethane	U	2760	µg/kg	1.0			[B] < 1.0			[B] < 1.0		
Chloromethane	U	2760	µg/kg	1.0			[B] < 1.0			[B] < 1.0		
Vinyl Chloride	U	2760	µg/kg	1.0			[B] < 1.0			[B] < 1.0		
Bromomethane	U	2760	µg/kg	20			[B] < 20			[B] < 20		
Chloroethane	U	2760	µg/kg	2.0			[B] < 2.0			[B] < 2.0		
Trichlorofluoromethane	U	2760	µg/kg	1.0			[B] < 1.0			[B] < 1.0		
1,1-Dichloroethene	U	2760	µg/kg	1.0			[B] < 1.0			[B] < 1.0		
Trans 1,2-Dichloroethene	U	2760	µg/kg	1.0			[B] < 1.0			[B] < 1.0		
1,1-Dichloroethane	U	2760	µg/kg	1.0			[B] < 1.0			[B] < 1.0		
cis 1,2-Dichloroethene	U	2760	µg/kg	1.0			[B] < 1.0			[B] < 1.0		
Bromochloromethane	U	2760	µg/kg	5.0			[B] < 5.0			[B] < 5.0		
Trichloromethane	U	2760	µg/kg	1.0			[B] < 1.0			[B] < 1.0		
1,1,1-Trichloroethane	U	2760	µg/kg	1.0			[B] < 1.0			[B] < 1.0		
Tetrachloromethane	U	2760	µg/kg	1.0			[B] < 1.0			[B] < 1.0		
1,1-Dichloropropene	U	2760	µg/kg	1.0			[B] < 1.0			[B] < 1.0		
Benzene	U	2760	µg/kg	1.0			[B] 3.2			[B] 3.4		
1,2-Dichloroethane	U	2760	µg/kg	2.0			[B] < 2.0			[B] < 2.0		
Trichloroethene	N	2760	µg/kg	1.0			[B] < 1.0			[B] < 1.0		
1,2-Dichloropropane	U	2760	µg/kg	1.0			[B] < 1.0			[B] < 1.0		

Chemtest
The right chemistry to deliver results

Results - Soil

Project: 16-0486 - City Waste Env. Investigations, Mobouy Road

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-12620	16-12620	16-12620	16-12620	16-12620	16-12620	16-12620	16-12620
Quotation No.:			**Chemtest Sample ID.:**		301031	301032	301033	301038	301041	301044	301046	301049
Order No.:			Client Sample Ref.:		TP15	TP15	TP15	TP16	TP16	TP17	TP17	TP18
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.50	1.00	2.00	1.00	3.00	1.00	3.00	1.00
			Date Sampled:		25-May-2016	25-May-2016	25-May-2016	25-May-2016	25-May-2016	25-May-2016	25-May-2016	25-May-2016
			Asbestos Lab:		COVENTRY	COVENTRY		COVENTRY		COVENTRY		COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
Dibromomethane	U	2760	µg/kg	1.0			[B] < 1.0			[B] < 1.0		
Bromodichloromethane	U	2760	µg/kg	5.0			[B] < 5.0			[B] < 5.0		
cis-1,3-Dichloropropene	N	2760	µg/kg	10			[B] < 10			[B] < 10		
Toluene	U	2760	µg/kg	1.0			[B] 11			[B] 67		
Trans-1,3-Dichloropropene	N	2760	µg/kg	10			[B] < 10			[B] < 10		
1,1,2-Trichloroethane	U	2760	µg/kg	10			[B] < 10			[B] < 10		
Tetrachloroethene	U	2760	µg/kg	1.0			[B] < 1.0			[B] < 1.0		
1,3-Dichloropropane	U	2760	µg/kg	2.0			[B] < 2.0			[B] < 2.0		
Dibromochloromethane	U	2760	µg/kg	10			[B] < 10			[B] < 10		
1,2-Dibromoethane	U	2760	µg/kg	5.0			[B] < 5.0			[B] < 5.0		
Chlorobenzene	U	2760	µg/kg	1.0			[B] < 1.0			[B] < 1.0		
1,1,1,2-Tetrachloroethane	U	2760	µg/kg	2.0			[B] < 2.0			[B] < 2.0		
Ethy benzene	U	2760	µg/kg	1.0			[B] 2.2			[B] 38		
m & p-Xylene	U	2760	µg/kg	1.0			[B] 5.5			[B] 160		
o-Xylene	U	2760	µg/kg	1.0			[B] 3.1			[B] 79		
Styrene	U	2760	µg/kg	1.0			[B] < 1.0			[B] < 1.0		
Tribromomethane	U	2760	µg/kg	1.0			[B] < 1.0			[B] < 1.0		
Isopropylbenzene	U	2760	µg/kg	1.0			[B] < 1.0			[B] < 1.0		
Bromobenzene	U	2760	µg/kg	1.0			[B] < 1.0			[B] < 1.0		
1,2,3-Trichloropropane	N	2760	µg/kg	50			[B] < 50			[B] < 50		
N-Propylbenzene	U	2760	µg/kg	1.0			[B] < 1.0			[B] 2.3		
2-Chlorotoluene	U	2760	µg/kg	1.0			[B] < 1.0			[B] < 1.0		
1,3,5-Trimethylbenzene	U	2760	µg/kg	1.0			[B] 2.2			[B] 7.5		
4-Chlorotoluene	U	2760	µg/kg	1.0			[B] < 1.0			[B] < 1.0		
Tert-Butylbenzene	U	2760	µg/kg	1.0			[B] < 1.0			[B] < 1.0		
1,2,4-Trimethylbenzene	U	2760	µg/kg	1.0			[B] 4.6			[B] 29		
Sec-Butylbenzene	U	2760	µg/kg	1.0			[B] < 1.0			[B] < 1.0		
1,3-Dichlorobenzene	U	2760	µg/kg	1.0			[B] < 1.0			[B] < 1.0		
4-Isopropyltoluene	U	2760	µg/kg	1.0			[B] 50			[B] 28		
1,4-Dichlorobenzene	U	2760	µg/kg	1.0			[B] < 1.0			[B] 4.7		
N-Butylbenzene	U	2760	µg/kg	1.0			[B] < 1.0			[B] < 1.0		
1,2-Dichlorobenzene	U	2760	µg/kg	1.0			[B] < 1.0			[B] < 1.0		
1,2-Dibromo-3-Chloropropane	U	2760	µg/kg	50			[B] < 50			[B] < 50		
1,2,4-Trichlorobenzene	U	2760	µg/kg	1.0			[B] < 1.0			[B] < 1.0		
Hexachlorobutadiene	U	2760	µg/kg	1.0			[B] < 1.0			[B] < 1.0		
1,2,3-Trichlorobenzene	U	2760	µg/kg	2.0			[B] < 2.0			[B] < 2.0		
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0			[B] < 1.0			[B] < 1.0		
N-Nitrosodimethylamine	N	2790	mg/kg	0.50			< 0.50			< 0.50		

Chemtest
The right chemistry to deliver results

Results - Soil

Project: 16-0486 - City Waste Env. Investigations, Mobouy Road

Client: Causeway Geotech Ltd					**Chemtest Job No.:**	16-12620	16-12620	16-12620	16-12620	16-12620	16-12620	16-12620	16-12620
Quotation No.:					**Chemtest Sample ID.:**	301031	301032	301033	301038	301041	301044	301046	301049
Order No.:					Client Sample Ref.:	TP15	TP15	TP15	TP16	TP16	TP17	TP17	TP18
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.50	1.00	2.00	1.00	3.00	1.00	3.00	1.00
					Date Sampled:	25-May-2016	25-May-2016	25-May-2016	25-May-2016	25-May-2016	25-May-2016	25-May-2016	25-May-2016
					Asbestos Lab:	COVENTRY	COVENTRY		COVENTRY		COVENTRY		COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Phenol	N	2790	mg/kg	0.50			< 0.50			< 0.50		
2-Chlorophenol	N	2790	mg/kg	0.50			< 0.50			< 0.50		
Bis-(2-Chloroethyl)Ether	N	2790	mg/kg	0.50			< 0.50			< 0.50		
1,3-Dichlorobenzene	N	2790	mg/kg	0.50			< 0.50			< 0.50		
1,4-Dichlorobenzene	N	2790	mg/kg	0.50			< 0.50			< 0.50		
1,2-Dichlorobenzene	N	2790	mg/kg	0.50			< 0.50			< 0.50		
2-Methylphenol	N	2790	mg/kg	0.50			17			< 0.50		
Bis(2-Chloroisopropyl)Ether	N	2790	mg/kg	0.50			< 0.50			< 0.50		
Hexachloroethane	N	2790	mg/kg	0.50			< 0.50			< 0.50		
N-Nitrosodi-n-propylamine	N	2790	mg/kg	0.50			< 0.50			< 0.50		
4-Methylphenol	N	2790	mg/kg	0.50			< 0.50			< 0.50		
Nitrobenzene	N	2790	mg/kg	0.50			< 0.50			< 0.50		
Isophorone	N	2790	mg/kg	0.50			< 0.50			< 0.50		
2-Nitrophenol	N	2790	mg/kg	0.50			< 0.50			< 0.50		
2,4-Dimethylphenol	N	2790	mg/kg	0.50			< 0.50			< 0.50		
Bis(2-Chloroethoxy)Methane	N	2790	mg/kg	0.50			< 0.50			< 0.50		
2,4-Dichlorophenol	N	2790	mg/kg	0.50			< 0.50			< 0.50		
1,2,4-Trichlorobenzene	N	2790	mg/kg	0.50			< 0.50			< 0.50		
Naphthalene	N	2790	mg/kg	0.50			< 0.50			< 0.50		
4-Chloroaniline	N	2790	mg/kg	0.50			< 0.50			< 0.50		
Hexachlorobutadiene	N	2790	mg/kg	0.50			< 0.50			< 0.50		
4-Chloro-3-Methylphenol	N	2790	mg/kg	0.50			< 0.50			< 0.50		
2-Methylnaphthalene	N	2790	mg/kg	0.50			< 0.50			< 0.50		
4-Nitrophenol	N	2790	mg/kg	0.50			< 0.50			< 0.50		
Hexachlorocyclopentadiene	N	2790	mg/kg	0.50			< 0.50			< 0.50		
2,4,6-Trichlorophenol	N	2790	mg/kg	0.50			< 0.50			< 0.50		
2,4,5-Trichlorophenol	N	2790	mg/kg	0.50			< 0.50			< 0.50		
2-Chloronaphthalene	N	2790	mg/kg	0.50			< 0.50			< 0.50		
2-Nitroaniline	N	2790	mg/kg	0.50			< 0.50			< 0.50		
Acenaphthylene	N	2790	mg/kg	0.50			< 0.50			< 0.50		
Dimethylphthalate	N	2790	mg/kg	0.50			< 0.50			< 0.50		
2,6-Dinitrotoluene	N	2790	mg/kg	0.50			< 0.50			< 0.50		
Acenaphthene	N	2790	mg/kg	0.50			< 0.50			< 0.50		
3-Nitroaniline	N	2790	mg/kg	0.50			< 0.50			< 0.50		
Dibenzofuran	N	2790	mg/kg	0.50			< 0.50			< 0.50		
4-Chlorophenylphenylether	N	2790	mg/kg	0.50			< 0.50			< 0.50		
2,4-Dinitrotoluene	N	2790	mg/kg	0.50			< 0.50			< 0.50		
Fluorene	N	2790	mg/kg	0.50			< 0.50			< 0.50		

Results - Soil

Project: 16-0486 - City Waste Env. Investigations, Mobouy Road

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-12620	16-12620	16-12620	16-12620	16-12620	16-12620	16-12620	16-12620
Quotation No.:			**Chemtest Sample ID.:**		301031	301032	301033	301038	301041	301044	301046	301049
Order No.:			Client Sample Ref.:		TP15	TP15	TP15	TP16	TP16	TP17	TP17	TP18
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.50	1.00	2.00	1.00	3.00	1.00	3.00	1.00
			Date Sampled:		25-May-2016	25-May-2016	25-May-2016	25-May-2016	25-May-2016	25-May-2016	25-May-2016	25-May-2016
			Asbestos Lab:		COVENTRY	COVENTRY		COVENTRY		COVENTRY		COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
Diethyl Phthalate	N	2790	mg/kg	0.50			< 0.50			< 0.50		
4-Nitroaniline	N	2790	mg/kg	0.50			< 0.50			< 0.50		
2-Methyl-4,6-Dinitrophenol	N	2790	mg/kg	0.50			< 0.50			< 0.50		
Azobenzene	N	2790	mg/kg	0.50			< 0.50			< 0.50		
4-Bromophenylphenyl Ether	N	2790	mg/kg	0.50			< 0.50			< 0.50		
Hexachlorobenzene	N	2790	mg/kg	0.50			< 0.50			< 0.50		
Pentachlorophenol	N	2790	mg/kg	0.50			< 0.50			< 0.50		
Phenanthrene	N	2790	mg/kg	0.50			< 0.50			1.4		
Anthracene	N	2790	mg/kg	0.50			< 0.50			< 0.50		
Carbazole	N	2790	mg/kg	0.50			< 0.50			< 0.50		
Di-N-Butyl Phthalate	N	2790	mg/kg	0.50			< 0.50			< 0.50		
Fluoranthene	N	2790	mg/kg	0.50			< 0.50			< 0.50		
Pyrene	N	2790	mg/kg	0.50			< 0.50			< 0.50		
Buty benzyl Phthalate	N	2790	mg/kg	0.50			< 0.50			< 0.50		
Benzo[a]anthracene	N	2790	mg/kg	0.50			< 0.50			< 0.50		
Chrysene	N	2790	mg/kg	0.50			< 0.50			< 0.50		
Bis(2-Ethylhexyl)Phthalate	N	2790	mg/kg	0.50			< 0.50			< 0.50		
Di-N-Octyl Phthalate	N	2790	mg/kg	0.50			< 0.50			< 0.50		
Benzo[b]fluoranthene	N	2790	mg/kg	0.50			< 0.50			< 0.50		
Benzo[k]fluoranthene	N	2790	mg/kg	0.50			< 0.50			< 0.50		
Benzo[a]pyrene	N	2790	mg/kg	0.50			< 0.50			< 0.50		
Indeno(1,2,3-c,d)Pyrene	N	2790	mg/kg	0.50			< 0.50			< 0.50		
Dibenz(a,h)Anthracene	N	2790	mg/kg	0.50			< 0.50			< 0.50		
Benzo[g,h,i]perylene	N	2790	mg/kg	0.50			< 0.50			< 0.50		
Resorcinol	U	2920	mg/kg	0.050			< 0.050					
Phenol	U	2920	mg/kg	0.050			0.82					
Cresols	U	2920	mg/kg	0.050			8.4					
Xylenols	U	2920	mg/kg	0.050			0.68					
1-Naphthol	N	2920	mg/kg	0.050			0.46					
Trimethylphenols	U	2920	mg/kg	0.050			55					
Total Phenols	U	2920	mg/kg	0.30	< 0.30	21	65	89	82	40	98	11

Results - Soil

Project: 16-0486 - City Waste Env. Investigations, Mobouy Road

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-12620	16-12620
Quotation No.:			**Chemtest Sample ID.:**		301052	301055
Order No.:			Client Sample Ref.:		TP19	TP19
			Sample Type:		SOIL	SOIL
			Top Depth (m):		0.50	3.00
			Date Sampled:		25-May-2016	25-May-2016
			Asbestos Lab:			
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
ACM Type	U	2192		N/A		
Asbestos Identification	U	2192	%	0.001		
Moisture	N	2030	%	0.020	21	32
pH	U	2010		N/A	8.1	7.7
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	0.62	1.6
Ammonium (Extractable)	U	2425	mg/kg	0.50	45	32
Iron (Total)	N	2430	mg/kg	100	14000	19000
Sulphate (Total)	U	2430	%	0.010	1.6	1.2
Arsenic	U	2450	mg/kg	1.0	14	13
Cadmium	U	2450	mg/kg	0.10	0.33	0.25
Chromium	U	2450	mg/kg	1.0	19	51
Copper	U	2450	mg/kg	0.50	140	88
Mercury	U	2450	mg/kg	0.10	0.21	4.1
Manganese	U	2450	mg/kg	5.0	350	680
Nickel	U	2450	mg/kg	0.50	77	66
Lead	U	2450	mg/kg	0.50	120	55
Selenium	U	2450	mg/kg	0.20	< 0.20	< 0.20
Zinc	U	2450	mg/kg	0.50	300	240
Total Organic Carbon	U	2625	%	0.20	4.2	4.7
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	[B] < 1.0	
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	[B] 100	
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	[B] 5.0	
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	[B] 29	
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	[B] 86	
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	[B] 350	
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	[B] 1500	
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	[B] 130	
Total Aliphatic Hydrocarbons	U	2680	mg/kg	5.0	[B] 2200	
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	[B] < 1.0	
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	[B] 21	
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	[B] 140	
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	[B] 42	
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	[B] 95	
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	[B] 210	
Aromatic TPH >C21-C35	N	2680	mg/kg	1.0	[B] 890	
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	[B] 54	
Total Aromatic Hydrocarbons	U	2680	mg/kg	5.0	[B] 1400	

Results - Soil

Project: 16-0486 - City Waste Env. Investigations, Mobouy Road

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-12620	16-12620
Quotation No.:			**Chemtest Sample ID.:**		301052	301055
Order No.:			Client Sample Ref.:		TP19	TP19
			Sample Type:		SOIL	SOIL
			Top Depth (m):		0.50	3.00
			Date Sampled:		25-May-2016	25-May-2016
			Asbestos Lab:			
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Total Petroleum Hydrocarbons	U	2680	mg/kg	10	[B] 3600	
Naphthalene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Fluorene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Phenanthrene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Chrysene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Total Of 9 PAH's	U	2700	mg/kg	1.0	< 1.0	< 1.0
Total Of 16 PAH's	U	2700	mg/kg	2.0	< 2.0	< 2.0
Dichlorodifluoromethane	U	2760	µg/kg	1.0		
Chloromethane	U	2760	µg/kg	1.0		
Vinyl Chloride	U	2760	µg/kg	1.0		
Bromomethane	U	2760	µg/kg	20		
Chloroethane	U	2760	µg/kg	2.0		
Trichlorofluoromethane	U	2760	µg/kg	1.0		
1,1-Dichloroethene	U	2760	µg/kg	1.0		
Trans 1,2-Dichloroethene	U	2760	µg/kg	1.0		
1,1-Dichloroethane	U	2760	µg/kg	1.0		
cis 1,2-Dichloroethene	U	2760	µg/kg	1.0		
Bromochloromethane	U	2760	µg/kg	5.0		
Trichloromethane	U	2760	µg/kg	1.0		
1,1,1-Trichloroethane	U	2760	µg/kg	1.0		
Tetrachloromethane	U	2760	µg/kg	1.0		
1,1-Dichloropropene	U	2760	µg/kg	1.0		
Benzene	U	2760	µg/kg	1.0	[B] 6.7	
1,2-Dichloroethane	U	2760	µg/kg	2.0		
Trichloroethene	N	2760	µg/kg	1.0		
1,2-Dichloropropane	U	2760	µg/kg	1.0		

Results - Soil

Project: 16-0486 - City Waste Env. Investigations, Mobouy Road

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-12620	16-12620
Quotation No.:			**Chemtest Sample ID.:**		301052	301055
Order No.:			Client Sample Ref.:		TP19	TP19
			Sample Type:		SOIL	SOIL
			Top Depth (m):		0.50	3.00
			Date Sampled:		25-May-2016	25-May-2016
			Asbestos Lab:			
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Dibromomethane	U	2760	µg/kg	1.0		
Bromodichloromethane	U	2760	µg/kg	5.0		
cis-1,3-Dichloropropene	N	2760	µg/kg	10		
Toluene	U	2760	µg/kg	1.0	[B] 6.8	
Trans-1,3-Dichloropropene	N	2760	µg/kg	10		
1,1,2-Trichloroethane	U	2760	µg/kg	10		
Tetrachloroethene	U	2760	µg/kg	1.0		
1,3-Dichloropropane	U	2760	µg/kg	2.0		
Dibromochloromethane	U	2760	µg/kg	10		
1,2-Dibromoethane	U	2760	µg/kg	5.0		
Chlorobenzene	U	2760	µg/kg	1.0		
1,1,1,2-Tetrachloroethane	U	2760	µg/kg	2.0		
Ethy benzene	U	2760	µg/kg	1.0	[B] 4.2	
m & p-Xylene	U	2760	µg/kg	1.0	[B] 4.5	
o-Xylene	U	2760	µg/kg	1.0	[B] 4.2	
Styrene	U	2760	µg/kg	1.0		
Tribromomethane	U	2760	µg/kg	1.0		
Isopropylbenzene	U	2760	µg/kg	1.0		
Bromobenzene	U	2760	µg/kg	1.0		
1,2,3-Trichloropropane	N	2760	µg/kg	50		
N-Propylbenzene	U	2760	µg/kg	1.0		
2-Chlorotoluene	U	2760	µg/kg	1.0		
1,3,5-Trimethylbenzene	U	2760	µg/kg	1.0		
4-Chlorotoluene	U	2760	µg/kg	1.0		
Tert-Butylbenzene	U	2760	µg/kg	1.0		
1,2,4-Trimethylbenzene	U	2760	µg/kg	1.0		
Sec-Butylbenzene	U	2760	µg/kg	1.0		
1,3-Dichlorobenzene	U	2760	µg/kg	1.0		
4-Isopropyltoluene	U	2760	µg/kg	1.0		
1,4-Dichlorobenzene	U	2760	µg/kg	1.0		
N-Butylbenzene	U	2760	µg/kg	1.0		
1,2-Dichlorobenzene	U	2760	µg/kg	1.0		
1,2-Dibromo-3-Chloropropane	U	2760	µg/kg	50		
1,2,4-Trichlorobenzene	U	2760	µg/kg	1.0		
Hexachlorobutadiene	U	2760	µg/kg	1.0		
1,2,3-Trichlorobenzene	U	2760	µg/kg	2.0		
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0		
N-Nitrosodimethylamine	N	2790	mg/kg	0.50		

Results - Soil

Project: 16-0486 - City Waste Env. Investigations, Mobouy Road

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-12620	16-12620
Quotation No.:			**Chemtest Sample ID.:**		301052	301055
Order No.:			Client Sample Ref.:		TP19	TP19
			Sample Type:		SOIL	SOIL
			Top Depth (m):		0.50	3.00
			Date Sampled:		25-May-2016	25-May-2016
			Asbestos Lab:			
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Phenol	N	2790	mg/kg	0.50		
2-Chlorophenol	N	2790	mg/kg	0.50		
Bis-(2-Chloroethyl)Ether	N	2790	mg/kg	0.50		
1,3-Dichlorobenzene	N	2790	mg/kg	0.50		
1,4-Dichlorobenzene	N	2790	mg/kg	0.50		
1,2-Dichlorobenzene	N	2790	mg/kg	0.50		
2-Methylphenol	N	2790	mg/kg	0.50		
Bis(2-Chloroisopropyl)Ether	N	2790	mg/kg	0.50		
Hexachloroethane	N	2790	mg/kg	0.50		
N-Nitrosodi-n-propylamine	N	2790	mg/kg	0.50		
4-Methylphenol	N	2790	mg/kg	0.50		
Nitrobenzene	N	2790	mg/kg	0.50		
Isophorone	N	2790	mg/kg	0.50		
2-Nitrophenol	N	2790	mg/kg	0.50		
2,4-Dimethylphenol	N	2790	mg/kg	0.50		
Bis(2-Chloroethoxy)Methane	N	2790	mg/kg	0.50		
2,4-Dichlorophenol	N	2790	mg/kg	0.50		
1,2,4-Trichlorobenzene	N	2790	mg/kg	0.50		
Naphthalene	N	2790	mg/kg	0.50		
4-Chloroaniline	N	2790	mg/kg	0.50		
Hexachlorobutadiene	N	2790	mg/kg	0.50		
4-Chloro-3-Methylphenol	N	2790	mg/kg	0.50		
2-Methylnaphthalene	N	2790	mg/kg	0.50		
4-Nitrophenol	N	2790	mg/kg	0.50		
Hexachlorocyclopentadiene	N	2790	mg/kg	0.50		
2,4,6-Trichlorophenol	N	2790	mg/kg	0.50		
2,4,5-Trichlorophenol	N	2790	mg/kg	0.50		
2-Chloronaphthalene	N	2790	mg/kg	0.50		
2-Nitroaniline	N	2790	mg/kg	0.50		
Acenaphthylene	N	2790	mg/kg	0.50		
Dimethylphthalate	N	2790	mg/kg	0.50		
2,6-Dinitrotoluene	N	2790	mg/kg	0.50		
Acenaphthene	N	2790	mg/kg	0.50		
3-Nitroaniline	N	2790	mg/kg	0.50		
Dibenzofuran	N	2790	mg/kg	0.50		
4-Chlorophenylphenylether	N	2790	mg/kg	0.50		
2,4-Dinitrotoluene	N	2790	mg/kg	0.50		
Fluorene	N	2790	mg/kg	0.50		

Results - Soil

Project: 16-0486 - City Waste Env. Investigations, Mobouy Road

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-12620	16-12620
Quotation No.:			**Chemtest Sample ID.:**		301052	301055
Order No.:			Client Sample Ref.:		TP19	TP19
			Sample Type:		SOIL	SOIL
			Top Depth (m):		0.50	3.00
			Date Sampled:		25-May-2016	25-May-2016
			Asbestos Lab:			
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Diethyl Phthalate	N	2790	mg/kg	0.50		
4-Nitroaniline	N	2790	mg/kg	0.50		
2-Methyl-4,6-Dinitrophenol	N	2790	mg/kg	0.50		
Azobenzene	N	2790	mg/kg	0.50		
4-Bromophenylphenyl Ether	N	2790	mg/kg	0.50		
Hexachlorobenzene	N	2790	mg/kg	0.50		
Pentachlorophenol	N	2790	mg/kg	0.50		
Phenanthrene	N	2790	mg/kg	0.50		
Anthracene	N	2790	mg/kg	0.50		
Carbazole	N	2790	mg/kg	0.50		
Di-N-Butyl Phthalate	N	2790	mg/kg	0.50		
Fluoranthene	N	2790	mg/kg	0.50		
Pyrene	N	2790	mg/kg	0.50		
Buty benzyl Phthalate	N	2790	mg/kg	0.50		
Benzo[a]anthracene	N	2790	mg/kg	0.50		
Chrysene	N	2790	mg/kg	0.50		
Bis(2-Ethylhexyl)Phthalate	N	2790	mg/kg	0.50		
Di-N-Octyl Phthalate	N	2790	mg/kg	0.50		
Benzo[b]fluoranthene	N	2790	mg/kg	0.50		
Benzo[k]fluoranthene	N	2790	mg/kg	0.50		
Benzo[a]pyrene	N	2790	mg/kg	0.50		
Indeno(1,2,3-c,d)Pyrene	N	2790	mg/kg	0.50		
Dibenz(a,h)Anthracene	N	2790	mg/kg	0.50		
Benzo[g,h,i]perylene	N	2790	mg/kg	0.50		
Resorcinol	U	2920	mg/kg	0.050		
Phenol	U	2920	mg/kg	0.050		
Cresols	U	2920	mg/kg	0.050		
Xylenols	U	2920	mg/kg	0.050		
1-Naphthol	N	2920	mg/kg	0.050		
Trimethylphenols	U	2920	mg/kg	0.050		
Total Phenols	U	2920	mg/kg	0.30	6.8	< 0.30

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Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request.The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample ID:	Sample Ref:	Sample ID:	Sampled Date:	Deviation Code(s):	Containers Received:
301033	TP15		25-May-2016	B	Amber Glass 250ml
301033	TP15		25-May-2016	B	Amber Glass 60ml
301033	TP15		25-May-2016	B	Plastic Tub 500g
301044	TP17		25-May-2016	B	Amber Glass 250ml
301044	TP17		25-May-2016	B	Amber Glass 60ml
301044	TP17		25-May-2016	B	Plastic Tub 500g
301052	TP19		25-May-2016	B	Amber Glass 250ml
301052	TP19		25-May-2016	B	Amber Glass 60ml
301052	TP19		25-May-2016	B	Plastic Tub 500g

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis
The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols
For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at our Coventry laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.co.uk

Chemtest
The right chemistry to deliver results
Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.co.uk

Amended Report

Report No.:	16-12921-2		
Initial Date of Issue:	08-Jun-2016	**Date of Re-Issue:**	06-Jul-2016
Client	Causeway Geotech Ltd		
Client Address:	8 Drumahiskey Road Balnamore Ballymoney County Antrim BT53 7QL		
Contact(s):	[redacted]		
Project	16-0486 - City Waste Env. Investigations, Mobuoy Road		
Quotation No.:		**Date Received:**	02-Jun-2016
Order No.:		**Date Instructed:**	02-Jun-2016
No. of Samples:	14		
Turnaround (Wkdays):	23	**Results Due:**	04-Jul-2016
Date Approved:	06-Jul-2016		

Approved By:

[redacted]

Details: [redacted] Laboratory Manager

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Results - Soil

Project: 16-0486 - City Waste Env. Investigations, Mobuoy Road

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-12921	16-12921	16-12921	16-12921	16-12921	16-12921	16-12921	16-12921
Quotation No.:			**Chemtest Sample ID.:**		302817	302821	302823	302824	302831	302836	302839	302841
Order No.:			Client Sample Ref.:		TP20	TP20	TP21	TP21	TP22	TP23	TP24	TP24
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.50	3.50	0.50	1.00	0.70	1.30	0.50	1.50
			Date Sampled:		30-May-2016	30-May-2016	30-May-2016	30-May-2016	30-May-2016	30-May-2016	30-May-2016	30-May-2016
			Asbestos Lab:		COVENTRY			COVENTRY	COVENTRY	COVENTRY	COVENTRY	
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
ACM Type	U	2192		N/A	-		-	-	-	-	-	
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected		No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	
Moisture	N	2030	%	0.020	19	46		30	21	40	17	45
Soil Colour	N	2040		N/A						Brown		
Other Material	N	2040		N/A						Stones		
Soil Texture	N	2040		N/A						Clay		
pH	M	2010		N/A	8.5	7.9		11.2	8.4	8.1	8.1	7.6
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	1.5	2.1		0.83	0.95	0.091	0.87	0.72
Ammonium (Extractable)	M	2425	mg/kg	0.50	14	840		110	15	8.6	3.7	74
Iron (Total)	N	2430	mg/kg	100	16000	17000		16000	18000	19000	21000	18000
Sulphate (Total)	M	2430	%	0.010	0.83	1.4		1.6	0.30	0.37	0.063	2.0
Arsenic	M	2450	mg/kg	1.0	13	19		13	8.7	15	19	12
Cadmium	M	2450	mg/kg	0.10	0.33	0.68		0.26	0.21	0.29	0.29	37
Chromium	M	2450	mg/kg	1.0	26	29		38	34	25	30	50
Copper	M	2450	mg/kg	0.50	94	120		69	57	48	56	95
Mercury	M	2450	mg/kg	0.10	0.10	0.31		0.10	< 0.10	< 0.10	0.17	0.24
Manganese	M	2450	mg/kg	5.0	560	1200		550	610	920	1600	830
Nickel	M	2450	mg/kg	0.50	50	36		35	63	32	41	35
Lead	M	2450	mg/kg	0.50	570	260		49	34	88	37	120
Selenium	M	2450	mg/kg	0.20	0.42	< 0.20		0.35	< 0.20	0.38	< 0.20	0.70
Zinc	M	2450	mg/kg	0.50	240	330		280	120	140	100	720
Fraction of Organic Carbon	M	2625		0.0010								
Total Organic Carbon	M	2625	%	0.20	2.1	19		0.24	1.3	3.4	0.37	21
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0						< 1.0		
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0						< 1.0		
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0						< 1.0		
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0						< 1.0		
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0						< 1.0		
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0						< 1.0		
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0						< 1.0		
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0						< 1.0		
Total Aliphatic Hydrocarbons	M	2680	mg/kg	5.0						< 5.0		
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0						< 1.0		
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0						< 1.0		
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0						< 1.0		
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0						< 1.0		
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0						< 1.0		

Chemtest
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Results - Soil

Project: 16-0486 - City Waste Env. Investigations, Mobuoy Road

Client: Causeway Geotech Ltd				**Chemtest Job No.:**	16-12921	16-12921	16-12921	16-12921	16-12921	16-12921	16-12921	16-12921
Quotation No.:				**Chemtest Sample ID.:**	302817	302821	302823	302824	302831	302836	302839	302841
Order No.:				Client Sample Ref.:	TP20	TP20	TP21	TP21	TP22	TP23	TP24	TP24
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	0.50	3.50	0.50	1.00	0.70	1.30	0.50	1.50
				Date Sampled:	30-May-2016	30-May-2016	30-May-2016	30-May-2016	30-May-2016	30-May-2016	30-May-2016	30-May-2016
				Asbestos Lab:	COVENTRY			COVENTRY	COVENTRY	COVENTRY	COVENTRY	
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
Aromatic TPH >C16-C21	M	2680	mg/kg	1.0						< 1.0		
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0						< 1.0		
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0						< 1.0		
Total Aromatic Hydrocarbons	M	2680	mg/kg	5.0						< 5.0		
Total Petroleum Hydrocarbons	M	2680	mg/kg	10						< 10		
Naphthalene	M	2700	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	M	2700	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	M	2700	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	M	2700	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	M	2700	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	M	2700	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	M	2700	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	0.56	< 0.10	< 0.10
Pyrene	M	2700	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	0.52	< 0.10	< 0.10
Benzo[a]anthracene	M	2700	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	M	2700	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	M	2700	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	M	2700	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	M	2700	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	M	2700	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	M	2700	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	M	2700	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 9 PAH's	U	2700	mg/kg	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Of 16 PAH's	M	2700	mg/kg	2.0	< 2.0	< 2.0		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Dichlorodifluoromethane	U	2760	µg/kg	1.0						< 1.0		
Chloromethane	M	2760	µg/kg	1.0						< 1.0		
Vinyl Chloride	M	2760	µg/kg	1.0						< 1.0		
Bromomethane	M	2760	µg/kg	20						< 20		
Chloroethane	U	2760	µg/kg	2.0						< 2.0		
Trichlorofluoromethane	M	2760	µg/kg	1.0						< 1.0		
1,1-Dichloroethene	M	2760	µg/kg	1.0						< 1.0		
Trans 1,2-Dichloroethene	M	2760	µg/kg	1.0						< 1.0		
1,1-Dichloroethane	M	2760	µg/kg	1.0						< 1.0		
cis 1,2-Dichloroethene	M	2760	µg/kg	1.0						< 1.0		
Bromochloromethane	U	2760	µg/kg	5.0						< 5.0		
Trichloromethane	M	2760	µg/kg	1.0						< 1.0		
1,1,1-Trichloroethane	M	2760	µg/kg	1.0						< 1.0		
Tetrachloromethane	M	2760	µg/kg	1.0						< 1.0		
1,1-Dichloropropene	U	2760	µg/kg	1.0						< 1.0		

Chemtest
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Results - Soil

Project: 16-0486 - City Waste Env. Investigations, Mobuoy Road

Client: Causeway Geotech Ltd					**Chemtest Job No.:**	16-12921	16-12921	16-12921	16-12921	16-12921	16-12921	16-12921	16-12921
Quotation No.:					**Chemtest Sample ID.:**	302817	302821	302823	302824	302831	302836	302839	302841
Order No.:					Client Sample Ref.:	TP20	TP20	TP21	TP21	TP22	TP23	TP24	TP24
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.50	3.50	0.50	1.00	0.70	1.30	0.50	1.50
					Date Sampled:	30-May-2016	30-May-2016	30-May-2016	30-May-2016	30-May-2016	30-May-2016	30-May-2016	30-May-2016
					Asbestos Lab:	COVENTRY			COVENTRY	COVENTRY	COVENTRY	COVENTRY	
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Benzene	M	2760	µg/kg	1.0							< 1.0		
1,2-Dichloroethane	M	2760	µg/kg	2.0							< 2.0		
Trichloroethene	M	2760	µg/kg	1.0							< 1.0		
1,2-Dichloropropane	M	2760	µg/kg	1.0							< 1.0		
Dibromomethane	M	2760	µg/kg	1.0							< 1.0		
Bromodichloromethane	M	2760	µg/kg	5.0							< 5.0		
cis-1,3-Dichloropropene	N	2760	µg/kg	10							< 10		
Toluene	M	2760	µg/kg	1.0							< 1.0		
Trans-1,3-Dichloropropene	N	2760	µg/kg	10							< 10		
1,1,2-Trichloroethane	M	2760	µg/kg	10							< 10		
Tetrachloroethene	M	2760	µg/kg	1.0							< 1.0		
1,3-Dichloropropane	U	2760	µg/kg	2.0							< 2.0		
Dibromochloromethane	U	2760	µg/kg	10							< 10		
1,2-Dibromoethane	M	2760	µg/kg	5.0							< 5.0		
Chlorobenzene	M	2760	µg/kg	1.0							< 1.0		
1,1,1,2-Tetrachloroethane	M	2760	µg/kg	2.0							< 2.0		
Ethy benzene	M	2760	µg/kg	1.0							< 1.0		
m & p-Xylene	M	2760	µg/kg	1.0							< 1.0		
o-Xylene	M	2760	µg/kg	1.0							< 1.0		
Styrene	M	2760	µg/kg	1.0							< 1.0		
Tribromomethane	U	2760	µg/kg	1.0							< 1.0		
Isopropylbenzene	M	2760	µg/kg	1.0							< 1.0		
Bromobenzene	M	2760	µg/kg	1.0							< 1.0		
1,2,3-Trichloropropane	N	2760	µg/kg	50							< 50		
N-Propylbenzene	U	2760	µg/kg	1.0							< 1.0		
2-Chlorotoluene	M	2760	µg/kg	1.0							< 1.0		
1,3,5-Trimethylbenzene	M	2760	µg/kg	1.0							< 1.0		
4-Chlorotoluene	U	2760	µg/kg	1.0							< 1.0		
Tert-Butylbenzene	U	2760	µg/kg	1.0							< 1.0		
1,2,4-Trimethylbenzene	M	2760	µg/kg	1.0							< 1.0		
Sec-Butylbenzene	U	2760	µg/kg	1.0							< 1.0		
1,3-Dichlorobenzene	M	2760	µg/kg	1.0							< 1.0		
4-Isopropyltoluene	U	2760	µg/kg	1.0							< 1.0		
1,4-Dichlorobenzene	M	2760	µg/kg	1.0							< 1.0		
N-Butylbenzene	U	2760	µg/kg	1.0							< 1.0		
1,2-Dichlorobenzene	M	2760	µg/kg	1.0							< 1.0		
1,2-Dibromo-3-Chloropropane	U	2760	µg/kg	50							< 50		
1,2,4-Trichlorobenzene	M	2760	µg/kg	1.0							< 1.0		

Chemtest
The right chemistry to deliver results

Results - Soil

Project: 16-0486 - City Waste Env. Investigations, Mobuoy Road

Client: Causeway Geotech Ltd				**Chemtest Job No.:**	16-12921	16-12921	16-12921	16-12921	16-12921	16-12921	16-12921	16-12921
Quotation No.:				**Chemtest Sample ID.:**	302817	302821	302823	302824	302831	302836	302839	302841
Order No.:				Client Sample Ref.:	TP20	TP20	TP21	TP21	TP22	TP23	TP24	TP24
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	0.50	3.50	0.50	1.00	0.70	1.30	0.50	1.50
				Date Sampled:	30-May-2016	30-May-2016	30-May-2016	30-May-2016	30-May-2016	30-May-2016	30-May-2016	30-May-2016
				Asbestos Lab:	COVENTRY			COVENTRY	COVENTRY	COVENTRY	COVENTRY	
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
Hexachlorobutadiene	U	2760	µg/kg	1.0						< 1.0		
1,2,3-Trichlorobenzene	U	2760	µg/kg	2.0						< 2.0		
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0						< 1.0		
N-Nitrosodimethylamine	N	2790	mg/kg	0.50						< 0.50		
Phenol	N	2790	mg/kg	0.50						< 0.50		
2-Chlorophenol	N	2790	mg/kg	0.50						< 0.50		
Bis-(2-Chloroethyl)Ether	N	2790	mg/kg	0.50						< 0.50		
1,3-Dichlorobenzene	N	2790	mg/kg	0.50						< 0.50		
1,4-Dichlorobenzene	N	2790	mg/kg	0.50						< 0.50		
1,2-Dichlorobenzene	N	2790	mg/kg	0.50						< 0.50		
2-Methylphenol	N	2790	mg/kg	0.50						< 0.50		
Bis(2-Chloroisopropyl)Ether	N	2790	mg/kg	0.50						< 0.50		
Hexachloroethane	N	2790	mg/kg	0.50						< 0.50		
N-Nitrosodi-n-propylamine	N	2790	mg/kg	0.50						< 0.50		
4-Methylphenol	N	2790	mg/kg	0.50						< 0.50		
Nitrobenzene	N	2790	mg/kg	0.50						< 0.50		
Isophorone	N	2790	mg/kg	0.50						< 0.50		
2-Nitrophenol	N	2790	mg/kg	0.50						< 0.50		
2,4-Dimethylphenol	N	2790	mg/kg	0.50						< 0.50		
Bis(2-Chloroethoxy)Methane	N	2790	mg/kg	0.50						< 0.50		
2,4-Dichlorophenol	N	2790	mg/kg	0.50						< 0.50		
1,2,4-Trichlorobenzene	N	2790	mg/kg	0.50						< 0.50		
Naphthalene	N	2790	mg/kg	0.50						< 0.50		
4-Chloroaniline	N	2790	mg/kg	0.50						< 0.50		
Hexachlorobutadiene	N	2790	mg/kg	0.50						< 0.50		
4-Chloro-3-Methylphenol	N	2790	mg/kg	0.50						< 0.50		
2-Methylnaphthalene	N	2790	mg/kg	0.50						< 0.50		
4-Nitrophenol	N	2790	mg/kg	0.50						< 0.50		
Hexachlorocyclopentadiene	N	2790	mg/kg	0.50						< 0.50		
2,4,6-Trichlorophenol	N	2790	mg/kg	0.50						< 0.50		
2,4,5-Trichlorophenol	N	2790	mg/kg	0.50						< 0.50		
2-Chloronaphthalene	N	2790	mg/kg	0.50						< 0.50		
2-Nitroaniline	N	2790	mg/kg	0.50						< 0.50		
Acenaphthylene	N	2790	mg/kg	0.50						< 0.50		
Dimethylphthalate	N	2790	mg/kg	0.50						< 0.50		
2,6-Dinitrotoluene	N	2790	mg/kg	0.50						< 0.50		
Acenaphthene	N	2790	mg/kg	0.50						< 0.50		
3-Nitroaniline	N	2790	mg/kg	0.50						< 0.50		

Chemtest
The right chemistry to deliver results

Results - Soil

Project: 16-0486 - City Waste Env. Investigations, Mobuoy Road

Client: Causeway Geotech Ltd			**Chemtest Job No.:**	16-12921	16-12921	16-12921	16-12921	16-12921	16-12921	16-12921	16-12921
Quotation No.:			**Chemtest Sample ID.:**	302817	302821	302823	302824	302831	302836	302839	302841
Order No.:			Client Sample Ref.:	TP20	TP20	TP21	TP21	TP22	TP23	TP24	TP24
			Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):	0.50	3.50	0.50	1.00	0.70	1.30	0.50	1.50
			Date Sampled:	30-May-2016	30-May-2016	30-May-2016	30-May-2016	30-May-2016	30-May-2016	30-May-2016	30-May-2016
			Asbestos Lab:	COVENTRY			COVENTRY	COVENTRY	COVENTRY	COVENTRY	
Determinand	**Accred.**	**SOP**	**Units**	**LOD**							
Dibenzofuran	N	2790	mg/kg	0.50					< 0.50		
4-Chlorophenylphenylether	N	2790	mg/kg	0.50					< 0.50		
2,4-Dinitrotoluene	N	2790	mg/kg	0.50					< 0.50		
Fluorene	N	2790	mg/kg	0.50					< 0.50		
Diethyl Phthalate	N	2790	mg/kg	0.50					< 0.50		
4-Nitroaniline	N	2790	mg/kg	0.50					< 0.50		
2-Methyl-4,6-Dinitrophenol	N	2790	mg/kg	0.50					< 0.50		
Azobenzene	N	2790	mg/kg	0.50					< 0.50		
4-Bromophenylphenyl Ether	N	2790	mg/kg	0.50					< 0.50		
Hexachlorobenzene	N	2790	mg/kg	0.50					< 0.50		
Pentachlorophenol	N	2790	mg/kg	0.50					< 0.50		
Phenanthrene	N	2790	mg/kg	0.50					< 0.50		
Anthracene	N	2790	mg/kg	0.50					< 0.50		
Carbazole	N	2790	mg/kg	0.50					< 0.50		
Di-N-Butyl Phthalate	N	2790	mg/kg	0.50					< 0.50		
Fluoranthene	N	2790	mg/kg	0.50					< 0.50		
Pyrene	N	2790	mg/kg	0.50					< 0.50		
Buty benzyl Phthalate	N	2790	mg/kg	0.50					< 0.50		
Benzo[a]anthracene	N	2790	mg/kg	0.50					< 0.50		
Chrysene	N	2790	mg/kg	0.50					< 0.50		
Bis(2-Ethylhexyl)Phthalate	N	2790	mg/kg	0.50					< 0.50		
Di-N-Octyl Phthalate	N	2790	mg/kg	0.50					< 0.50		
Benzo[b]fluoranthene	N	2790	mg/kg	0.50					< 0.50		
Benzo[k]fluoranthene	N	2790	mg/kg	0.50					< 0.50		
Benzo[a]pyrene	N	2790	mg/kg	0.50					< 0.50		
Indeno(1,2,3-c,d)Pyrene	N	2790	mg/kg	0.50					< 0.50		
Dibenz(a,h)Anthracene	N	2790	mg/kg	0.50					< 0.50		
Benzo[g,h,i]perylene	N	2790	mg/kg	0.50					< 0.50		
Resorcinol	M	2920	mg/kg	0.050							
Phenol	M	2920	mg/kg	0.050							
Cresols	M	2920	mg/kg	0.050							
Xylenols	M	2920	mg/kg	0.050							
1-Naphthol	N	2920	mg/kg	0.050							
Trimethylphenols	M	2920	mg/kg	0.050							
Total Phenols	M	2920	mg/kg	0.30	2.5	7.7		41	5.1	< 0.30	< 0.30	14

Chemtest
The right chemistry to deliver results

Results - Soil

Project: 16-0486 - City Waste Env. Investigations, Mobuoy Road

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-12921	16-12921	16-12921	16-12921	16-12921	16-12921
Quotation No.:			**Chemtest Sample ID.:**		302842	302843	302847	302848	302850	302855
Order No.:			Client Sample Ref.:		TP24	TP24	TP25	TP25	TP26	TP27
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		2.50	3.50	2.50	3.50	1.00	3.00
			Date Sampled:		30-May-2016	30-May-2016	30-May-2016	30-May-2016	30-May-2016	30-May-2016
			Asbestos Lab:		COVENTRY		COVENTRY		COVENTRY	
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
ACM Type	U	2192		N/A	-		-		-	
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected		No Asbestos Detected		No Asbestos Detected	
Moisture	N	2030	%	0.020	19	26	13	15	22	24
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones	Plastic	Stones	Stones	Stones
Soil Texture	N	2040		N/A	Clay	Sand	Clay	Clay	Clay	Sand
pH	M	2010		N/A	7.6		8.1	8.1	7.5	
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	0.19		0.43	0.080	0.12	
Ammonium (Extractable)	M	2425	mg/kg	0.50	630		260	150	81	
Iron (Total)	N	2430	mg/kg	100	18000		19000	16000	20000	
Sulphate (Total)	M	2430	%	0.010	0.27		0.23	0.062	0.093	
Arsenic	M	2450	mg/kg	1.0	12		16	9.5	12	
Cadmium	M	2450	mg/kg	0.10	0.35		0.19	0.12	0.15	
Chromium	M	2450	mg/kg	1.0	22		28	18	24	
Copper	M	2450	mg/kg	0.50	45		40	23	35	
Mercury	M	2450	mg/kg	0.10	0.10		< 0.10	< 0.10	< 0.10	
Manganese	M	2450	mg/kg	5.0	740		930	780	940	
Nickel	M	2450	mg/kg	0.50	24		32	16	28	
Lead	M	2450	mg/kg	0.50	42		41	24	22	
Selenium	M	2450	mg/kg	0.20	0.26		0.26	0.30	0.38	
Zinc	M	2450	mg/kg	0.50	120		140	56	70	
Fraction of Organic Carbon	M	2625		0.0010		< 0.0010				0.0025
Total Organic Carbon	M	2625	%	0.20	0.75		1.2	0.46	0.89	
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0		< 1.0	< 1.0	< 1.0	
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	30		< 1.0	< 1.0	< 1.0	
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0	440		3.6	< 1.0	< 1.0	
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0	250		15	< 1.0	< 1.0	
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0	8.5		43	< 1.0	< 1.0	
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0	9.6		40	< 1.0	< 1.0	
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	230		300	< 1.0	< 1.0	
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0		14	< 1.0	< 1.0	
Total Aliphatic Hydrocarbons	M	2680	mg/kg	5.0	960		410	< 5.0	< 5.0	
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	40		14	< 1.0	< 1.0	
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	5.9		3.6	< 1.0	< 1.0	
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	21		6.1	< 1.0	< 1.0	
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	64		17	5.2	< 1.0	
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	19		21	38	< 1.0	

Chemtest
The right chemistry to deliver results

Results - Soil

Project: 16-0486 - City Waste Env. Investigations, Mobuoy Road

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-12921	16-12921	16-12921	16-12921	16-12921	16-12921
Quotation No.:			**Chemtest Sample ID.:**		302842	302843	302847	302848	302850	302855
Order No.:			Client Sample Ref.:		TP24	TP24	TP25	TP25	TP26	TP27
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		2.50	3.50	2.50	3.50	1.00	3.00
			Date Sampled:		30-May-2016	30-May-2016	30-May-2016	30-May-2016	30-May-2016	30-May-2016
			Asbestos Lab:		COVENTRY		COVENTRY		COVENTRY	
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
Aromatic TPH >C16-C21	M	2680	mg/kg	1.0	44		46	70	< 1.0	
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	290		470	94	< 1.0	
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0		12	< 1.0	< 1.0	
Total Aromatic Hydrocarbons	M	2680	mg/kg	5.0	480		590	210	< 5.0	
Total Petroleum Hydrocarbons	M	2680	mg/kg	10	1400		1000	210	< 10	
Naphthalene	M	2700	mg/kg	0.10	< 0.10		< 0.10	3.2	< 0.10	
Acenaphthylene	M	2700	mg/kg	0.10	< 0.10		< 0.10	9.1	< 0.10	
Acenaphthene	M	2700	mg/kg	0.10	< 0.10		< 0.10	78	< 0.10	
Fluorene	M	2700	mg/kg	0.10	< 0.10		< 0.10	29	< 0.10	
Phenanthrene	M	2700	mg/kg	0.10	< 0.10		< 0.10	38	0.47	
Anthracene	M	2700	mg/kg	0.10	< 0.10		< 0.10	26	< 0.10	
Fluoranthene	M	2700	mg/kg	0.10	0.37		0.34	85	0.72	
Pyrene	M	2700	mg/kg	0.10	0.76		0.68	120	0.92	
Benzo[a]anthracene	M	2700	mg/kg	0.10	< 0.10		< 0.10	10	< 0.10	
Chrysene	M	2700	mg/kg	0.10	< 0.10		< 0.10	15	< 0.10	
Benzo[b]fluoranthene	M	2700	mg/kg	0.10	< 0.10		< 0.10	18	< 0.10	
Benzo[k]fluoranthene	M	2700	mg/kg	0.10	< 0.10		< 0.10	6.3	< 0.10	
Benzo[a]pyrene	M	2700	mg/kg	0.10	< 0.10		< 0.10	29	< 0.10	
Indeno(1,2,3-c,d)Pyrene	M	2700	mg/kg	0.10	< 0.10		< 0.10	16	< 0.10	
Dibenz(a,h)Anthracene	M	2700	mg/kg	0.10	< 0.10		< 0.10	0.79	< 0.10	
Benzo[g,h,i]perylene	M	2700	mg/kg	0.10	< 0.10		< 0.10	24	< 0.10	
Total Of 9 PAH's	U	2700	mg/kg	1.0	< 1.0		< 1.0	250	1.2	
Total Of 16 PAH's	M	2700	mg/kg	2.0	< 2.0		< 2.0	510	2.1	
Dichlorodifluoromethane	U	2760	µg/kg	1.0			< 1.0	< 1.0		
Chloromethane	M	2760	µg/kg	1.0			< 1.0	< 1.0		
Vinyl Chloride	M	2760	µg/kg	1.0			< 1.0	< 1.0		
Bromomethane	M	2760	µg/kg	20			< 20	< 20		
Chloroethane	U	2760	µg/kg	2.0			< 2.0	< 2.0		
Trichlorofluoromethane	M	2760	µg/kg	1.0			< 1.0	< 1.0		
1,1-Dichloroethene	M	2760	µg/kg	1.0			< 1.0	< 1.0		
Trans 1,2-Dichloroethene	M	2760	µg/kg	1.0			< 1.0	< 1.0		
1,1-Dichloroethane	M	2760	µg/kg	1.0			< 1.0	< 1.0		
cis 1,2-Dichloroethene	M	2760	µg/kg	1.0			< 1.0	< 1.0		
Bromochloromethane	U	2760	µg/kg	5.0			< 5.0	< 5.0		
Trichloromethane	M	2760	µg/kg	1.0			< 1.0	< 1.0		
1,1,1-Trichloroethane	M	2760	µg/kg	1.0			< 1.0	< 1.0		
Tetrachloromethane	M	2760	µg/kg	1.0			< 1.0	< 1.0		
1,1-Dichloropropene	U	2760	µg/kg	1.0			< 1.0	< 1.0		

Chemtest
The right chemistry to deliver results

Results - Soil

Project: 16-0486 - City Waste Env. Investigations, Mobuoy Road

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-12921	16-12921	16-12921	16-12921	16-12921	16-12921
Quotation No.:			**Chemtest Sample ID.:**		302842	302843	302847	302848	302850	302855
Order No.:			Client Sample Ref.:		TP24	TP24	TP25	TP25	TP26	TP27
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		2.50	3.50	2.50	3.50	1.00	3.00
			Date Sampled:		30-May-2016	30-May-2016	30-May-2016	30-May-2016	30-May-2016	30-May-2016
			Asbestos Lab:		COVENTRY		COVENTRY		COVENTRY	
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
Benzene	M	2760	µg/kg	1.0	1.4		< 1.0	1.8	< 1.0	
1,2-Dichloroethane	M	2760	µg/kg	2.0			< 2.0	< 2.0		
Trichloroethene	M	2760	µg/kg	1.0			< 1.0	< 1.0		
1,2-Dichloropropane	M	2760	µg/kg	1.0			< 1.0	< 1.0		
Dibromomethane	M	2760	µg/kg	1.0			< 1.0	< 1.0		
Bromodichloromethane	M	2760	µg/kg	5.0			< 5.0	< 5.0		
cis-1,3-Dichloropropene	N	2760	µg/kg	10			< 10	< 10		
Toluene	M	2760	µg/kg	1.0	12		18	1.4	< 1.0	
Trans-1,3-Dichloropropene	N	2760	µg/kg	10			< 10	< 10		
1,1,2-Trichloroethane	M	2760	µg/kg	10			< 10	< 10		
Tetrachloroethene	M	2760	µg/kg	1.0			< 1.0	< 1.0		
1,3-Dichloropropane	U	2760	µg/kg	2.0			< 2.0	< 2.0		
Dibromochloromethane	U	2760	µg/kg	10			< 10	< 10		
1,2-Dibromoethane	M	2760	µg/kg	5.0			< 5.0	< 5.0		
Chlorobenzene	M	2760	µg/kg	1.0			< 1.0	< 1.0		
1,1,1,2-Tetrachloroethane	M	2760	µg/kg	2.0			< 2.0	< 2.0		
Ethy benzene	M	2760	µg/kg	1.0	4.5		2.4	9.6	< 1.0	
m & p-Xylene	M	2760	µg/kg	1.0	8.7		2.5	1.8	1.5	
o-Xylene	M	2760	µg/kg	1.0	5.5		1.6	1.3	< 1.0	
Styrene	M	2760	µg/kg	1.0			< 1.0	< 1.0		
Tribromomethane	U	2760	µg/kg	1.0			< 1.0	< 1.0		
Isopropylbenzene	M	2760	µg/kg	1.0			< 1.0	< 1.0		
Bromobenzene	M	2760	µg/kg	1.0			< 1.0	< 1.0		
1,2,3-Trichloropropane	N	2760	µg/kg	50			< 50	< 50		
N-Propylbenzene	U	2760	µg/kg	1.0			< 1.0	< 1.0		
2-Chlorotoluene	M	2760	µg/kg	1.0			< 1.0	< 1.0		
1,3,5-Trimethylbenzene	M	2760	µg/kg	1.0			3.2	5.2		
4-Chlorotoluene	U	2760	µg/kg	1.0			< 1.0	< 1.0		
Tert-Butylbenzene	U	2760	µg/kg	1.0			< 1.0	< 1.0		
1,2,4-Trimethylbenzene	M	2760	µg/kg	1.0			3.2	4.8		
Sec-Butylbenzene	U	2760	µg/kg	1.0			< 1.0	< 1.0		
1,3-Dichlorobenzene	M	2760	µg/kg	1.0			< 1.0	< 1.0		
4-Isopropyltoluene	U	2760	µg/kg	1.0			5.3	2.8		
1,4-Dichlorobenzene	M	2760	µg/kg	1.0			7.3	< 1.0		
N-Butylbenzene	U	2760	µg/kg	1.0			< 1.0	6.1		
1,2-Dichlorobenzene	M	2760	µg/kg	1.0			< 1.0	< 1.0		
1,2-Dibromo-3-Chloropropane	U	2760	µg/kg	50			< 50	< 50		
1,2,4-Trichlorobenzene	M	2760	µg/kg	1.0			< 1.0	< 1.0		

Results - Soil

Project: 16-0486 - City Waste Env. Investigations, Mobuoy Road

Client: Causeway Geotech Ltd					Chemtest Job No.:	16-12921	16-12921	16-12921	16-12921	16-12921	16-12921
Quotation No.:					Chemtest Sample ID.:	302842	302843	302847	302848	302850	302855
Order No.:					Client Sample Ref.:	TP24	TP24	TP25	TP25	TP26	TP27
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	2.50	3.50	2.50	3.50	1.00	3.00
					Date Sampled:	30-May-2016	30-May-2016	30-May-2016	30-May-2016	30-May-2016	30-May-2016
					Asbestos Lab:	COVENTRY		COVENTRY		COVENTRY	
Determinand	**Accred.**	**SOP**	**Units**	**LOD**							
Hexachlorobutadiene	U	2760	µg/kg	1.0			< 1.0	< 1.0			
1,2,3-Trichlorobenzene	U	2760	µg/kg	2.0			< 2.0	< 2.0			
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0			< 1.0	< 1.0			
N-Nitrosodimethylamine	N	2790	mg/kg	0.50			< 0.50	< 0.50			
Phenol	N	2790	mg/kg	0.50			< 0.50	< 0.50			
2-Chlorophenol	N	2790	mg/kg	0.50			< 0.50	< 0.50			
Bis-(2-Chloroethyl)Ether	N	2790	mg/kg	0.50			< 0.50	< 0.50			
1,3-Dichlorobenzene	N	2790	mg/kg	0.50			< 0.50	< 0.50			
1,4-Dichlorobenzene	N	2790	mg/kg	0.50			< 0.50	< 0.50			
1,2-Dichlorobenzene	N	2790	mg/kg	0.50			< 0.50	< 0.50			
2-Methylphenol	N	2790	mg/kg	0.50			< 0.50	< 0.50			
Bis(2-Chloroisopropyl)Ether	N	2790	mg/kg	0.50			< 0.50	< 0.50			
Hexachloroethane	N	2790	mg/kg	0.50			< 0.50	< 0.50			
N-Nitrosodi-n-propylamine	N	2790	mg/kg	0.50			< 0.50	< 0.50			
4-Methylphenol	N	2790	mg/kg	0.50			< 0.50	< 0.50			
Nitrobenzene	N	2790	mg/kg	0.50			< 0.50	< 0.50			
Isophorone	N	2790	mg/kg	0.50			< 0.50	< 0.50			
2-Nitrophenol	N	2790	mg/kg	0.50			< 0.50	< 0.50			
2,4-Dimethylphenol	N	2790	mg/kg	0.50			< 0.50	< 0.50			
Bis(2-Chloroethoxy)Methane	N	2790	mg/kg	0.50			< 0.50	< 0.50			
2,4-Dichlorophenol	N	2790	mg/kg	0.50			< 0.50	< 0.50			
1,2,4-Trichlorobenzene	N	2790	mg/kg	0.50			< 0.50	< 0.50			
Naphthalene	N	2790	mg/kg	0.50			0.65	< 0.50			
4-Chloroaniline	N	2790	mg/kg	0.50			< 0.50	< 0.50			
Hexachlorobutadiene	N	2790	mg/kg	0.50			< 0.50	< 0.50			
4-Chloro-3-Methylphenol	N	2790	mg/kg	0.50			< 0.50	< 0.50			
2-Methylnaphthalene	N	2790	mg/kg	0.50			< 0.50	< 0.50			
4-Nitrophenol	N	2790	mg/kg	0.50			< 0.50	< 0.50			
Hexachlorocyclopentadiene	N	2790	mg/kg	0.50			< 0.50	< 0.50			
2,4,6-Trichlorophenol	N	2790	mg/kg	0.50			< 0.50	< 0.50			
2,4,5-Trichlorophenol	N	2790	mg/kg	0.50			< 0.50	< 0.50			
2-Chloronaphthalene	N	2790	mg/kg	0.50			< 0.50	< 0.50			
2-Nitroaniline	N	2790	mg/kg	0.50			< 0.50	< 0.50			
Acenaphthylene	N	2790	mg/kg	0.50			1.6	< 0.50			
Dimethylphthalate	N	2790	mg/kg	0.50			< 0.50	< 0.50			
2,6-Dinitrotoluene	N	2790	mg/kg	0.50			< 0.50	< 0.50			
Acenaphthene	N	2790	mg/kg	0.50			4.0	1.8			
3-Nitroaniline	N	2790	mg/kg	0.50			< 0.50	< 0.50			

Results - Soil

Project: 16-0486 - City Waste Env. Investigations, Mobuoy Road

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-12921	16-12921	16-12921	16-12921	16-12921	16-12921
Quotation No.:			**Chemtest Sample ID.:**		302842	302843	302847	302848	302850	302855
Order No.:			Client Sample Ref.:		TP24	TP24	TP25	TP25	TP26	TP27
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		2.50	3.50	2.50	3.50	1.00	3.00
			Date Sampled:		30-May-2016	30-May-2016	30-May-2016	30-May-2016	30-May-2016	30-May-2016
			Asbestos Lab:		COVENTRY		COVENTRY		COVENTRY	
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
Dibenzofuran	N	2790	mg/kg	0.50			< 0.50	< 0.50		
4-Chlorophenylphenylether	N	2790	mg/kg	0.50			< 0.50	< 0.50		
2,4-Dinitrotoluene	N	2790	mg/kg	0.50			< 0.50	< 0.50		
Fluorene	N	2790	mg/kg	0.50			1.5	< 0.50		
Diethyl Phthalate	N	2790	mg/kg	0.50			< 0.50	< 0.50		
4-Nitroaniline	N	2790	mg/kg	0.50			< 0.50	< 0.50		
2-Methyl-4,6-Dinitrophenol	N	2790	mg/kg	0.50			< 0.50	< 0.50		
Azobenzene	N	2790	mg/kg	0.50			< 0.50	< 0.50		
4-Bromophenylphenyl Ether	N	2790	mg/kg	0.50			< 0.50	< 0.50		
Hexachlorobenzene	N	2790	mg/kg	0.50			< 0.50	< 0.50		
Pentachlorophenol	N	2790	mg/kg	0.50			< 0.50	< 0.50		
Phenanthrene	N	2790	mg/kg	0.50			4.3	2.8		
Anthracene	N	2790	mg/kg	0.50			0.85	0.66		
Carbazole	N	2790	mg/kg	0.50			< 0.50	< 0.50		
Di-N-Butyl Phthalate	N	2790	mg/kg	0.50			< 0.50	< 0.50		
Fluoranthene	N	2790	mg/kg	0.50			6.3	6.1		
Pyrene	N	2790	mg/kg	0.50			9.3	8.6		
Buty benzyl Phthalate	N	2790	mg/kg	0.50			< 0.50	< 0.50		
Benzo[a]anthracene	N	2790	mg/kg	0.50			0.66	< 0.50		
Chrysene	N	2790	mg/kg	0.50			0.62	< 0.50		
Bis(2-Ethylhexyl)Phthalate	N	2790	mg/kg	0.50			< 0.50	< 0.50		
Di-N-Octyl Phthalate	N	2790	mg/kg	0.50			< 0.50	< 0.50		
Benzo[b]fluoranthene	N	2790	mg/kg	0.50			< 0.50	< 0.50		
Benzo[k]fluoranthene	N	2790	mg/kg	0.50			< 0.50	< 0.50		
Benzo[a]pyrene	N	2790	mg/kg	0.50			1.5	< 0.50		
Indeno(1,2,3-c,d)Pyrene	N	2790	mg/kg	0.50			< 0.50	< 0.50		
Dibenz(a,h)Anthracene	N	2790	mg/kg	0.50			< 0.50	< 0.50		
Benzo[g,h,i]perylene	N	2790	mg/kg	0.50			< 0.50	< 0.50		
Resorcinol	M	2920	mg/kg	0.050			< 0.050	< 0.050		
Phenol	M	2920	mg/kg	0.050			< 0.050	< 0.050		
Cresols	M	2920	mg/kg	0.050			< 0.050	< 0.050		
Xylenols	M	2920	mg/kg	0.050			< 0.050	< 0.050		
1-Naphthol	N	2920	mg/kg	0.050			< 0.050	< 0.050		
Trimethylphenols	M	2920	mg/kg	0.050			0.55	0.18		
Total Phenols	M	2920	mg/kg	0.30	25		0.55	< 0.30	2.8	

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Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis
The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols
For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at our Coventry laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.co.uk

Chemtest
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Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.co.uk

Final Report

Report No.: 16-13342-1

Initial Date of Issue: 16-Jun-2016

Client Causeway Geotech Ltd

Client Address: 8 Drumahiskey Road
Balnamore
Ballymoney
County Antrim
BT53 7QL

Contact(s): [redacted]

Project C6669A City Waste Site, Mobouy Road, Derry

Quotation No.:

Order No.:

No. of Samples: 2

Turnaround (Wkdays): 5

Date Approved: 16-Jun-2016

Approved By:

[redacted]

Details: [redacted] Technical Development Chemist

Date Received: 06-Jun-2016

Date Instructed: 09-Jun-2016

Results Due: 15-Jun-2016

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Results - Soil

Project: C6669A City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd				**Chemtest Job No.:**	16-13342	16-13342
Quotation No.:				**Chemtest Sample ID.:**	305015	305020
Order No.:				Client Sample Ref.:	BH03	BH04
				Sample Type:	SOIL	SOIL
				Top Depth (m):	14.0	5.00
				Date Sampled:	03-Jun-2016	03-Jun-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Moisture	N	2030	%	0.020	9.0	10
Soil Colour	N	2040		N/A	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones
Soil Texture	N	2040		N/A	Sand	Sand
Fraction of Organic Carbon	M	2625		0.0010	< 0.0010	0.0043

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Report Information

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T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis
The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols
For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at our Coventry laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.co.uk

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Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.co.uk

UKAS TESTING
2183

Final Report

Report No.:	16-13440-1
Initial Date of Issue:	06-Jul-2016
Client	Causeway Geotech Ltd
Client Address:	8 Drumahiskey Road Balnamore Ballymoney County Antrim BT53 7QL
Contact(s):	[redacted]
Project	16-0486 - City Waste Env. Investigations, Mobouy Road

Quotation No.:		**Date Received:**	08-Jun-2016
Order No.:		**Date Instructed:**	30-Jun-2016
No. of Samples:	4		
Turnaround (Wkdays):	3	**Results Due:**	04-Jul-2016
Date Approved:	06-Jul-2016		

Approved By:

[redacted]

Details: [redacted] Laboratory Manager

Chemtest
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Results - Soil

Project: 16-0486 - City Waste Env. Investigations, Mobouy Road

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-13440	16-13440	16-13440	16-13440
Quotation No.:			**Chemtest Sample ID.:**		305562	305565	305567	305569
Order No.:			Client Sample Ref.:		TP31	TP31	TP32	TP32
			Sample Type:		SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		1.00	3.70	0.40	1.90
			Date Sampled:		31-May-2016	31-May-2016	31-May-2016	31-May-2016
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
ACM Type	U	2192		N/A	-	-	-	-
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	27	14	21	
pH	U	2010		N/A	7.7	8.6	8.0	
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	1.8	0.080	1.6	
Ammonium (Extractable)	U	2425	mg/kg	0.50	210	46	150	
Iron (Total)	N	2430	mg/kg	100	17000	21000	19000	
Sulphate (Total)	U	2430	%	0.010	2.7	0.14	1.3	
Arsenic	U	2450	mg/kg	1.0	14	11	13	
Cadmium	U	2450	mg/kg	0.10	0.71	0.11	0.39	
Chromium	U	2450	mg/kg	1.0	36	28	35	
Copper	U	2450	mg/kg	0.50	120	50	120	
Mercury	U	2450	mg/kg	0.10	0.38	< 0.10	0.12	
Manganese	U	2450	mg/kg	5.0	560	740	890	
Nickel	U	2450	mg/kg	0.50	54	62	73	
Lead	U	2450	mg/kg	0.50	170	28	120	
Selenium	U	2450	mg/kg	0.20	0.32	< 0.20	< 0.20	
Zinc	U	2450	mg/kg	0.50	370	120	250	
Total Organic Carbon	U	2625	%	0.20	8.1	0.82	4.1	
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	[B] < 1.0			
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	[B] < 1.0			
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	[B] 39			
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	[B] 21			
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	[B] 29			
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	[B] 120			
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	[B] 1100			
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	[B] 93			
Total Aliphatic Hydrocarbons	U	2680	mg/kg	5.0	[B] 1400			
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	[B] < 1.0			
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	[B] 3.1			
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	[B] 90			
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	[B] 36			
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	[B] 32			
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	[B] 76			
Aromatic TPH >C21-C35	N	2680	mg/kg	1.0	[B] 380			
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	[B] 22			
Total Aromatic Hydrocarbons	U	2680	mg/kg	5.0	[B] 640			

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Results - Soil

Project: 16-0486 - City Waste Env. Investigations, Mobouy Road

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-13440	16-13440	16-13440	16-13440
Quotation No.:			**Chemtest Sample ID.:**		305562	305565	305567	305569
Order No.:			Client Sample Ref.:		TP31	TP31	TP32	TP32
			Sample Type:		SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		1.00	3.70	0.40	1.90
			Date Sampled:		31-May-2016	31-May-2016	31-May-2016	31-May-2016
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
Total Petroleum Hydrocarbons	U	2680	mg/kg	10	[B] 2000			
Naphthalene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	
Fluorene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	
Phenanthrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	
Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	
Fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	
Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	
Benzo[a]anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	
Chrysene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	
Benzo[a]pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	
Total Of 9 PAH's	U	2700	mg/kg	1.0	< 1.0	< 1.0	< 1.0	
Total Of 16 PAH's	U	2700	mg/kg	2.0	< 2.0	< 2.0	< 2.0	
Dichlorodifluoromethane	U	2760	µg/kg	1.0	[B] < 1.0			
Chloromethane	U	2760	µg/kg	1.0	[B] < 1.0			
Vinyl Chloride	U	2760	µg/kg	1.0	[B] < 1.0			
Bromomethane	U	2760	µg/kg	20	[B] < 20			
Chloroethane	U	2760	µg/kg	2.0	[B] < 2.0			
Trichlorofluoromethane	U	2760	µg/kg	1.0	[B] < 1.0			
1,1-Dichloroethene	U	2760	µg/kg	1.0	[B] < 1.0			
Trans 1,2-Dichloroethene	U	2760	µg/kg	1.0	[B] < 1.0			
1,1-Dichloroethane	U	2760	µg/kg	1.0	[B] < 1.0			
cis 1,2-Dichloroethene	U	2760	µg/kg	1.0	[B] < 1.0			
Bromochloromethane	U	2760	µg/kg	5.0	[B] < 5.0			
Trichloromethane	U	2760	µg/kg	1.0	[B] < 1.0			
1,1,1-Trichloroethane	U	2760	µg/kg	1.0	[B] < 1.0			
Tetrachloromethane	U	2760	µg/kg	1.0	[B] < 1.0			
1,1-Dichloropropene	U	2760	µg/kg	1.0	[B] < 1.0			
Benzene	U	2760	µg/kg	1.0	[B] 2.0			
1,2-Dichloroethane	U	2760	µg/kg	2.0	[B] < 2.0			
Trichloroethene	N	2760	µg/kg	1.0	[B] < 1.0			
1,2-Dichloropropane	U	2760	µg/kg	1.0	[B] < 1.0			

Chemtest
The right chemistry to deliver results

Results - Soil

Project: 16-0486 - City Waste Env. Investigations, Mobouy Road

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-13440	16-13440	16-13440	16-13440
Quotation No.:			**Chemtest Sample ID.:**		305562	305565	305567	305569
Order No.:			Client Sample Ref.:		TP31	TP31	TP32	TP32
			Sample Type:		SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		1.00	3.70	0.40	1.90
			Date Sampled:		31-May-2016	31-May-2016	31-May-2016	31-May-2016
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
Dibromomethane	U	2760	µg/kg	1.0	[B] < 1.0			
Bromodichloromethane	U	2760	µg/kg	5.0	[B] < 5.0			
cis-1,3-Dichloropropene	N	2760	µg/kg	10	[B] < 10			
Toluene	U	2760	µg/kg	1.0	[B] 1.5			
Trans-1,3-Dichloropropene	N	2760	µg/kg	10	[B] < 10			
1,1,2-Trichloroethane	U	2760	µg/kg	10	[B] < 10			
Tetrachloroethene	U	2760	µg/kg	1.0	[B] < 1.0			
1,3-Dichloropropane	U	2760	µg/kg	2.0	[B] < 2.0			
Dibromochloromethane	U	2760	µg/kg	10	[B] < 10			
1,2-Dibromoethane	U	2760	µg/kg	5.0	[B] < 5.0			
Chlorobenzene	U	2760	µg/kg	1.0	[B] < 1.0			
1,1,1,2-Tetrachloroethane	U	2760	µg/kg	2.0	[B] < 2.0			
Ethy benzene	U	2760	µg/kg	1.0	[B] < 1.0			
m & p-Xylene	U	2760	µg/kg	1.0	[B] 3.3			
o-Xylene	U	2760	µg/kg	1.0	[B] 1.4			
Styrene	U	2760	µg/kg	1.0	[B] < 1.0			
Tribromomethane	U	2760	µg/kg	1.0	[B] < 1.0			
Isopropylbenzene	U	2760	µg/kg	1.0	[B] < 1.0			
Bromobenzene	U	2760	µg/kg	1.0	[B] < 1.0			
1,2,3-Trichloropropane	N	2760	µg/kg	50	[B] < 50			
N-Propylbenzene	U	2760	µg/kg	1.0	[B] < 1.0			
2-Chlorotoluene	U	2760	µg/kg	1.0	[B] < 1.0			
1,3,5-Trimethylbenzene	U	2760	µg/kg	1.0	[B] 2.9			
4-Chlorotoluene	U	2760	µg/kg	1.0	[B] < 1.0			
Tert-Butylbenzene	U	2760	µg/kg	1.0	[B] < 1.0			
1,2,4-Trimethylbenzene	U	2760	µg/kg	1.0	[B] 5.1			
Sec-Butylbenzene	U	2760	µg/kg	1.0	[B] < 1.0			
1,3-Dichlorobenzene	U	2760	µg/kg	1.0	[B] < 1.0			
4-Isopropyltoluene	U	2760	µg/kg	1.0	[B] 11			
1,4-Dichlorobenzene	U	2760	µg/kg	1.0	[B] 29			
N-Butylbenzene	U	2760	µg/kg	1.0	[B] < 1.0			
1,2-Dichlorobenzene	U	2760	µg/kg	1.0	[B] < 1.0			
1,2-Dibromo-3-Chloropropane	U	2760	µg/kg	50	[B] < 50			
1,2,4-Trichlorobenzene	U	2760	µg/kg	1.0	[B] < 1.0			
Hexachlorobutadiene	U	2760	µg/kg	1.0	[B] < 1.0			
1,2,3-Trichlorobenzene	U	2760	µg/kg	2.0	[B] < 2.0			
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0	[B] < 1.0			
N-Nitrosodimethylamine	N	2790	mg/kg	0.50	< 0.50			

Chemtest
The right chemistry to deliver results

Results - Soil

Project: 16-0486 - City Waste Env. Investigations, Mobouy Road

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-13440	16-13440	16-13440	16-13440
Quotation No.:			**Chemtest Sample ID.:**		305562	305565	305567	305569
Order No.:			Client Sample Ref.:		TP31	TP31	TP32	TP32
			Sample Type:		SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		1.00	3.70	0.40	1.90
			Date Sampled:		31-May-2016	31-May-2016	31-May-2016	31-May-2016
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
Phenol	N	2790	mg/kg	0.50	< 0.50			
2-Chlorophenol	N	2790	mg/kg	0.50	< 0.50			
Bis-(2-Chloroethyl)Ether	N	2790	mg/kg	0.50	< 0.50			
1,3-Dichlorobenzene	N	2790	mg/kg	0.50	< 0.50			
1,4-Dichlorobenzene	N	2790	mg/kg	0.50	< 0.50			
1,2-Dichlorobenzene	N	2790	mg/kg	0.50	< 0.50			
2-Methylphenol	N	2790	mg/kg	0.50	< 0.50			
Bis(2-Chloroisopropyl)Ether	N	2790	mg/kg	0.50	< 0.50			
Hexachloroethane	N	2790	mg/kg	0.50	< 0.50			
N-Nitrosodi-n-propylamine	N	2790	mg/kg	0.50	< 0.50			
4-Methylphenol	N	2790	mg/kg	0.50	< 0.50			
Nitrobenzene	N	2790	mg/kg	0.50	< 0.50			
Isophorone	N	2790	mg/kg	0.50	< 0.50			
2-Nitrophenol	N	2790	mg/kg	0.50	< 0.50			
2,4-Dimethylphenol	N	2790	mg/kg	0.50	< 0.50			
Bis(2-Chloroethoxy)Methane	N	2790	mg/kg	0.50	< 0.50			
2,4-Dichlorophenol	N	2790	mg/kg	0.50	< 0.50			
1,2,4-Trichlorobenzene	N	2790	mg/kg	0.50	< 0.50			
Naphthalene	N	2790	mg/kg	0.50	< 0.50			
4-Chloroaniline	N	2790	mg/kg	0.50	< 0.50			
Hexachlorobutadiene	N	2790	mg/kg	0.50	< 0.50			
4-Chloro-3-Methylphenol	N	2790	mg/kg	0.50	< 0.50			
2-Methylnaphthalene	N	2790	mg/kg	0.50	< 0.50			
4-Nitrophenol	N	2790	mg/kg	0.50	< 0.50			
Hexachlorocyclopentadiene	N	2790	mg/kg	0.50	< 0.50			
2,4,6-Trichlorophenol	N	2790	mg/kg	0.50	< 0.50			
2,4,5-Trichlorophenol	N	2790	mg/kg	0.50	< 0.50			
2-Chloronaphthalene	N	2790	mg/kg	0.50	< 0.50			
2-Nitroaniline	N	2790	mg/kg	0.50	< 0.50			
Acenaphthylene	N	2790	mg/kg	0.50	< 0.50			
Dimethylphthalate	N	2790	mg/kg	0.50	< 0.50			
2,6-Dinitrotoluene	N	2790	mg/kg	0.50	< 0.50			
Acenaphthene	N	2790	mg/kg	0.50	< 0.50			
3-Nitroaniline	N	2790	mg/kg	0.50	< 0.50			
Dibenzofuran	N	2790	mg/kg	0.50	< 0.50			
4-Chlorophenylphenylether	N	2790	mg/kg	0.50	< 0.50			
2,4-Dinitrotoluene	N	2790	mg/kg	0.50	< 0.50			
Fluorene	N	2790	mg/kg	0.50	< 0.50			

Results - Soil

Project: 16-0486 - City Waste Env. Investigations, Mobouy Road

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-13440	16-13440	16-13440	16-13440
Quotation No.:			**Chemtest Sample ID.:**		305562	305565	305567	305569
Order No.:			Client Sample Ref.:		TP31	TP31	TP32	TP32
			Sample Type:		SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		1.00	3.70	0.40	1.90
			Date Sampled:		31-May-2016	31-May-2016	31-May-2016	31-May-2016
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
Diethyl Phthalate	N	2790	mg/kg	0.50	< 0.50			
4-Nitroaniline	N	2790	mg/kg	0.50	< 0.50			
2-Methyl-4,6-Dinitrophenol	N	2790	mg/kg	0.50	< 0.50			
Azobenzene	N	2790	mg/kg	0.50	< 0.50			
4-Bromophenylphenyl Ether	N	2790	mg/kg	0.50	< 0.50			
Hexachlorobenzene	N	2790	mg/kg	0.50	< 0.50			
Pentachlorophenol	N	2790	mg/kg	0.50	< 0.50			
Phenanthrene	N	2790	mg/kg	0.50	< 0.50			
Anthracene	N	2790	mg/kg	0.50	< 0.50			
Carbazole	N	2790	mg/kg	0.50	< 0.50			
Di-N-Butyl Phthalate	N	2790	mg/kg	0.50	< 0.50			
Fluoranthene	N	2790	mg/kg	0.50	< 0.50			
Pyrene	N	2790	mg/kg	0.50	< 0.50			
Buty benzyl Phthalate	N	2790	mg/kg	0.50	< 0.50			
Benzo[a]anthracene	N	2790	mg/kg	0.50	< 0.50			
Chrysene	N	2790	mg/kg	0.50	< 0.50			
Bis(2-Ethylhexyl)Phthalate	N	2790	mg/kg	0.50	< 0.50			
Di-N-Octyl Phthalate	N	2790	mg/kg	0.50	< 0.50			
Benzo[b]fluoranthene	N	2790	mg/kg	0.50	< 0.50			
Benzo[k]fluoranthene	N	2790	mg/kg	0.50	< 0.50			
Benzo[a]pyrene	N	2790	mg/kg	0.50	< 0.50			
Indeno(1,2,3-c,d)Pyrene	N	2790	mg/kg	0.50	< 0.50			
Dibenz(a,h)Anthracene	N	2790	mg/kg	0.50	< 0.50			
Benzo[g,h,i]perylene	N	2790	mg/kg	0.50	< 0.50			
Resorcinol	U	2920	mg/kg	0.050	< 0.050			
Phenol	U	2920	mg/kg	0.050	< 0.050			
Cresols	U	2920	mg/kg	0.050	1.1			
Xylenols	U	2920	mg/kg	0.050	1.7			
1-Naphthol	N	2920	mg/kg	0.050	0.14			
Trimethylphenols	U	2920	mg/kg	0.050	5.3			
Total Phenols	U	2920	mg/kg	0.30	8.2	0.49	8.8	

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request.The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample ID:	Sample Ref:	Sample ID:	Sampled Date:	Deviation Code(s):	Containers Received:
305562	TP31		31-May-2016	B	Amber Glass 250ml
305562	TP31		31-May-2016	B	Amber Glass 60ml
305562	TP31		31-May-2016	B	Plastic Tub 500g

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis
The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols
For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at our Coventry laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.co.uk

Chemtest
The right chemistry to deliver results
Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.co.uk

UKAS TESTING
2183

Final Report

Report No.: 16-13579-1

Initial Date of Issue: 16-Jun-2016

Client Causeway Geotech Ltd

Client Address: 8 Drumahiskey Road
Balnamore
Ballymoney
County Antrim
BT53 7QL

Contact(s): [redacted]

Project C6669A City Waste Site, Mobouy Road, Derry

Quotation No.:

Order No.:

No. of Samples: 10

Turnaround (Wkdays): 5

Date Approved: 16-Jun-2016

Approved By:

[redacted]

Details: [redacted], Technical Development Chemist

Date Received: 08-Jun-2016

Date Instructed: 09-Jun-2016

Results Due: 15-Jun-2016

Chemtest
The right chemistry to deliver results

Results - Soil

Project: C6669A City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd				**Chemtest Job No.:**	16-13579	16-13579	16-13579	16-13579	16-13579	16-13579	16-13579	16-13579
Quotation No.:				**Chemtest Sample ID.:**	306119	306127	306131	306139	306146	306149	306152	306153
				Client Sample ID.:	LP2	BH05	BH06	BH07	TP28	TP28	TP29	TP29
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	5.20	4.00	2.00	3.00	0.80	3.00	0.50	1.30
				Date Sampled:	03-Jun-2016	31-May-2016	01-Jun-2016	02-May-2016	31-May-2016	31-May-2016	31-May-2016	31-May-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
ACM Type	U	2192		N/A					-		-	
Asbestos Identification	U	2192	%	0.001					No Asbestos Detected		No Asbestos Detected	
Moisture	N	2030	%	0.020	52	11	8.8	21	24	8.5		16
pH	U	2010		N/A	7.7				8.3			7.7
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	0.32				< 0.010			0.56
Ammonium	U	2425	mg/kg	0.50	23				94			39
Iron (Total)	N	2430	mg/kg	100	24000				20000			20000
Sulphate (Total)	U	2430	%	0.010	0.48				1.1			0.077
Arsenic	U	2450	mg/kg	1.0	19				13			7.9
Cadmium	U	2450	mg/kg	0.10	0.53				0.18			0.10
Chromium	U	2450	mg/kg	1.0	40				32			22
Copper	U	2450	mg/kg	0.50	68				51			29
Mercury	U	2450	mg/kg	0.10	< 0.10				0.11			< 0.10
Manganese	U	2450	mg/kg	5.0	1700				490			430
Nickel	U	2450	mg/kg	0.50	63				57			29
Lead	U	2450	mg/kg	0.50	44				47			26
Selenium	U	2450	mg/kg	0.20	0.22				< 0.20			< 0.20
Zinc	U	2450	mg/kg	0.50	180				120			56
Fraction of Organic Carbon	U	2625		0.0010		0.0049	0.0026	0.013		< 0.0010		
Total Organic Carbon	U	2625	%	0.20	1.0				2.4			1.7
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0					< 1.0			
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0					150			
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0					< 1.0			
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0					1.6			
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0					21			
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0					74			
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0					470			
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0					3.1			
Total Aliphatic Hydrocarbons	U	2680	mg/kg	5.0					720			
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0					< 1.0			
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0					< 1.0			
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0					1.1			
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0					2.0			
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0					< 1.0			
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0					27			
Aromatic TPH >C21-C35	N	2680	mg/kg	1.0					380			
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0					11			
Total Aromatic Hydrocarbons	U	2680	mg/kg	5.0					420			
Total Petroleum Hydrocarbons	U	2680	mg/kg	10					1100			

Chemtest
The right chemistry to deliver results

Results - Soil

Project: C6669A City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd			**Chemtest Job No.:**	16-13579	16-13579	16-13579	16-13579	16-13579	16-13579	16-13579	16-13579
Quotation No.:			**Chemtest Sample ID.:**	306119	306127	306131	306139	306146	306149	306152	306153
			Client Sample ID.:	LP2	BH05	BH06	BH07	TP28	TP28	TP29	TP29
			Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):	5.20	4.00	2.00	3.00	0.80	3.00	0.50	1.30
			Date Sampled:	03-Jun-2016	31-May-2016	01-Jun-2016	02-May-2016	31-May-2016	31-May-2016	31-May-2016	31-May-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**							
Naphthalene	U	2700	mg/kg	0.10	< 0.10				0.21			< 0.10
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10				0.15			< 0.10
Acenaphthene	U	2700	mg/kg	0.10	< 0.10				0.13			< 0.10
Fluorene	U	2700	mg/kg	0.10	< 0.10				0.15			< 0.10
Phenanthrene	U	2700	mg/kg	0.10	< 0.10				0.61			< 0.10
Anthracene	U	2700	mg/kg	0.10	< 0.10				0.26			< 0.10
Fluoranthene	U	2700	mg/kg	0.10	< 0.10				0.84			0.20
Pyrene	U	2700	mg/kg	0.10	< 0.10				0.93			0.22
Benzo[a]anthracene	U	2700	mg/kg	0.10	< 0.10				< 0.10			< 0.10
Chrysene	U	2700	mg/kg	0.10	< 0.10				< 0.10			< 0.10
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	< 0.10				< 0.10			< 0.10
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	< 0.10				< 0.10			< 0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10	< 0.10				< 0.10			< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	< 0.10				< 0.10			< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10				< 0.10			< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	< 0.10				< 0.10			< 0.10
Total Of 9 PAH's	U	2700	mg/kg	1.0	< 1.0				1.9			< 1.0
Total Of 16 PAH's	U	2700	mg/kg	2.0	< 2.0				3.3			< 2.0
Dichlorodifluoromethane	U	2760	µg/kg	1.0					< 1.0			
Chloromethane	U	2760	µg/kg	1.0					< 1.0			
Vinyl Chloride	U	2760	µg/kg	1.0					< 1.0			
Bromomethane	U	2760	µg/kg	20					< 20			
Chloroethane	U	2760	µg/kg	2.0					< 2.0			
Trichlorofluoromethane	U	2760	µg/kg	1.0					< 1.0			
1,1-Dichloroethene	U	2760	µg/kg	1.0					< 1.0			
Trans 1,2-Dichloroethene	U	2760	µg/kg	1.0					< 1.0			
1,1-Dichloroethane	U	2760	µg/kg	1.0					< 1.0			
cis 1,2-Dichloroethene	U	2760	µg/kg	1.0					< 1.0			
Bromochloromethane	U	2760	µg/kg	5.0					< 5.0			
Trichloromethane	U	2760	µg/kg	1.0					< 1.0			
1,1,1-Trichloroethane	U	2760	µg/kg	1.0					< 1.0			
Tetrachloromethane	U	2760	µg/kg	1.0					< 1.0			
1,1-Dichloropropene	U	2760	µg/kg	1.0					< 1.0			
Benzene	U	2760	µg/kg	1.0					< 1.0			
1,2-Dichloroethane	U	2760	µg/kg	2.0					< 2.0			
Trichloroethene	N	2760	µg/kg	1.0					< 1.0			
1,2-Dichloropropane	U	2760	µg/kg	1.0					< 1.0			
Dibromomethane	U	2760	µg/kg	1.0					< 1.0			
Bromodichloromethane	U	2760	µg/kg	5.0					< 5.0			
cis-1,3-Dichloropropene	N	2760	µg/kg	10					< 10			

Chemtest
The right chemistry to deliver results

Results - Soil

Project: C6669A City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd			**Chemtest Job No.:**	16-13579	16-13579	16-13579	16-13579	16-13579	16-13579	16-13579	16-13579
Quotation No.:			**Chemtest Sample ID.:**	306119	306127	306131	306139	306146	306149	306152	306153
			Client Sample ID.:	LP2	BH05	BH06	BH07	TP28	TP28	TP29	TP29
			Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):	5.20	4.00	2.00	3.00	0.80	3.00	0.50	1.30
			Date Sampled:	03-Jun-2016	31-May-2016	01-Jun-2016	02-May-2016	31-May-2016	31-May-2016	31-May-2016	31-May-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**							
Toluene	U	2760	µg/kg	1.0				< 1.0			
Trans-1,3-Dichloropropene	N	2760	µg/kg	10				< 10			
1,1,2-Trichloroethane	U	2760	µg/kg	10				< 10			
Tetrachloroethene	U	2760	µg/kg	1.0				< 1.0			
1,3-Dichloropropane	U	2760	µg/kg	2.0				< 2.0			
Dibromochloromethane	U	2760	µg/kg	10				< 10			
1,2-Dibromoethane	U	2760	µg/kg	5.0				< 5.0			
Chlorobenzene	U	2760	µg/kg	1.0				< 1.0			
1,1,1,2-Tetrachloroethane	U	2760	µg/kg	2.0				< 2.0			
Ethy benzene	U	2760	µg/kg	1.0				< 1.0			
m & p-Xylene	U	2760	µg/kg	1.0				1.6			
o-Xylene	U	2760	µg/kg	1.0				< 1.0			
Styrene	U	2760	µg/kg	1.0				< 1.0			
Tribromomethane	U	2760	µg/kg	1.0				< 1.0			
Isopropylbenzene	U	2760	µg/kg	1.0				< 1.0			
Bromobenzene	U	2760	µg/kg	1.0				< 1.0			
1,2,3-Trichloropropane	N	2760	µg/kg	50				< 50			
N-Propylbenzene	U	2760	µg/kg	1.0				< 1.0			
2-Chlorotoluene	U	2760	µg/kg	1.0				< 1.0			
1,3,5-Trimethylbenzene	U	2760	µg/kg	1.0				< 1.0			
4-Chlorotoluene	U	2760	µg/kg	1.0				< 1.0			
Tert-Butylbenzene	U	2760	µg/kg	1.0				< 1.0			
1,2,4-Trimethylbenzene	U	2760	µg/kg	1.0				< 1.0			
Sec-Butylbenzene	U	2760	µg/kg	1.0				< 1.0			
1,3-Dichlorobenzene	U	2760	µg/kg	1.0				< 1.0			
4-Isopropyltoluene	U	2760	µg/kg	1.0				< 1.0			
1,4-Dichlorobenzene	U	2760	µg/kg	1.0				< 1.0			
N-Butylbenzene	U	2760	µg/kg	1.0				< 1.0			
1,2-Dichlorobenzene	U	2760	µg/kg	1.0				< 1.0			
1,2-Dibromo-3-Chloropropane	U	2760	µg/kg	50				< 50			
1,2,4-Trichlorobenzene	U	2760	µg/kg	1.0				< 1.0			
Hexachlorobutadiene	U	2760	µg/kg	1.0				< 1.0			
1,2,3-Trichlorobenzene	U	2760	µg/kg	2.0				< 2.0			
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0				< 1.0			
N-Nitrosodimethylamine	N	2790	mg/kg	0.50				< 0.50			
Phenol	N	2790	mg/kg	0.50				< 0.50			
2-Chlorophenol	N	2790	mg/kg	0.50				< 0.50			
Bis-(2-Chloroethyl)Ether	N	2790	mg/kg	0.50				< 0.50			
1,3-Dichlorobenzene	N	2790	mg/kg	0.50				< 0.50			
1,4-Dichlorobenzene	N	2790	mg/kg	0.50				< 0.50			

Chemtest
The right chemistry to deliver results

Results - Soil

Project: C6669A City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd				**Chemtest Job No.:**	16-13579	16-13579	16-13579	16-13579	16-13579	16-13579	16-13579	16-13579
Quotation No.:				**Chemtest Sample ID.:**	306119	306127	306131	306139	306146	306149	306152	306153
				Client Sample ID.:	LP2	BH05	BH06	BH07	TP28	TP28	TP29	TP29
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	5.20	4.00	2.00	3.00	0.80	3.00	0.50	1.30
				Date Sampled:	03-Jun-2016	31-May-2016	01-Jun-2016	02-May-2016	31-May-2016	31-May-2016	31-May-2016	31-May-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
1,2-Dichlorobenzene	N	2790	mg/kg	0.50					< 0.50			
2-Methylphenol	N	2790	mg/kg	0.50					< 0.50			
Bis(2-Chloroisopropyl)Ether	N	2790	mg/kg	0.50					< 0.50			
Hexachloroethane	N	2790	mg/kg	0.50					< 0.50			
N-Nitrosodi-n-propylamine	N	2790	mg/kg	0.50					< 0.50			
4-Methylphenol	N	2790	mg/kg	0.50					< 0.50			
Nitrobenzene	N	2790	mg/kg	0.50					< 0.50			
Isophorone	N	2790	mg/kg	0.50					< 0.50			
2-Nitrophenol	N	2790	mg/kg	0.50					< 0.50			
2,4-Dimethylphenol	N	2790	mg/kg	0.50					< 0.50			
Bis(2-Chloroethoxy)Methane	N	2790	mg/kg	0.50					< 0.50			
2,4-Dichlorophenol	N	2790	mg/kg	0.50					< 0.50			
1,2,4-Trichlorobenzene	N	2790	mg/kg	0.50					< 0.50			
Naphthalene	N	2790	mg/kg	0.50					< 0.50			
4-Chloroaniline	N	2790	mg/kg	0.50					< 0.50			
Hexachlorobutadiene	N	2790	mg/kg	0.50					< 0.50			
4-Chloro-3-Methylphenol	N	2790	mg/kg	0.50					< 0.50			
2-Methylnaphthalene	N	2790	mg/kg	0.50					< 0.50			
4-Nitrophenol	N	2790	mg/kg	0.50					< 0.50			
Hexachlorocyclopentadiene	N	2790	mg/kg	0.50					< 0.50			
2,4,6-Trichlorophenol	N	2790	mg/kg	0.50					< 0.50			
2,4,5-Trichlorophenol	N	2790	mg/kg	0.50					< 0.50			
2-Chloronaphthalene	N	2790	mg/kg	0.50					< 0.50			
2-Nitroaniline	N	2790	mg/kg	0.50					< 0.50			
Acenaphthylene	N	2790	mg/kg	0.50					< 0.50			
Dimethylphthalate	N	2790	mg/kg	0.50					< 0.50			
2,6-Dinitrotoluene	N	2790	mg/kg	0.50					< 0.50			
Acenaphthene	N	2790	mg/kg	0.50					< 0.50			
3-Nitroaniline	N	2790	mg/kg	0.50					< 0.50			
Dibenzofuran	N	2790	mg/kg	0.50					< 0.50			
4-Chlorophenylphenylether	N	2790	mg/kg	0.50					< 0.50			
2,4-Dinitrotoluene	N	2790	mg/kg	0.50					< 0.50			
Fluorene	N	2790	mg/kg	0.50					< 0.50			
Diethyl Phthalate	N	2790	mg/kg	0.50					< 0.50			
4-Nitroaniline	N	2790	mg/kg	0.50					< 0.50			
2-Methyl-4,6-Dinitrophenol	N	2790	mg/kg	0.50					< 0.50			
Azobenzene	N	2790	mg/kg	0.50					< 0.50			
4-Bromophenylphenyl Ether	N	2790	mg/kg	0.50					< 0.50			
Hexachlorobenzene	N	2790	mg/kg	0.50					< 0.50			
Pentachlorophenol	N	2790	mg/kg	0.50					< 0.50			

Chemtest
The right chemistry to deliver results

Results - Soil

Project: C6669A City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd			**Chemtest Job No.:**	16-13579	16-13579	16-13579	16-13579	16-13579	16-13579	16-13579	16-13579
Quotation No.:			**Chemtest Sample ID.:**	306119	306127	306131	306139	306146	306149	306152	306153
			Client Sample ID.:	LP2	BH05	BH06	BH07	TP28	TP28	TP29	TP29
			Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):	5.20	4.00	2.00	3.00	0.80	3.00	0.50	1.30
			Date Sampled:	03-Jun-2016	31-May-2016	01-Jun-2016	02-May-2016	31-May-2016	31-May-2016	31-May-2016	31-May-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**							
Phenanthrene	N	2790	mg/kg	0.50				< 0.50			
Anthracene	N	2790	mg/kg	0.50				< 0.50			
Carbazole	N	2790	mg/kg	0.50				< 0.50			
Di-N-Butyl Phthalate	N	2790	mg/kg	0.50				< 0.50			
Fluoranthene	N	2790	mg/kg	0.50				< 0.50			
Pyrene	N	2790	mg/kg	0.50				< 0.50			
Buty benzyl Phthalate	N	2790	mg/kg	0.50				< 0.50			
Benzo[a]anthracene	N	2790	mg/kg	0.50				< 0.50			
Chrysene	N	2790	mg/kg	0.50				< 0.50			
Bis(2-Ethylhexyl)Phthalate	N	2790	mg/kg	0.50				< 0.50			
Di-N-Octyl Phthalate	N	2790	mg/kg	0.50				< 0.50			
Benzo[b]fluoranthene	N	2790	mg/kg	0.50				< 0.50			
Benzo[k]fluoranthene	N	2790	mg/kg	0.50				< 0.50			
Benzo[a]pyrene	N	2790	mg/kg	0.50				< 0.50			
Indeno(1,2,3-c,d)Pyrene	N	2790	mg/kg	0.50				< 0.50			
Dibenz(a,h)Anthracene	N	2790	mg/kg	0.50				< 0.50			
Benzo[g,h,i]perylene	N	2790	mg/kg	0.50				< 0.50			
Resorcinol	U	2920	mg/kg	0.050				< 0.050			
Phenol	U	2920	mg/kg	0.050				< 0.050			
Cresols	U	2920	mg/kg	0.050				< 0.050			
Xylenols	U	2920	mg/kg	0.050				< 0.050			
1-Naphthol	N	2920	mg/kg	0.050				< 0.050			
Trimethylphenols	U	2920	mg/kg	0.050				< 0.050			
Total Phenols	U	2920	mg/kg	0.30	< 0.30			< 0.30			< 0.30

Results - Soil

Project: C6669A City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-13579	16-13579
Quotation No.:			**Chemtest Sample ID.:**		306159	306161
			Client Sample ID.:		TP30	TP30
			Sample Type:		SOIL	SOIL
			Top Depth (m):		0.40	1.80
			Date Sampled:		31-May-2016	31-May-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
ACM Type	U	2192		N/A	-	-
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	29	
pH	U	2010		N/A	8.0	
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	0.18	
Ammonium	U	2425	mg/kg	0.50	180	
Iron (Total)	N	2430	mg/kg	100	18000	
Sulphate (Total)	U	2430	%	0.010	1.8	
Arsenic	U	2450	mg/kg	1.0	12	
Cadmium	U	2450	mg/kg	0.10	0.43	
Chromium	U	2450	mg/kg	1.0	30	
Copper	U	2450	mg/kg	0.50	98	
Mercury	U	2450	mg/kg	0.10	0.15	
Manganese	U	2450	mg/kg	5.0	500	
Nickel	U	2450	mg/kg	0.50	57	
Lead	U	2450	mg/kg	0.50	120	
Selenium	U	2450	mg/kg	0.20	< 0.20	
Zinc	U	2450	mg/kg	0.50	260	
Fraction of Organic Carbon	U	2625		0.0010		
Total Organic Carbon	U	2625	%	0.20	4.6	
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	23	
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	26	
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	46	
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	160	
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	1300	
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	110	
Total Aliphatic Hydrocarbons	U	2680	mg/kg	5.0	1600	
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	2.7	
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	2.4	
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	34	
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	40	
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	82	
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	190	
Aromatic TPH >C21-C35	N	2680	mg/kg	1.0	670	
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	51	
Total Aromatic Hydrocarbons	U	2680	mg/kg	5.0	1100	
Total Petroleum Hydrocarbons	U	2680	mg/kg	10	2700	

Results - Soil

Project: C6669A City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-13579	16-13579
Quotation No.:			**Chemtest Sample ID.:**		306159	306161
			Client Sample ID.:		TP30	TP30
			Sample Type:		SOIL	SOIL
			Top Depth (m):		0.40	1.80
			Date Sampled:		31-May-2016	31-May-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Naphthalene	U	2700	mg/kg	0.10	< 0.10	
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	
Fluorene	U	2700	mg/kg	0.10	< 0.10	
Phenanthrene	U	2700	mg/kg	0.10	< 0.10	
Anthracene	U	2700	mg/kg	0.10	< 0.10	
Fluoranthene	U	2700	mg/kg	0.10	< 0.10	
Pyrene	U	2700	mg/kg	0.10	< 0.10	
Benzo[a]anthracene	U	2700	mg/kg	0.10	< 0.10	
Chrysene	U	2700	mg/kg	0.10	< 0.10	
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	< 0.10	
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	< 0.10	
Benzo[a]pyrene	U	2700	mg/kg	0.10	< 0.10	
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	< 0.10	
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10	
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	< 0.10	
Total Of 9 PAH's	U	2700	mg/kg	1.0	< 1.0	
Total Of 16 PAH's	U	2700	mg/kg	2.0	< 2.0	
Dichlorodifluoromethane	U	2760	µg/kg	1.0		
Chloromethane	U	2760	µg/kg	1.0		
Vinyl Chloride	U	2760	µg/kg	1.0		
Bromomethane	U	2760	µg/kg	20		
Chloroethane	U	2760	µg/kg	2.0		
Trichlorofluoromethane	U	2760	µg/kg	1.0		
1,1-Dichloroethene	U	2760	µg/kg	1.0		
Trans 1,2-Dichloroethene	U	2760	µg/kg	1.0		
1,1-Dichloroethane	U	2760	µg/kg	1.0		
cis 1,2-Dichloroethene	U	2760	µg/kg	1.0		
Bromochloromethane	U	2760	µg/kg	5.0		
Trichloromethane	U	2760	µg/kg	1.0		
1,1,1-Trichloroethane	U	2760	µg/kg	1.0		
Tetrachloromethane	U	2760	µg/kg	1.0		
1,1-Dichloropropene	U	2760	µg/kg	1.0		
Benzene	U	2760	µg/kg	1.0	2.0	
1,2-Dichloroethane	U	2760	µg/kg	2.0		
Trichloroethene	N	2760	µg/kg	1.0		
1,2-Dichloropropane	U	2760	µg/kg	1.0		
Dibromomethane	U	2760	µg/kg	1.0		
Bromodichloromethane	U	2760	µg/kg	5.0		
cis-1,3-Dichloropropene	N	2760	µg/kg	10		

Results - Soil

Project: C6669A City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-13579	16-13579
Quotation No.:			**Chemtest Sample ID.:**		306159	306161
			Client Sample ID.:		TP30	TP30
			Sample Type:		SOIL	SOIL
			Top Depth (m):		0.40	1.80
			Date Sampled:		31-May-2016	31-May-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Toluene	U	2760	µg/kg	1.0	11	
Trans-1,3-Dichloropropene	N	2760	µg/kg	10		
1,1,2-Trichloroethane	U	2760	µg/kg	10		
Tetrachloroethene	U	2760	µg/kg	1.0		
1,3-Dichloropropane	U	2760	µg/kg	2.0		
Dibromochloromethane	U	2760	µg/kg	10		
1,2-Dibromoethane	U	2760	µg/kg	5.0		
Chlorobenzene	U	2760	µg/kg	1.0		
1,1,1,2-Tetrachloroethane	U	2760	µg/kg	2.0		
Ethy benzene	U	2760	µg/kg	1.0	69	
m & p-Xylene	U	2760	µg/kg	1.0	26	
o-Xylene	U	2760	µg/kg	1.0	15	
Styrene	U	2760	µg/kg	1.0		
Tribromomethane	U	2760	µg/kg	1.0		
Isopropylbenzene	U	2760	µg/kg	1.0		
Bromobenzene	U	2760	µg/kg	1.0		
1,2,3-Trichloropropane	N	2760	µg/kg	50		
N-Propylbenzene	U	2760	µg/kg	1.0		
2-Chlorotoluene	U	2760	µg/kg	1.0		
1,3,5-Trimethylbenzene	U	2760	µg/kg	1.0		
4-Chlorotoluene	U	2760	µg/kg	1.0		
Tert-Butylbenzene	U	2760	µg/kg	1.0		
1,2,4-Trimethylbenzene	U	2760	µg/kg	1.0		
Sec-Butylbenzene	U	2760	µg/kg	1.0		
1,3-Dichlorobenzene	U	2760	µg/kg	1.0		
4-Isopropyltoluene	U	2760	µg/kg	1.0		
1,4-Dichlorobenzene	U	2760	µg/kg	1.0		
N-Butylbenzene	U	2760	µg/kg	1.0		
1,2-Dichlorobenzene	U	2760	µg/kg	1.0		
1,2-Dibromo-3-Chloropropane	U	2760	µg/kg	50		
1,2,4-Trichlorobenzene	U	2760	µg/kg	1.0		
Hexachlorobutadiene	U	2760	µg/kg	1.0		
1,2,3-Trichlorobenzene	U	2760	µg/kg	2.0		
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0		
N-Nitrosodimethylamine	N	2790	mg/kg	0.50		
Phenol	N	2790	mg/kg	0.50		
2-Chlorophenol	N	2790	mg/kg	0.50		
Bis-(2-Chloroethyl)Ether	N	2790	mg/kg	0.50		
1,3-Dichlorobenzene	N	2790	mg/kg	0.50		
1,4-Dichlorobenzene	N	2790	mg/kg	0.50		

Results - Soil

Project: C6669A City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-13579	16-13579
Quotation No.:			**Chemtest Sample ID.:**		306159	306161
			Client Sample ID.:		TP30	TP30
			Sample Type:		SOIL	SOIL
			Top Depth (m):		0.40	1.80
			Date Sampled:		31-May-2016	31-May-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
1,2-Dichlorobenzene	N	2790	mg/kg	0.50		
2-Methylphenol	N	2790	mg/kg	0.50		
Bis(2-Chloroisopropyl)Ether	N	2790	mg/kg	0.50		
Hexachloroethane	N	2790	mg/kg	0.50		
N-Nitrosodi-n-propylamine	N	2790	mg/kg	0.50		
4-Methylphenol	N	2790	mg/kg	0.50		
Nitrobenzene	N	2790	mg/kg	0.50		
Isophorone	N	2790	mg/kg	0.50		
2-Nitrophenol	N	2790	mg/kg	0.50		
2,4-Dimethylphenol	N	2790	mg/kg	0.50		
Bis(2-Chloroethoxy)Methane	N	2790	mg/kg	0.50		
2,4-Dichlorophenol	N	2790	mg/kg	0.50		
1,2,4-Trichlorobenzene	N	2790	mg/kg	0.50		
Naphthalene	N	2790	mg/kg	0.50		
4-Chloroaniline	N	2790	mg/kg	0.50		
Hexachlorobutadiene	N	2790	mg/kg	0.50		
4-Chloro-3-Methylphenol	N	2790	mg/kg	0.50		
2-Methylnaphthalene	N	2790	mg/kg	0.50		
4-Nitrophenol	N	2790	mg/kg	0.50		
Hexachlorocyclopentadiene	N	2790	mg/kg	0.50		
2,4,6-Trichlorophenol	N	2790	mg/kg	0.50		
2,4,5-Trichlorophenol	N	2790	mg/kg	0.50		
2-Chloronaphthalene	N	2790	mg/kg	0.50		
2-Nitroaniline	N	2790	mg/kg	0.50		
Acenaphthylene	N	2790	mg/kg	0.50		
Dimethylphthalate	N	2790	mg/kg	0.50		
2,6-Dinitrotoluene	N	2790	mg/kg	0.50		
Acenaphthene	N	2790	mg/kg	0.50		
3-Nitroaniline	N	2790	mg/kg	0.50		
Dibenzofuran	N	2790	mg/kg	0.50		
4-Chlorophenylphenylether	N	2790	mg/kg	0.50		
2,4-Dinitrotoluene	N	2790	mg/kg	0.50		
Fluorene	N	2790	mg/kg	0.50		
Diethyl Phthalate	N	2790	mg/kg	0.50		
4-Nitroaniline	N	2790	mg/kg	0.50		
2-Methyl-4,6-Dinitrophenol	N	2790	mg/kg	0.50		
Azobenzene	N	2790	mg/kg	0.50		
4-Bromophenylphenyl Ether	N	2790	mg/kg	0.50		
Hexachlorobenzene	N	2790	mg/kg	0.50		
Pentachlorophenol	N	2790	mg/kg	0.50		

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Results - Soil

Project: C6669A City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-13579	16-13579
Quotation No.:			**Chemtest Sample ID.:**		306159	306161
			Client Sample ID.:		TP30	TP30
			Sample Type:		SOIL	SOIL
			Top Depth (m):		0.40	1.80
			Date Sampled:		31-May-2016	31-May-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Phenanthrene	N	2790	mg/kg	0.50		
Anthracene	N	2790	mg/kg	0.50		
Carbazole	N	2790	mg/kg	0.50		
Di-N-Butyl Phthalate	N	2790	mg/kg	0.50		
Fluoranthene	N	2790	mg/kg	0.50		
Pyrene	N	2790	mg/kg	0.50		
Buty benzyl Phthalate	N	2790	mg/kg	0.50		
Benzo[a]anthracene	N	2790	mg/kg	0.50		
Chrysene	N	2790	mg/kg	0.50		
Bis(2-Ethylhexyl)Phthalate	N	2790	mg/kg	0.50		
Di-N-Octyl Phthalate	N	2790	mg/kg	0.50		
Benzo[b]fluoranthene	N	2790	mg/kg	0.50		
Benzo[k]fluoranthene	N	2790	mg/kg	0.50		
Benzo[a]pyrene	N	2790	mg/kg	0.50		
Indeno(1,2,3-c,d)Pyrene	N	2790	mg/kg	0.50		
Dibenz(a,h)Anthracene	N	2790	mg/kg	0.50		
Benzo[g,h,i]perylene	N	2790	mg/kg	0.50		
Resorcinol	U	2920	mg/kg	0.050		
Phenol	U	2920	mg/kg	0.050		
Cresols	U	2920	mg/kg	0.050		
Xylenols	U	2920	mg/kg	0.050		
1-Naphthol	N	2920	mg/kg	0.050		
Trimethylphenols	U	2920	mg/kg	0.050		
Total Phenols	U	2920	mg/kg	0.30	< 0.30	

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Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis
The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols
For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at our Coventry laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.co.uk

Chemtest
The right chemistry to deliver results
Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.co.uk

UKAS TESTING
2183

Final Report

Report No.: 16-17414-1

Initial Date of Issue: 28-Jul-2016

Client Causeway Geotech Ltd

Client Address: 8 Drumahiskey Road
Balnamore
Ballymoney
County Antrim
BT53 7QL

Contact(s): [redacted]

Project 16-0486 / C6669A - City Waste Site, Mobouy Road, Derry

Quotation No.:

Order No.:

No. of Samples: 12

Turnaround (Wkdays): 5

Date Approved: 28-Jul-2016

Approved By:
[redacted]

Details: [redacted] Laboratory Manager

Date Received: 21-Jul-2016

Date Instructed: 22-Jul-2016

Results Due: 28-Jul-2016

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Results - Water

Project: 16-0486 / C6669A - City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-17414	16-17414	16-17414	16-17414	16-17414	16-17414	16-17414	16-17414	16-17414
Quotation No.:			**Chemtest Sample ID.:**		326697	326698	326699	326700	326701	326702	326703	326704	326705
			Client Sample ID.:		SW1	SW2	SW3	SW5	SW7	Pond 1	Pond 5	BH02	BH07
			Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
			Date Sampled:		20-Jul-2016	20-Jul-2016	20-Jul-2016	20-Jul-2016	20-Jul-2016	20-Jul-2016	20-Jul-2016	20-Jul-2016	20-Jul-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
pH	U	1010		N/A	7.9	7.7	7.4	7.7	7.7	8.1	7.5	7.1	7.0
Alkalinity (Total)	U	1220	mg CaCO3/l	10	74	80	27	98	80	87	140	930	1200
Chloride	U	1220	mg/l	1.0	26	27	3.4	30	29	16	34	150	290
Ammonia (Free)	U	1220	mg/l	0.010	0.047	0.033	< 0.010	0.027	0.015	0.048	0.068	0.084	1.2
Nitrite	U	1220	mg/l	0.020	0.30	0.67	< 0.020	0.34	0.27	0.099	0.039	0.020	0.023
Nitrate	U	1220	mg/l	0.50	15	9.1	< 0.50	17	21	2.1	< 0.50	< 0.50	< 0.50
Sulphate	U	1220	mg/l	1.0	19	19	69	25	20	26	6.8	88	< 1.0
Sulphide	U	1325	mg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Arsenic (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.8	2.3	33
Cadmium (Dissolved)	U	1450	µg/l	0.080	0.22	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	2.1
Copper (Dissolved)	U	1450	µg/l	1.0	3.6	< 1.0	1.9	1.0	< 1.0	3.4	< 1.0	< 1.0	1.2
Iron (Dissolved)	N	1480	µg/l	20	160	110	57	140	85	120	320	6600	46000
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Manganese (Dissolved)	U	1450	µg/l	1.0	31	8.0	4.9	810	68	7.7	6.6	12000	21000
Nickel (Dissolved)	U	1450	µg/l	1.0	4.2	1.4	9.8	2.7	1.3	4.1	3.4	4.4	30
Lead (Dissolved)	U	1450	µg/l	1.0	2.1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	3.1	8.4
Zinc (Dissolved)	U	1450	µg/l	1.0	33	< 1.0	9.9	2.7	< 1.0	2.1	< 1.0	1.1	< 1.0
Dissolved Organic Carbon	U	1610	mg/l	2.0	12	11	14	15	9.5	14	19	35	72
Aliphatic TPH >C5-C6	N	1675	µg/l	0.10						< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C6-C8	N	1675	µg/l	0.10						< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C8-C10	N	1675	µg/l	0.10						< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C10-C12	N	1675	µg/l	0.10						< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C12-C16	N	1675	µg/l	0.10						< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C16-C21	N	1675	µg/l	0.10						< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C21-C35	N	1675	µg/l	0.10						< 0.10	< 0.10	230	150
Aliphatic TPH >C35-C44	N	1675	µg/l	0.10						< 0.10	< 0.10	< 0.10	< 0.10
Total Aliphatic Hydrocarbons	N	1675	µg/l	5.0						< 5.0	< 5.0	230	150
Aromatic TPH >C5-C7	N	1675	µg/l	0.10						< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C7-C8	N	1675	µg/l	0.10						< 0.10	< 0.10	< 0.10	21
Aromatic TPH >C8-C10	N	1675	µg/l	0.10						< 0.10	< 0.10	22	22
Aromatic TPH >C10-C12	N	1675	µg/l	0.10						< 0.10	< 0.10	46	110
Aromatic TPH >C12-C16	N	1675	µg/l	0.10						< 0.10	< 0.10	38	13
Aromatic TPH >C16-C21	N	1675	µg/l	0.10						< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C21-C35	N	1675	µg/l	0.10						< 0.10	< 0.10	220	170
Aromatic TPH >C35-C44	N	1675	µg/l	0.10						< 0.10	< 0.10	17	< 0.10
Total Aromatic Hydrocarbons	N	1675	µg/l	5.0						< 5.0	< 5.0	340	330
Total Petroleum Hydrocarbons	N	1675	µg/l	10						< 10	< 10	570	480

Results - Water

Project: 16-0486 / C6669A - City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-17414	16-17414	16-17414	16-17414	16-17414	16-17414	16-17414	16-17414	16-17414
Quotation No.:			**Chemtest Sample ID.:**		326697	326698	326699	326700	326701	326702	326703	326704	326705
			Client Sample ID.:		SW1	SW2	SW3	SW5	SW7	Pond 1	Pond 5	BH02	BH07
			Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
			Date Sampled:		20-Jul-2016	20-Jul-2016	20-Jul-2016	20-Jul-2016	20-Jul-2016	20-Jul-2016	20-Jul-2016	20-Jul-2016	20-Jul-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Naphthalene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	1700	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Resorcinol	U	1920	mg/l	0.0050						< 0.0050	< 0.0050	< 0.0050	< 0.0050
Phenol	U	1920	mg/l	0.0050						< 0.0050	< 0.0050	< 0.0050	< 0.0050
Cresols	U	1920	mg/l	0.0050						< 0.0050	< 0.0050	< 0.0050	< 0.0050
Xylenols	U	1920	mg/l	0.0050						< 0.0050	< 0.0050	< 0.0050	< 0.0050
1-Naphthol	N	1920	mg/l	0.0050						< 0.0050	< 0.0050	< 0.0050	< 0.0050
Trimethylphenols	U	1920	mg/l	0.0050						< 0.0050	< 0.0050	< 0.0050	< 0.0050
Total Phenols	U	1920	mg/l	0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030

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Results - Water

Project: 16-0486 / C6669A - City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-17414	16-17414	16-17414
Quotation No.:			**Chemtest Sample ID.:**		326706	326707	326708
			Client Sample ID.:		BH122	BH208	BH209
			Sample Type:		WATER	WATER	WATER
			Date Sampled:		20-Jul-2016	20-Jul-2016	20-Jul-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**			
pH	U	1010		N/A	7.9	6.8	6.7
Alkalinity (Total)	U	1220	mg CaCO3/l	10	310	930	940
Chloride	U	1220	mg/l	1.0	27	45	210
Ammonia (Free)	U	1220	mg/l	0.010	0.37	0.60	0.16
Nitrite	U	1220	mg/l	0.020	0.46	< 0.020	0.033
Nitrate	U	1220	mg/l	0.50	16	< 0.50	< 0.50
Sulphate	U	1220	mg/l	1.0	71	< 1.0	30
Sulphide	U	1325	mg/l	0.050	< 0.050	< 0.050	< 0.050
Arsenic (Dissolved)	U	1450	µg/l	1.0	1.2	3.5	6.3
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080	< 0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	< 1.0	6.7	2.7
Copper (Dissolved)	U	1450	µg/l	1.0	4.6	< 1.0	< 1.0
Iron (Dissolved)	N	1480	µg/l	20	1300	49000	36000
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50	< 0.50	< 0.50
Manganese (Dissolved)	U	1450	µg/l	1.0	1100	2400	1700
Nickel (Dissolved)	U	1450	µg/l	1.0	3.8	52	4.0
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	1.0	4.4	6.8
Zinc (Dissolved)	U	1450	µg/l	1.0	< 1.0	2.9	< 1.0
Dissolved Organic Carbon	U	1610	mg/l	2.0	20	83	69
Aliphatic TPH >C5-C6	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C6-C8	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C8-C10	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C10-C12	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C12-C16	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C16-C21	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C21-C35	N	1675	µg/l	0.10	< 0.10	26	< 0.10
Aliphatic TPH >C35-C44	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Total Aliphatic Hydrocarbons	N	1675	µg/l	5.0	< 5.0	26	< 5.0
Aromatic TPH >C5-C7	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C7-C8	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C8-C10	N	1675	µg/l	0.10	< 0.10	13	< 0.10
Aromatic TPH >C10-C12	N	1675	µg/l	0.10	< 0.10	140	< 0.10
Aromatic TPH >C12-C16	N	1675	µg/l	0.10	< 0.10	14	< 0.10
Aromatic TPH >C16-C21	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C21-C35	N	1675	µg/l	0.10	< 0.10	25	< 0.10
Aromatic TPH >C35-C44	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10
Total Aromatic Hydrocarbons	N	1675	µg/l	5.0	< 5.0	200	< 5.0
Total Petroleum Hydrocarbons	N	1675	µg/l	10	< 10	220	< 10

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Results - Water

Project: 16-0486 / C6669A - City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-17414	16-17414	16-17414
Quotation No.:			**Chemtest Sample ID.:**		326706	326707	326708
			Client Sample ID.:		BH122	BH208	BH209
			Sample Type:		WATER	WATER	WATER
			Date Sampled:		20-Jul-2016	20-Jul-2016	20-Jul-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**			
Naphthalene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	1700	µg/l	2.0	< 2.0	< 2.0	< 2.0
Resorcinol	U	1920	mg/l	0.0050	< 0.0050	< 0.0050	< 0.0050
Phenol	U	1920	mg/l	0.0050	< 0.0050	< 0.0050	< 0.0050
Cresols	U	1920	mg/l	0.0050	< 0.0050	< 0.0050	< 0.0050
Xylenols	U	1920	mg/l	0.0050	< 0.0050	< 0.0050	< 0.0050
1-Naphthol	N	1920	mg/l	0.0050	< 0.0050	< 0.0050	< 0.0050
Trimethylphenols	U	1920	mg/l	0.0050	< 0.0050	< 0.0050	< 0.0050
Total Phenols	U	1920	mg/l	0.030	< 0.030	< 0.030	< 0.030

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis
The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols
For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at our Coventry laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.co.uk

Chemtest
The right chemistry to deliver results
Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.co.uk

UKAS TESTING
2183

Amended Report

Report No.:	16-17589-6		
Initial Date of Issue:	29-Jul-2016	**Date of Re-Issue:**	12-Aug-2016
Client	Causeway Geotech Ltd		
Client Address:	8 Drumahiskey Road Balnamore Ballymoney County Antrim BT53 7QL		
Contact(s):	[redacted]		
Project	16-0486/C6669A - City Waste Site, Mobouy Road, Derry		
Quotation No.:		**Date Received:**	22-Jul-2016
Order No.:		**Date Instructed:**	22-Jul-2016
No. of Samples:	15		
Turnaround (Wkdays):	5	**Results Due:**	28-Jul-2016
Date Approved:	29-Jul-2016		

[redacted]

Details: [redacted] Laboratory Manager

Chemtest
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Results - Water

Project: 16-0486/C6669A - City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-17589	16-17589	16-17589	16-17589	16-17589	16-17589	16-17589	16-17589	16-17589
Quotation No.:			**Chemtest Sample ID.:**		327531	327532	327533	327534	327535	327536	327537	327538	327539
			Client Sample ID.:		Pond 101	Pond 102	P3	P4	SW6	SW8	BH04	BH05	BH06
			Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
			Date Sampled:		21-Jul-2016	21-Jul-2016	21-Jul-2016	21-Jul-2016	21-Jul-2016	21-Jul-2016	21-Jul-2016	21-Jul-2016	21-Jul-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
pH	U	1010		N/A	8.3	7.9	7.8	7.7	8.1	8.1	7.7	8.2	7.1
Alkalinity (Total)	U	1220	mg CaCO3/l	10	120	130	470	200	82	83	1100	120	140
Chloride	U	1220	mg/l	1.0	7.6	14	130	60	21	22	330	31	1100
Ammonia (Free)	U	1220	mg/l	0.010	0.062	0.014	0.048	0.058	0.073	0.073	2.5	0.12	< 0.010
Nitrite	U	1220	mg/l	0.020	0.031	0.032	0.29	0.11	0.080	0.10	0.047	0.64	0.058
Nitrate	U	1220	mg/l	0.50	< 0.50	< 0.50	2.9	39	3.9	4.3	< 0.50	0.54	< 0.50
Sulphate	U	1220	mg/l	1.0	< 1.0	12	120	65	10	12	18	21	13
Sulphide	U	1325	mg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Arsenic (Dissolved)	U	1450	µg/l	1.0	1.3	1.3	2.1	< 1.0	< 1.0	< 1.0	13	1.1	1.9
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080	< 0.080	0.36	0.12	< 0.080	< 0.080	< 0.080	< 0.080	2.1
Chromium (Dissolved)	U	1450	µg/l	1.0	< 1.0	7.3	< 1.0	< 1.0	< 1.0	< 1.0	4.7	< 1.0	< 1.0
Copper (Dissolved)	U	1450	µg/l	1.0	< 1.0	4.4	< 1.0	< 1.0	< 1.0	< 1.0	1.9	3.1	< 1.0
Iron (Dissolved)	N	1480	µg/l	20	610	340	600	260	770	730	1400	190	2000
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Manganese (Dissolved)	U	1450	µg/l	1.0	5.6	8.2	140	21000	42	35	1800	10000	320
Nickel (Dissolved)	U	1450	µg/l	1.0	2.2	9.2	25	8.4	1.7	3.2	25	4.2	65
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	3.3	1.5	< 1.0	< 1.0	9.2	2.7	19
Zinc (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	3800	2300	57	5.4	3.8	6.5	29
Dissolved Organic Carbon	U	1610	mg/l	2.0	22	21	23	17	20	25	170	41	44
Total Organic Carbon	U	1610	mg/l	2.0	23	24	24	15	25	27	180	30	43
Aliphatic TPH >C5-C6	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10				< 0.10	< 0.10	< 0.10
Aliphatic TPH >C6-C8	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10				< 0.10	< 0.10	< 0.10
Aliphatic TPH >C8-C10	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10				< 0.10	< 0.10	< 0.10
Aliphatic TPH >C10-C12	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10				< 0.10	< 0.10	< 0.10
Aliphatic TPH >C12-C16	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10				< 0.10	< 0.10	< 0.10
Aliphatic TPH >C16-C21	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10				< 0.10	< 0.10	< 0.10
Aliphatic TPH >C21-C35	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10				< 0.10	< 0.10	< 0.10
Aliphatic TPH >C35-C44	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10				< 0.10	< 0.10	< 0.10
Total Aliphatic Hydrocarbons	N	1675	µg/l	5.0	< 5.0	< 5.0	< 5.0				< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10				< 0.10	< 0.10	< 0.10
Aromatic TPH >C7-C8	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10				120	< 0.10	< 0.10
Aromatic TPH >C8-C10	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10				0.66	< 0.10	< 0.10
Aromatic TPH >C10-C12	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10				47	< 0.10	< 0.10
Aromatic TPH >C12-C16	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10				31	< 0.10	< 0.10
Aromatic TPH >C16-C21	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10				0.11	< 0.10	< 0.10
Aromatic TPH >C21-C35	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10				< 0.10	< 0.10	< 0.10
Aromatic TPH >C35-C44	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10				< 0.10	< 0.10	< 0.10
Total Aromatic Hydrocarbons	N	1675	µg/l	5.0	< 5.0	< 5.0	< 5.0				200	< 5.0	< 5.0

Chemtest
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Results - Water

Project: 16-0486/C6669A - City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd				**Chemtest Job No.:**	16-17589	16-17589	16-17589	16-17589	16-17589	16-17589	16-17589	16-17589	16-17589
Quotation No.:				**Chemtest Sample ID.:**	327531	327532	327533	327534	327535	327536	327537	327538	327539
				Client Sample ID.:	Pond 101	Pond 102	P3	P4	SW6	SW8	BH04	BH05	BH06
				Sample Type:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
				Date Sampled:	21-Jul-2016	21-Jul-2016	21-Jul-2016	21-Jul-2016	21-Jul-2016	21-Jul-2016	21-Jul-2016	21-Jul-2016	21-Jul-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Total Petroleum Hydrocarbons	N	1675	µg/l	10	< 10	< 10	< 10				200	< 10	< 10
Naphthalene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	1700	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Dichlorodifluoromethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0	< 1.0
Chloromethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0	< 1.0
Vinyl Chloride	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0	< 1.0
Bromomethane	U	1760	µg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0			< 5.0	< 5.0	< 5.0
Chloroethane	U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0			< 2.0	< 2.0	< 2.0
Trichlorofluoromethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0	< 1.0
Trans 1,2-Dichloroethene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0	< 1.0
cis 1,2-Dichloroethene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0	< 1.0
Bromochloromethane	U	1760	µg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0			< 5.0	< 5.0	< 5.0
Trichloromethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0	< 1.0
Tetrachloromethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0	< 1.0
Benzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0			< 2.0	< 2.0	< 2.0
Trichloroethene	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0	< 1.0
Dibromomethane	U	1760	µg/l	10	< 10	< 10	< 10	< 10			< 10	< 10	< 10
Bromodichloromethane	U	1760	µg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0			< 5.0	< 5.0	< 5.0
cis-1,3-Dichloropropene	N	1760	µg/l	10	< 10	< 10	< 10	< 10			< 10	< 10	< 10

Chemtest
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Results - Water

Project: 16-0486/C6669A - City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd				**Chemtest Job No.:**	16-17589	16-17589	16-17589	16-17589	16-17589	16-17589	16-17589	16-17589	16-17589
Quotation No.:				**Chemtest Sample ID.:**	327531	327532	327533	327534	327535	327536	327537	327538	327539
				Client Sample ID.:	Pond 101	Pond 102	P3	P4	SW6	SW8	BH04	BH05	BH06
				Sample Type:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
				Date Sampled:	21-Jul-2016	21-Jul-2016	21-Jul-2016	21-Jul-2016	21-Jul-2016	21-Jul-2016	21-Jul-2016	21-Jul-2016	21-Jul-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Toluene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			820	< 1.0	< 1.0
Trans-1,3-Dichloropropene	N	1760	µg/l	10	< 10	< 10	< 10	< 10			< 10	< 10	< 10
1,1,2-Trichloroethane	U	1760	µg/l	10	< 10	< 10	< 10	< 10			< 10	< 10	< 10
Tetrachloroethene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0			< 2.0	< 2.0	< 2.0
Dibromochloromethane	U	1760	µg/l	10	< 10	< 10	< 10	< 10			< 10	< 10	< 10
1,2-Dibromoethane	U	1760	µg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0			< 5.0	< 5.0	< 5.0
Chlorobenzene	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0			< 2.0	< 2.0	< 2.0
Ethy benzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			12	< 1.0	< 1.0
m & p-Xylene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			2.4	< 1.0	< 1.0
o-Xylene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			1.2	< 1.0	< 1.0
Styrene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			1.2	< 1.0	< 1.0
Tribromomethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0	< 1.0
Isopropylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0	< 1.0
Bromobenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0	< 1.0
1,2,3-Trichloropropane	N	1760	µg/l	50	< 50	< 50	< 50	< 50			< 50	< 50	< 50
N-Propylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0	< 1.0
2-Chlorotoluene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0	< 1.0
4-Chlorotoluene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0	< 1.0
Tert-Butylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0	< 1.0
Sec-Butylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0	< 1.0
4-Isopropyltoluene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0	< 1.0
N-Butylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-Chloropropane	U	1760	µg/l	50	< 50	< 50	< 50	< 50			< 50	< 50	< 50
1,2,4-Trichlorobenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0			< 2.0	< 2.0	< 2.0
Methyl Tert-Butyl Ether	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0	< 1.0
Resorcinol	U	1920	mg/l	0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050			< 0.0050	< 0.0050	< 0.0050
Phenol	U	1920	mg/l	0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050			0.030	< 0.0050	< 0.0050
Cresols	U	1920	mg/l	0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050			0.010	< 0.0050	< 0.0050
Xylenols	U	1920	mg/l	0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050			< 0.0050	< 0.0050	< 0.0050
1-Naphthol	N	1920	mg/l	0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050			< 0.0050	< 0.0050	< 0.0050
Trimethylphenols	U	1920	mg/l	0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050			< 0.0050	< 0.0050	< 0.0050

Results - Water

Project: 16-0486/C6669A - City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-17589	16-17589	16-17589	16-17589	16-17589	16-17589	16-17589	16-17589	16-17589
Quotation No.:			**Chemtest Sample ID.:**		327531	327532	327533	327534	327535	327536	327537	327538	327539
			Client Sample ID.:		Pond 101	Pond 102	P3	P4	SW6	SW8	BH04	BH05	BH06
			Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
			Date Sampled:		21-Jul-2016	21-Jul-2016	21-Jul-2016	21-Jul-2016	21-Jul-2016	21-Jul-2016	21-Jul-2016	21-Jul-2016	21-Jul-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Total Phenols	U	1920	mg/l	0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	0.040	< 0.030	< 0.030

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Results - Water

Project: 16-0486/C6669A - City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd			Chemtest Job No.:		16-17589	16-17589	16-17589	16-17589	16-17589	16-17589
Quotation No.:			Chemtest Sample ID.:		327540	327541	327542	327543	327544	327545
			Client Sample ID.:		BH102	BH103	BH107	BH206	BH207	BH220
			Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER
			Date Sampled:		21-Jul-2016	21-Jul-2016	21-Jul-2016	21-Jul-2016	21-Jul-2016	21-Jul-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
pH	U	1010		N/A	7.6	7.5	4.0	7.4	7.1	6.9
Alkalinity (Total)	U	1220	mg CaCO3/l	10	180	170	< 10	330	2000	820
Chloride	U	1220	mg/l	1.0	67	67	310	2000	340	65
Ammonia (Free)	U	1220	mg/l	0.010	0.021	0.014	< 0.010	0.24	1.6	0.28
Nitrite	U	1220	mg/l	0.020	0.27	0.11	0.046	0.059	0.047	0.053
Nitrate	U	1220	mg/l	0.50	11	13	< 0.50	< 0.50	< 0.50	< 0.50
Sulphate	U	1220	mg/l	1.0	41	43	1.2	< 1.0	< 1.0	130
Sulphide	U	1325	mg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Arsenic (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	8.7	3.3	2.5
Cadmium (Dissolved)	U	1450	µg/l	0.080	0.20	0.20	< 0.080	< 0.080	< 0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	15	15	5.7
Copper (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	6.1	6.6	< 1.0
Iron (Dissolved)	N	1480	µg/l	20	230	200	45000	3200	2100	920
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50	< 0.50	< 0.50	0.60	< 0.50	< 0.50
Manganese (Dissolved)	U	1450	µg/l	1.0	110000	8500	4500	11000	2700	2700
Nickel (Dissolved)	U	1450	µg/l	1.0	6.2	5.4	2.7	11	66	7.2
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	2.0	2.3	5.8	17	11	2.1
Zinc (Dissolved)	U	1450	µg/l	1.0	10	9.0	31	11	7.8	4.1
Dissolved Organic Carbon	U	1610	mg/l	2.0	26	20	19	65	83	47
Total Organic Carbon	U	1610	mg/l	2.0	19	23	22	64	92	44
Aliphatic TPH >C5-C6	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Aliphatic TPH >C6-C8	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	30	
Aliphatic TPH >C8-C10	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Aliphatic TPH >C10-C12	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	8.3	
Aliphatic TPH >C12-C16	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Aliphatic TPH >C16-C21	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Aliphatic TPH >C21-C35	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	220	
Aliphatic TPH >C35-C44	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Total Aliphatic Hydrocarbons	N	1675	µg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0	260	
Aromatic TPH >C5-C7	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	350	< 0.10	
Aromatic TPH >C7-C8	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	5.3	6.9	
Aromatic TPH >C8-C10	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	70	44	
Aromatic TPH >C10-C12	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	33	120	
Aromatic TPH >C12-C16	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	32	120	
Aromatic TPH >C16-C21	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	26	
Aromatic TPH >C21-C35	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	48	
Aromatic TPH >C35-C44	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Total Aromatic Hydrocarbons	N	1675	µg/l	5.0	< 5.0	< 5.0	< 5.0	490	370	

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Results - Water

Project: 16-0486/C6669A - City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd			Chemtest Job No.:		16-17589	16-17589	16-17589	16-17589	16-17589	16-17589
Quotation No.:			Chemtest Sample ID.:		327540	327541	327542	327543	327544	327545
			Client Sample ID.:		BH102	BH103	BH107	BH206	BH207	BH220
			Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER
			Date Sampled:		21-Jul-2016	21-Jul-2016	21-Jul-2016	21-Jul-2016	21-Jul-2016	21-Jul-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
Total Petroleum Hydrocarbons	N	1675	µg/l	10	< 10	< 10	< 10	490	630	
Naphthalene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	1700	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Dichlorodifluoromethane	U	1760	µg/l	1.0			< 1.0	< 1.0	< 1.0	
Chloromethane	U	1760	µg/l	1.0			< 1.0	< 1.0	< 1.0	
Vinyl Chloride	N	1760	µg/l	1.0			< 1.0	< 1.0	< 1.0	
Bromomethane	U	1760	µg/l	5.0			< 5.0	< 5.0	< 5.0	
Chloroethane	U	1760	µg/l	2.0			< 2.0	< 2.0	< 2.0	
Trichlorofluoromethane	U	1760	µg/l	1.0			< 1.0	< 1.0	< 1.0	
1,1-Dichloroethene	U	1760	µg/l	1.0			< 1.0	< 1.0	< 1.0	
Trans 1,2-Dichloroethene	U	1760	µg/l	1.0			< 1.0	< 1.0	< 1.0	
1,1-Dichloroethane	U	1760	µg/l	1.0			< 1.0	< 1.0	< 1.0	
cis 1,2-Dichloroethene	U	1760	µg/l	1.0			< 1.0	< 1.0	< 1.0	
Bromochloromethane	U	1760	µg/l	5.0			< 5.0	< 5.0	< 5.0	
Trichloromethane	U	1760	µg/l	1.0			< 1.0	< 1.0	< 1.0	
1,1,1-Trichloroethane	U	1760	µg/l	1.0			< 1.0	< 1.0	< 1.0	
Tetrachloromethane	U	1760	µg/l	1.0			< 1.0	< 1.0	< 1.0	
1,1-Dichloropropene	U	1760	µg/l	1.0			< 1.0	< 1.0	< 1.0	
Benzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	450	11	
1,2-Dichloroethane	U	1760	µg/l	2.0			< 2.0	< 2.0	< 2.0	
Trichloroethene	N	1760	µg/l	1.0			< 1.0	< 1.0	< 1.0	
1,2-Dichloropropane	U	1760	µg/l	1.0			< 1.0	< 1.0	< 1.0	
Dibromomethane	U	1760	µg/l	10			< 10	< 10	< 10	
Bromodichloromethane	U	1760	µg/l	5.0			< 5.0	< 5.0	< 5.0	
cis-1,3-Dichloropropene	N	1760	µg/l	10			< 10	< 10	< 10	

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Results - Water

Project: 16-0486/C6669A - City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd			Chemtest Job No.:		16-17589	16-17589	16-17589	16-17589	16-17589	16-17589
Quotation No.:			Chemtest Sample ID.:		327540	327541	327542	327543	327544	327545
			Client Sample ID.:		BH102	BH103	BH107	BH206	BH207	BH220
			Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER
			Date Sampled:		21-Jul-2016	21-Jul-2016	21-Jul-2016	21-Jul-2016	21-Jul-2016	21-Jul-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
Toluene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	63	1.3	
Trans-1,3-Dichloropropene	N	1760	µg/l	10			< 10	< 10	< 10	
1,1,2-Trichloroethane	U	1760	µg/l	10			< 10	< 10	< 10	
Tetrachloroethene	U	1760	µg/l	1.0			< 1.0	< 1.0	< 1.0	
1,3-Dichloropropane	U	1760	µg/l	2.0			< 2.0	< 2.0	< 2.0	
Dibromochloromethane	U	1760	µg/l	10			< 10	< 10	< 10	
1,2-Dibromoethane	U	1760	µg/l	5.0			< 5.0	< 5.0	< 5.0	
Chlorobenzene	N	1760	µg/l	1.0			< 1.0	< 1.0	< 1.0	
1,1,1,2-Tetrachloroethane	U	1760	µg/l	2.0			< 2.0	< 2.0	< 2.0	
Ethy benzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	60	21	
m & p-Xylene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	4.8	58	
o-Xylene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	3.3	28	
Styrene	U	1760	µg/l	1.0			< 1.0	22	< 1.0	
Tribromomethane	U	1760	µg/l	1.0			< 1.0	< 1.0	< 1.0	
Isopropylbenzene	U	1760	µg/l	1.0			< 1.0	1.2	< 1.0	
Bromobenzene	U	1760	µg/l	1.0			< 1.0	< 1.0	< 1.0	
1,2,3-Trichloropropane	N	1760	µg/l	50			< 50	< 50	< 50	
N-Propylbenzene	U	1760	µg/l	1.0			< 1.0	1.8	< 1.0	
2-Chlorotoluene	U	1760	µg/l	1.0			< 1.0	< 1.0	< 1.0	
1,3,5-Trimethylbenzene	U	1760	µg/l	1.0			< 1.0	1.7	4.5	
4-Chlorotoluene	U	1760	µg/l	1.0			< 1.0	< 1.0	< 1.0	
Tert-Butylbenzene	U	1760	µg/l	1.0			< 1.0	< 1.0	< 1.0	
1,2,4-Trimethylbenzene	U	1760	µg/l	1.0			< 1.0	14	7.4	
Sec-Butylbenzene	U	1760	µg/l	1.0			< 1.0	< 1.0	< 1.0	
1,3-Dichlorobenzene	N	1760	µg/l	1.0			< 1.0	< 1.0	< 1.0	
4-Isopropyltoluene	U	1760	µg/l	1.0			< 1.0	< 1.0	< 1.0	
1,4-Dichlorobenzene	U	1760	µg/l	1.0			< 1.0	< 1.0	< 1.0	
N-Butylbenzene	U	1760	µg/l	1.0			< 1.0	< 1.0	< 1.0	
1,2-Dichlorobenzene	U	1760	µg/l	1.0			< 1.0	< 1.0	< 1.0	
1,2-Dibromo-3-Chloropropane	U	1760	µg/l	50			< 50	< 50	< 50	
1,2,4-Trichlorobenzene	U	1760	µg/l	1.0			< 1.0	< 1.0	< 1.0	
Hexachlorobutadiene	U	1760	µg/l	1.0			< 1.0	< 1.0	< 1.0	
1,2,3-Trichlorobenzene	U	1760	µg/l	2.0			< 2.0	< 2.0	< 2.0	
Methyl Tert-Butyl Ether	N	1760	µg/l	1.0			< 1.0	< 1.0	< 1.0	
Resorcinol	U	1920	mg/l	0.0050			< 0.0050	< 0.0050	< 0.0050	
Phenol	U	1920	mg/l	0.0050			< 0.0050	< 0.0050	< 0.0050	
Cresols	U	1920	mg/l	0.0050			< 0.0050	< 0.0050	< 0.0050	
Xylenols	U	1920	mg/l	0.0050			< 0.0050	< 0.0050	< 0.0050	
1-Naphthol	N	1920	mg/l	0.0050			< 0.0050	< 0.0050	< 0.0050	
Trimethylphenols	U	1920	mg/l	0.0050			< 0.0050	< 0.0050	< 0.0050	

Results - Water

Project: 16-0486/C6669A - City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-17589	16-17589	16-17589	16-17589	16-17589	16-17589
Quotation No.:			**Chemtest Sample ID.:**		327540	327541	327542	327543	327544	327545
			Client Sample ID.:		BH102	BH103	BH107	BH206	BH207	BH220
			Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER
			Date Sampled:		21-Jul-2016	21-Jul-2016	21-Jul-2016	21-Jul-2016	21-Jul-2016	21-Jul-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
Total Phenols	U	1920	mg/l	0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030

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Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis
The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols
For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at our Coventry laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.co.uk

Chemtest
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Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.co.uk

UKAS TESTING
2183

Final Report

Report No.: 16-18106-1

Initial Date of Issue: 04-Aug-2016

Client Causeway Geotech Ltd

Client Address: 8 Drumahiskey Road
Balnamore
Ballymoney
County Antrim
BT53 7QL

Contact(s): [redacted]

Project 16-0486/C6669A - City Waste Site, Mobouy Road, Derry

Quotation No.:

Order No.:

No. of Samples: 8

Turnaround (Wkdays): 5

Date Approved: 04-Aug-2016

Approved By:

[redacted]

Details: [redacted] Laboratory Manager

Date Received: 29-Jul-2016

Date Instructed: 29-Jul-2016

Results Due: 04-Aug-2016

Chemtest
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Results - Water

Project: 16-0486/C6669A - City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd		**Chemtest Job No.:**			16-18106	16-18106	16-18106	16-18106	16-18106	16-18106	16-18106	16-18106
Quotation No.:		**Chemtest Sample ID.:**			330368	330369	330370	330371	330372	330373	330374	330375
Order No.:		Client Sample Ref.:			Pond 1	Pond 5	P4	BH02	BH07	BH122	BH208	BH209
		Sample Type:			WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
		Date Sampled:			28-Jul-2016	28-Jul-2016	28-Jul-2016	28-Jul-2016	28-Jul-2016	28-Jul-2016	28-Jul-2016	28-Jul-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
Aliphatic TPH >C5-C6	N	1675	µg/l	0.10			< 0.10					
Aliphatic TPH >C6-C8	N	1675	µg/l	0.10			< 0.10					
Aliphatic TPH >C8-C10	N	1675	µg/l	0.10			< 0.10					
Aliphatic TPH >C10-C12	N	1675	µg/l	0.10			< 0.10					
Aliphatic TPH >C12-C16	N	1675	µg/l	0.10			< 0.10					
Aliphatic TPH >C16-C21	N	1675	µg/l	0.10			< 0.10					
Aliphatic TPH >C21-C35	N	1675	µg/l	0.10			< 0.10					
Aliphatic TPH >C35-C44	N	1675	µg/l	0.10			< 0.10					
Total Aliphatic Hydrocarbons	N	1675	µg/l	5.0			< 5.0					
Aromatic TPH >C5-C7	N	1675	µg/l	0.10			< 0.10					
Aromatic TPH >C7-C8	N	1675	µg/l	0.10			< 0.10					
Aromatic TPH >C8-C10	N	1675	µg/l	0.10			< 0.10					
Aromatic TPH >C10-C12	N	1675	µg/l	0.10			< 0.10					
Aromatic TPH >C12-C16	N	1675	µg/l	0.10			< 0.10					
Aromatic TPH >C16-C21	N	1675	µg/l	0.10			< 0.10					
Aromatic TPH >C21-C35	N	1675	µg/l	0.10			< 0.10					
Aromatic TPH >C35-C44	N	1675	µg/l	0.10			< 0.10					
Total Aromatic Hydrocarbons	N	1675	µg/l	5.0			< 5.0					
Total Petroleum Hydrocarbons	N	1675	µg/l	10			< 10					
Dichlorodifluoromethane	U	1760	µg/l	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane	U	1760	µg/l	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	N	1760	µg/l	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	U	1760	µg/l	5.0	< 5.0	< 5.0		< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroethane	U	1760	µg/l	2.0	< 2.0	< 2.0		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Trichlorofluoromethane	U	1760	µg/l	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	U	1760	µg/l	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans 1,2-Dichloroethene	U	1760	µg/l	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	U	1760	µg/l	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis 1,2-Dichloroethene	U	1760	µg/l	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane	U	1760	µg/l	5.0	< 5.0	< 5.0		< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trichloromethane	U	1760	µg/l	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	U	1760	µg/l	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane	U	1760	µg/l	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	U	1760	µg/l	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	3.0	< 1.0
1,2-Dichloroethane	U	1760	µg/l	2.0	< 2.0	< 2.0		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Trichloroethene	N	1760	µg/l	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	U	1760	µg/l	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	U	1760	µg/l	10	< 10	< 10		< 10	< 10	< 10	< 10	< 10
Bromodichloromethane	U	1760	µg/l	5.0	< 5.0	< 5.0		< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

Chemtest
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Results - Water

Project: 16-0486/C6669A - City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd		**Chemtest Job No.:**			16-18106	16-18106	16-18106	16-18106	16-18106	16-18106	16-18106	16-18106
Quotation No.:		**Chemtest Sample ID.:**			330368	330369	330370	330371	330372	330373	330374	330375
Order No.:		Client Sample Ref.:			Pond 1	Pond 5	P4	BH02	BH07	BH122	BH208	BH209
		Sample Type:			WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
		Date Sampled:			28-Jul-2016	28-Jul-2016	28-Jul-2016	28-Jul-2016	28-Jul-2016	28-Jul-2016	28-Jul-2016	28-Jul-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
cis-1,3-Dichloropropene	N	1760	µg/l	10	< 10	< 10		< 10	< 10	< 10	< 10	< 10
Toluene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.5	< 1.0
Trans-1,3-Dichloropropene	N	1760	µg/l	10	< 10	< 10		< 10	< 10	< 10	< 10	< 10
1,1,2-Trichloroethane	U	1760	µg/l	10	< 10	< 10		< 10	< 10	< 10	< 10	< 10
Tetrachloroethene	U	1760	µg/l	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	U	1760	µg/l	2.0	< 2.0	< 2.0		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Dibromochloromethane	U	1760	µg/l	10	< 10	< 10		< 10	< 10	< 10	< 10	< 10
1,2-Dibromoethane	U	1760	µg/l	5.0	< 5.0	< 5.0		< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chlorobenzene	N	1760	µg/l	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	U	1760	µg/l	2.0	< 2.0	< 2.0		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Ethy benzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	8.7	< 1.0
m & p-Xylene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	16	< 1.0
o-Xylene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	9.6	< 1.0
Styrene	U	1760	µg/l	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	U	1760	µg/l	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	U	1760	µg/l	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichloropropane	N	1760	µg/l	50	< 50	< 50		< 50	< 50	< 50	< 50	< 50
N-Propylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	U	1760	µg/l	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	1.2	< 1.0
4-Chlorotoluene	U	1760	µg/l	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tert-Butylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	5.4	< 1.0
Sec-Butylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	N	1760	µg/l	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Isopropyltoluene	U	1760	µg/l	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	19	< 1.0
1,4-Dichlorobenzene	U	1760	µg/l	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
N-Butylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	U	1760	µg/l	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-Chloropropane	U	1760	µg/l	50	< 50	< 50		< 50	< 50	< 50	< 50	< 50
1,2,4-Trichlorobenzene	U	1760	µg/l	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	U	1760	µg/l	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	U	1760	µg/l	2.0	< 2.0	< 2.0		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Methyl Tert-Butyl Ether	N	1760	µg/l	1.0	< 1.0	< 1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

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Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis
The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols
For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at our Coventry laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.co.uk

Chemtest
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Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.co.uk

UKAS TESTING
2183

Final Report

Report No.: 16-19349-1

Initial Date of Issue: 19-Aug-2016

Client Causeway Geotech Ltd

Client Address: 8 Drumahiskey Road
Balnamore
Ballymoney
County Antrim
BT53 7QL

Contact(s): [redacted]

Project 16-0486/C6669A - City Waste Site, Mobouy Road, Derry

Quotation No.:

Order No.:

No. of Samples: 25

Turnaround (Wkdays): 5

Date Approved: 19-Aug-2016

Approved By:

[redacted]

Details: [redacted] Technical Manager

Date Received: 12-Aug-2016

Date Instructed: 15-Aug-2016

Results Due: 19-Aug-2016

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Results - Water

Project: 16-0486/C6669A - City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-19349	16-19349	16-19349	16-19349	16-19349	16-19349	16-19349	16-19349
Quotation No.:			**Chemtest Sample ID.:**		336821	336822	336823	336824	336826	336827	336828	336829
Order No.:			Client Sample Ref.:		BH04	BH05	BH06	BH07	BH103	BH107	BH122	BH206
			Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
			Date Sampled:		09-Aug-2016	09-Aug-2016	09-Aug-2016	09-Aug-2016	09-Aug-2016	09-Aug-2016	10-Aug-2016	09-Aug-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
pH	U	1010		N/A	7.2	8.1	7.1	7.1	8.2	7.2	8.3	6.9
Alkalinity (Total)	U	1220	mg CaCO3/l	10	1500	530	180	1800	200	1500	330	740
Chloride	U	1220	mg/l	1.0	310	43	910	240	23	300	28	1900
Ammonia (Free)	U	1220	mg/l	0.010	1.2	0.73	< 0.010	1.9	0.098	1.2	1.2	0.067
Nitrite	U	1220	mg/l	0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	0.13	< 0.020
Nitrate	U	1220	mg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.51	< 0.50
Sulphate	U	1220	mg/l	1.0	1.9	6.7	12	23	70	3.9	65	< 1.0
Sulphide	U	1325	mg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Arsenic (Dissolved)	U	1450	µg/l	1.0	15	2.6	2.8	11	< 1.0	18	1.1	5.5
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080	< 0.080	0.23	< 0.080	< 0.080	0.18	< 0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	11	3.7	8.0	10	2.6	11	2.3	11
Copper (Dissolved)	U	1450	µg/l	1.0	1.7	1.8	1.2	1.5	< 1.0	1.7	1.6	2.7
Iron (Dissolved)	N	1480	µg/l	20	8300	390	8000	10000	270	9000	380	8200
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Manganese (Dissolved)	U	1450	µg/l	1.0	16000	5600	< 1.0	9700	620	16000	1300	13000
Nickel (Dissolved)	U	1450	µg/l	1.0	27	4.1	61	22	1.5	26	3.3	< 1.0
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	9.1	1.4	25	5.9	1.3	9.3	< 1.0	10
Zinc (Dissolved)	U	1450	µg/l	1.0	< 1.0	2.4	19	< 1.0	1.9	< 1.0	< 1.0	< 1.0
Dissolved Organic Carbon	U	1610	mg/l	2.0	100	20	31	70	13	110	23	45
Aliphatic TPH >C5-C6	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10				< 0.10
Aliphatic TPH >C6-C8	N	1675	µg/l	0.10	12	< 0.10	< 0.10	< 0.10				23
Aliphatic TPH >C8-C10	N	1675	µg/l	0.10	17	< 0.10	< 0.10	< 0.10				< 0.10
Aliphatic TPH >C10-C12	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10				< 0.10
Aliphatic TPH >C12-C16	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10				< 0.10
Aliphatic TPH >C16-C21	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10				< 0.10
Aliphatic TPH >C21-C35	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10				< 0.10
Aliphatic TPH >C35-C44	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10				< 0.10
Total Aliphatic Hydrocarbons	N	1675	µg/l	5.0	29	< 5.0	< 5.0	< 5.0				23
Aromatic TPH >C5-C7	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10				280
Aromatic TPH >C7-C8	N	1675	µg/l	0.10	960	< 0.10	1.7	1.4				33
Aromatic TPH >C8-C10	N	1675	µg/l	0.10	140	< 0.10	< 0.10	8.4				74
Aromatic TPH >C10-C12	N	1675	µg/l	0.10	60	< 0.10	< 0.10	< 0.10				160
Aromatic TPH >C12-C16	N	1675	µg/l	0.10	34	< 0.10	< 0.10	< 0.10				25
Aromatic TPH >C16-C21	N	1675	µg/l	0.10	23	< 0.10	< 0.10	< 0.10				< 0.10
Aromatic TPH >C21-C35	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10				< 0.10
Aromatic TPH >C35-C44	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10				< 0.10
Total Aromatic Hydrocarbons	N	1675	µg/l	5.0	1200	< 5.0	< 5.0	9.8				570
Total Petroleum Hydrocarbons	N	1675	µg/l	10	1200	< 10	< 10	< 10				600

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Results - Water

Project: 16-0486/C6669A - City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-19349	16-19349	16-19349	16-19349	16-19349	16-19349	16-19349	16-19349
Quotation No.:			**Chemtest Sample ID.:**		336821	336822	336823	336824	336826	336827	336828	336829
Order No.:			Client Sample Ref.:		BH04	BH05	BH06	BH07	BH103	BH107	BH122	BH206
			Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
			Date Sampled:		09-Aug-2016	09-Aug-2016	09-Aug-2016	09-Aug-2016	09-Aug-2016	09-Aug-2016	10-Aug-2016	09-Aug-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
Naphthalene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	1700	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Dichlorodifluoromethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0
Chloromethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0
Vinyl Chloride	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0
Bromomethane	U	1760	µg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0			< 5.0	< 5.0
Chloroethane	U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0			< 2.0	< 2.0
Trichlorofluoromethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0
1,1-Dichloroethene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0
Trans 1,2-Dichloroethene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0
1,1-Dichloroethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0
cis 1,2-Dichloroethene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0
Bromochloromethane	U	1760	µg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0			< 5.0	< 5.0
Trichloromethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0
1,1,1-Trichloroethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0
Tetrachloromethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0
1,1-Dichloropropene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0
Benzene	U	1760	µg/l	1.0	1.4	< 1.0	2.8	4.0			< 1.0	460
1,2-Dichloroethane	U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0			< 2.0	< 2.0
Trichloroethene	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0
1,2-Dichloropropane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0
Dibromomethane	U	1760	µg/l	10	< 10	< 10	< 10	< 10			< 10	< 10
Bromodichloromethane	U	1760	µg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0			< 5.0	< 5.0
cis-1,3-Dichloropropene	N	1760	µg/l	10	< 10	< 10	< 10	< 10			< 10	< 10
Toluene	U	1760	µg/l	1.0	530	< 1.0	5.3	2.6			< 1.0	63

Chemtest
The right chemistry to deliver results

Results - Water

Project: 16-0486/C6669A - City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-19349	16-19349	16-19349	16-19349	16-19349	16-19349	16-19349	16-19349
Quotation No.:			**Chemtest Sample ID.:**		336821	336822	336823	336824	336826	336827	336828	336829
Order No.:			Client Sample Ref.:		BH04	BH05	BH06	BH07	BH103	BH107	BH122	BH206
			Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
			Date Sampled:		09-Aug-2016	09-Aug-2016	09-Aug-2016	09-Aug-2016	09-Aug-2016	09-Aug-2016	10-Aug-2016	09-Aug-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
Trans-1,3-Dichloropropene	N	1760	µg/l	10	< 10	< 10	< 10	< 10			< 10	< 10
1,1,2-Trichloroethane	U	1760	µg/l	10	< 10	< 10	< 10	< 10			< 10	< 10
Tetrachloroethene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0
1,3-Dichloropropane	U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0			< 2.0	< 2.0
Dibromochloromethane	U	1760	µg/l	10	< 10	< 10	< 10	< 10			< 10	< 10
1,2-Dibromoethane	U	1760	µg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0			< 5.0	< 5.0
Chlorobenzene	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0			< 2.0	< 2.0
Ethy benzene	U	1760	µg/l	1.0	12	< 1.0	< 1.0	1.5			< 1.0	53
m & p-Xylene	U	1760	µg/l	1.0	1.8	< 1.0	< 1.0	3.2			< 1.0	3.6
o-Xylene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	1.9			< 1.0	2.5
Styrene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	35
Tribromomethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0
Isopropylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0
Bromobenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0
1,2,3-Trichloropropane	N	1760	µg/l	50	< 50	< 50	< 50	< 50			< 50	< 50
N-Propylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	1.2
2-Chlorotoluene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0
1,3,5-Trimethylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	1.1
4-Chlorotoluene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0
Tert-Butylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0
1,2,4-Trimethylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	9.0
Sec-Butylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0
1,3-Dichlorobenzene	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0
4-Isopropyltoluene	U	1760	µg/l	1.0	1.8	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0
1,4-Dichlorobenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0
N-Butylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0
1,2-Dichlorobenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0
1,2-Dibromo-3-Chloropropane	U	1760	µg/l	50	< 50	< 50	< 50	< 50			< 50	< 50
1,2,4-Trichlorobenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0
Hexachlorobutadiene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0
1,2,3-Trichlorobenzene	U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0			< 2.0	< 2.0
Methyl Tert-Butyl Ether	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			< 1.0	< 1.0
Total Phenols	U	1920	mg/l	0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030

Chemtest
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Results - Water

Project: 16-0486/C6669A - City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-19349	16-19349	16-19349	16-19349	16-19349	16-19349	16-19349	16-19349
Quotation No.:			**Chemtest Sample ID.:**		336830	336831	336832	336833	336834	336835	336836	336837
Order No.:			Client Sample Ref.:		BH207	BH208	BH209	BH214	BH220	Pond 1	Pond 5	Pond 101
			Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
			Date Sampled:		09-Aug-2016	10-Aug-2016	10-Aug-2016	10-Aug-2016	09-Aug-2016	10-Aug-2016	10-Aug-2016	09-Aug-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
pH	U	1010		N/A	7.2	7.0	6.8	7.1	6.9	8.1	7.9	8.1
Alkalinity (Total)	U	1220	mg CaCO3/l	10	3000	2300	1800	7900	1200	96	210	120
Chloride	U	1220	mg/l	1.0	460	57	220	1500	81	15	38	5.9
Ammonia (Free)	U	1220	mg/l	0.010	3.8	1.2	0.28	9.1	0.34	0.026	0.33	0.019
Nitrite	U	1220	mg/l	0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	0.042	< 0.020	< 0.020
Nitrate	U	1220	mg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	1.1	< 0.50	< 0.50
Sulphate	U	1220	mg/l	1.0	4.6	10	< 1.0	91	87	24	34	17
Sulphide	U	1325	mg/l	0.050	1.4	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Arsenic (Dissolved)	U	1450	µg/l	1.0	5.1	4.6	6.9	12	3.5	< 1.0	2.3	< 1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	22	16	18	29	14	1.5	1.7	< 1.0
Copper (Dissolved)	U	1450	µg/l	1.0	4.9	< 1.0	1.9	9.0	4.7	2.9	< 1.0	1.2
Iron (Dissolved)	N	1480	µg/l	20	3700	15000	28000	50000	4400	210	340	190
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50	0.70	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Manganese (Dissolved)	U	1450	µg/l	1.0	1400	2200	4200	4100	4000	69	610	12
Nickel (Dissolved)	U	1450	µg/l	1.0	70	50	< 1.0	76	12	2.8	11	< 1.0
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	11	6.1	13	13	3.4	< 1.0	1.4	< 1.0
Zinc (Dissolved)	U	1450	µg/l	1.0	2.3	2.9	< 1.0	2.9	1.4	1.6	< 1.0	< 1.0
Dissolved Organic Carbon	U	1610	mg/l	2.0	110	100	79	430	290	64	22	42
Aliphatic TPH >C5-C6	N	1675	µg/l	0.10	< 0.10			< 0.10				< 0.10
Aliphatic TPH >C6-C8	N	1675	µg/l	0.10	21			19				< 0.10
Aliphatic TPH >C8-C10	N	1675	µg/l	0.10	3.9			< 0.10				< 0.10
Aliphatic TPH >C10-C12	N	1675	µg/l	0.10	< 0.10			7.0				< 0.10
Aliphatic TPH >C12-C16	N	1675	µg/l	0.10	< 0.10			8.9				< 0.10
Aliphatic TPH >C16-C21	N	1675	µg/l	0.10	< 0.10			< 0.10				< 0.10
Aliphatic TPH >C21-C35	N	1675	µg/l	0.10	180			< 0.10				< 0.10
Aliphatic TPH >C35-C44	N	1675	µg/l	0.10	< 0.10			< 0.10				< 0.10
Total Aliphatic Hydrocarbons	N	1675	µg/l	5.0	200			35				< 5.0
Aromatic TPH >C5-C7	N	1675	µg/l	0.10	< 0.10			< 0.10				< 0.10
Aromatic TPH >C7-C8	N	1675	µg/l	0.10	< 0.10			58				< 0.10
Aromatic TPH >C8-C10	N	1675	µg/l	0.10	160			290				< 0.10
Aromatic TPH >C10-C12	N	1675	µg/l	0.10	160			600				< 0.10
Aromatic TPH >C12-C16	N	1675	µg/l	0.10	140			400				< 0.10
Aromatic TPH >C16-C21	N	1675	µg/l	0.10	49			210				< 0.10
Aromatic TPH >C21-C35	N	1675	µg/l	0.10	11			< 0.10				< 0.10
Aromatic TPH >C35-C44	N	1675	µg/l	0.10	< 0.10			< 0.10				< 0.10
Total Aromatic Hydrocarbons	N	1675	µg/l	5.0	510			1600				< 5.0
Total Petroleum Hydrocarbons	N	1675	µg/l	10	720			1600				< 10

Chemtest
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Results - Water

Project: 16-0486/C6669A - City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-19349	16-19349	16-19349	16-19349	16-19349	16-19349	16-19349	16-19349
Quotation No.:			**Chemtest Sample ID.:**		336830	336831	336832	336833	336834	336835	336836	336837
Order No.:			Client Sample Ref.:		BH207	BH208	BH209	BH214	BH220	Pond 1	Pond 5	Pond 101
			Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
			Date Sampled:		09-Aug-2016	10-Aug-2016	10-Aug-2016	10-Aug-2016	09-Aug-2016	10-Aug-2016	10-Aug-2016	09-Aug-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
Naphthalene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	1700	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Dichlorodifluoromethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0				< 1.0
Chloromethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0				< 1.0
Vinyl Chloride	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0				< 1.0
Bromomethane	U	1760	µg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0				< 5.0
Chloroethane	U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0	6.3				< 2.0
Trichlorofluoromethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0				< 1.0
1,1-Dichloroethene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0				< 1.0
Trans 1,2-Dichloroethene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0				< 1.0
1,1-Dichloroethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0				< 1.0
cis 1,2-Dichloroethene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0				< 1.0
Bromochloromethane	U	1760	µg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0				< 5.0
Trichloromethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0				< 1.0
1,1,1-Trichloroethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0				< 1.0
Tetrachloromethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0				< 1.0
1,1-Dichloropropene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0				< 1.0
Benzene	U	1760	µg/l	1.0	5.3	3.7	< 1.0	6.0				< 1.0
1,2-Dichloroethane	U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0				< 2.0
Trichloroethene	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0				< 1.0
1,2-Dichloropropane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0				< 1.0
Dibromomethane	U	1760	µg/l	10	< 10	< 10	< 10	< 10				< 10
Bromodichloromethane	U	1760	µg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0				< 5.0
cis-1,3-Dichloropropene	N	1760	µg/l	10	< 10	< 10	< 10	< 10				< 10
Toluene	U	1760	µg/l	1.0	3.4	2.0	< 1.0	27				< 1.0

Chemtest
The right chemistry to deliver results

Results - Water

Project: 16-0486/C6669A - City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-19349	16-19349	16-19349	16-19349	16-19349	16-19349	16-19349	16-19349
Quotation No.:			**Chemtest Sample ID.:**		336830	336831	336832	336833	336834	336835	336836	336837
Order No.:			Client Sample Ref.:		BH207	BH208	BH209	BH214	BH220	Pond 1	Pond 5	Pond 101
			Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
			Date Sampled:		09-Aug-2016	10-Aug-2016	10-Aug-2016	10-Aug-2016	09-Aug-2016	10-Aug-2016	10-Aug-2016	09-Aug-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
Trans-1,3-Dichloropropene	N	1760	µg/l	10	< 10	< 10	< 10	< 10				< 10
1,1,2-Trichloroethane	U	1760	µg/l	10	< 10	< 10	< 10	< 10				< 10
Tetrachloroethene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0				< 1.0
1,3-Dichloropropane	U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0				< 2.0
Dibromochloromethane	U	1760	µg/l	10	< 10	< 10	< 10	< 10				< 10
1,2-Dibromoethane	U	1760	µg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0				< 5.0
Chlorobenzene	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0				< 1.0
1,1,1,2-Tetrachloroethane	U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0				< 2.0
Ethy benzene	U	1760	µg/l	1.0	28	9.7	< 1.0	20				< 1.0
m & p-Xylene	U	1760	µg/l	1.0	40	17	< 1.0	22				< 1.0
o-Xylene	U	1760	µg/l	1.0	15	10	< 1.0	9.9				< 1.0
Styrene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0				< 1.0
Tribromomethane	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0				< 1.0
Isopropylbenzene	U	1760	µg/l	1.0	1.1	< 1.0	< 1.0	< 1.0				< 1.0
Bromobenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0				< 1.0
1,2,3-Trichloropropane	N	1760	µg/l	50	< 50	< 50	< 50	< 50				< 50
N-Propylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0				< 1.0
2-Chlorotoluene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0				< 1.0
1,3,5-Trimethylbenzene	U	1760	µg/l	1.0	1.8	1.1	< 1.0	1.1				< 1.0
4-Chlorotoluene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0				< 1.0
Tert-Butylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0				< 1.0
1,2,4-Trimethylbenzene	U	1760	µg/l	1.0	8.0	5.5	< 1.0	6.9				< 1.0
Sec-Butylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0				< 1.0
1,3-Dichlorobenzene	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0				< 1.0
4-Isopropyltoluene	U	1760	µg/l	1.0	2.9	12	< 1.0	14				< 1.0
1,4-Dichlorobenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0				< 1.0
N-Butylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0				< 1.0
1,2-Dichlorobenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0				< 1.0
1,2-Dibromo-3-Chloropropane	U	1760	µg/l	50	< 50	< 50	< 50	< 50				< 50
1,2,4-Trichlorobenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0				< 1.0
Hexachlorobutadiene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0				< 1.0
1,2,3-Trichlorobenzene	U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0				< 2.0
Methyl Tert-Butyl Ether	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	5.7				< 1.0
Total Phenols	U	1920	mg/l	0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030

Chemtest
The right chemistry to deliver results

Results - Water

Project: 16-0486/C6669A - City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-19349	16-19349	16-19349	16-19349	16-19349	16-19349	16-19349	16-19349
Quotation No.:			**Chemtest Sample ID.:**		336838	336839	336840	336841	336842	336843	336844	336845
Order No.:			Client Sample Ref.:		Pond 102	SW1	SW2	SW3	SW4	SW5	SW6	SW7
			Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
			Date Sampled:		09-Aug-2016	10-Aug-2016	10-Aug-2016	10-Aug-2016	10-Aug-2016	10-Aug-2016	10-Aug-2016	10-Aug-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
pH	U	1010		N/A	7.9	7.9	7.8	8.1	7.8	7.7	8.0	8.0
Alkalinity (Total)	U	1220	mg CaCO3/l	10	110	77	77	94	95	97	67	71
Chloride	U	1220	mg/l	1.0	31	28	32	28	28	28	18	18
Ammonia (Free)	U	1220	mg/l	0.010	< 0.010	< 0.010	< 0.010	0.017	< 0.010	< 0.010	0.011	0.012
Nitrite	U	1220	mg/l	0.020	0.020	0.078	0.075	0.17	0.18	0.18	0.026	< 0.020
Nitrate	U	1220	mg/l	0.50	< 0.50	30	30	21	22	22	3.5	3.5
Sulphate	U	1220	mg/l	1.0	8.8	21	21	24	24	24	8.2	8.3
Sulphide	U	1325	mg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Arsenic (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	< 1.0	11	6.6	9.1	6.6	7.2	< 1.0	2.2
Copper (Dissolved)	U	1450	µg/l	1.0	< 1.0	3.3	< 1.0	1.3	< 1.0	< 1.0	1.7	2.4
Iron (Dissolved)	N	1480	µg/l	20	79	260	120	170	120	140	870	560
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Manganese (Dissolved)	U	1450	µg/l	1.0	1.5	48	23	170	130	150	6.8	17
Nickel (Dissolved)	U	1450	µg/l	1.0	1.4	1.8	< 1.0	1.6	1.4	1.4	1.1	1.0
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	< 1.0	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (Dissolved)	U	1450	µg/l	1.0	< 1.0	1.1	< 1.0	< 1.0	< 1.0	< 1.0	2.0	< 1.0
Dissolved Organic Carbon	U	1610	mg/l	2.0	16	9.4	9.3	9.5	12	7.9	15	16
Aliphatic TPH >C5-C6	N	1675	µg/l	0.10	< 0.10							
Aliphatic TPH >C6-C8	N	1675	µg/l	0.10	< 0.10							
Aliphatic TPH >C8-C10	N	1675	µg/l	0.10	< 0.10							
Aliphatic TPH >C10-C12	N	1675	µg/l	0.10	< 0.10							
Aliphatic TPH >C12-C16	N	1675	µg/l	0.10	< 0.10							
Aliphatic TPH >C16-C21	N	1675	µg/l	0.10	< 0.10							
Aliphatic TPH >C21-C35	N	1675	µg/l	0.10	< 0.10							
Aliphatic TPH >C35-C44	N	1675	µg/l	0.10	< 0.10							
Total Aliphatic Hydrocarbons	N	1675	µg/l	5.0	< 5.0							
Aromatic TPH >C5-C7	N	1675	µg/l	0.10	< 0.10							
Aromatic TPH >C7-C8	N	1675	µg/l	0.10	< 0.10							
Aromatic TPH >C8-C10	N	1675	µg/l	0.10	< 0.10							
Aromatic TPH >C10-C12	N	1675	µg/l	0.10	< 0.10							
Aromatic TPH >C12-C16	N	1675	µg/l	0.10	< 0.10							
Aromatic TPH >C16-C21	N	1675	µg/l	0.10	< 0.10							
Aromatic TPH >C21-C35	N	1675	µg/l	0.10	< 0.10							
Aromatic TPH >C35-C44	N	1675	µg/l	0.10	< 0.10							
Total Aromatic Hydrocarbons	N	1675	µg/l	5.0	< 5.0							
Total Petroleum Hydrocarbons	N	1675	µg/l	10	< 10							

Chemtest
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Results - Water

Project: 16-0486/C6669A - City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd					**Chemtest Job No.:**	16-19349	16-19349	16-19349	16-19349	16-19349	16-19349	16-19349
Quotation No.:					**Chemtest Sample ID.:**	336838	336839	336840	336841	336842	336843	336844	336845
Order No.:					Client Sample Ref.:	Pond 102	SW1	SW2	SW3	SW4	SW5	SW6	SW7
					Sample Type:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
					Date Sampled:	09-Aug-2016	10-Aug-2016	10-Aug-2016	10-Aug-2016	10-Aug-2016	10-Aug-2016	10-Aug-2016	10-Aug-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Naphthalene	U	1700	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	1700	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	1700	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	1700	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	1700	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	1700	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	1700	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	1700	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	1700	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	1700	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	1700	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	1700	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	1700	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	1700	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	1700	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	1700	µg/l	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	1700	µg/l	2.0		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Dichlorodifluoromethane	U	1760	µg/l	1.0		< 1.0							
Chloromethane	U	1760	µg/l	1.0		< 1.0							
Vinyl Chloride	N	1760	µg/l	1.0		< 1.0							
Bromomethane	U	1760	µg/l	5.0		< 5.0							
Chloroethane	U	1760	µg/l	2.0		< 2.0							
Trichlorofluoromethane	U	1760	µg/l	1.0		< 1.0							
1,1-Dichloroethene	U	1760	µg/l	1.0		< 1.0							
Trans 1,2-Dichloroethene	U	1760	µg/l	1.0		< 1.0							
1,1-Dichloroethane	U	1760	µg/l	1.0		< 1.0							
cis 1,2-Dichloroethene	U	1760	µg/l	1.0		< 1.0							
Bromochloromethane	U	1760	µg/l	5.0		< 5.0							
Trichloromethane	U	1760	µg/l	1.0		< 1.0							
1,1,1-Trichloroethane	U	1760	µg/l	1.0		< 1.0							
Tetrachloromethane	U	1760	µg/l	1.0		< 1.0							
1,1-Dichloropropene	U	1760	µg/l	1.0		< 1.0							
Benzene	U	1760	µg/l	1.0		< 1.0							
1,2-Dichloroethane	U	1760	µg/l	2.0		< 2.0							
Trichloroethene	N	1760	µg/l	1.0		< 1.0							
1,2-Dichloropropane	U	1760	µg/l	1.0		< 1.0							
Dibromomethane	U	1760	µg/l	10		< 10							
Bromodichloromethane	U	1760	µg/l	5.0		< 5.0							
cis-1,3-Dichloropropene	N	1760	µg/l	10		< 10							
Toluene	U	1760	µg/l	1.0		< 1.0							

Chemtest
The right chemistry to deliver results

Results - Water

Project: 16-0486/C6669A - City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd					**Chemtest Job No.:**	16-19349	16-19349	16-19349	16-19349	16-19349	16-19349	16-19349
Quotation No.:					**Chemtest Sample ID.:**	336838	336839	336840	336841	336842	336843	336844	336845
Order No.:					Client Sample Ref.:	Pond 102	SW1	SW2	SW3	SW4	SW5	SW6	SW7
					Sample Type:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
					Date Sampled:	09-Aug-2016	10-Aug-2016	10-Aug-2016	10-Aug-2016	10-Aug-2016	10-Aug-2016	10-Aug-2016	10-Aug-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Trans-1,3-Dichloropropene	N	1760	µg/l	10	< 10							
1,1,2-Trichloroethane	U	1760	µg/l	10	< 10							
Tetrachloroethene	U	1760	µg/l	1.0	< 1.0							
1,3-Dichloropropane	U	1760	µg/l	2.0	< 2.0							
Dibromochloromethane	U	1760	µg/l	10	< 10							
1,2-Dibromoethane	U	1760	µg/l	5.0	< 5.0							
Chlorobenzene	N	1760	µg/l	1.0	< 1.0							
1,1,1,2-Tetrachloroethane	U	1760	µg/l	2.0	< 2.0							
Ethy benzene	U	1760	µg/l	1.0	< 1.0							
m & p-Xylene	U	1760	µg/l	1.0	< 1.0							
o-Xylene	U	1760	µg/l	1.0	< 1.0							
Styrene	U	1760	µg/l	1.0	< 1.0							
Tribromomethane	U	1760	µg/l	1.0	< 1.0							
Isopropylbenzene	U	1760	µg/l	1.0	< 1.0							
Bromobenzene	U	1760	µg/l	1.0	< 1.0							
1,2,3-Trichloropropane	N	1760	µg/l	50	< 50							
N-Propylbenzene	U	1760	µg/l	1.0	< 1.0							
2-Chlorotoluene	U	1760	µg/l	1.0	< 1.0							
1,3,5-Trimethylbenzene	U	1760	µg/l	1.0	< 1.0							
4-Chlorotoluene	U	1760	µg/l	1.0	< 1.0							
Tert-Butylbenzene	U	1760	µg/l	1.0	< 1.0							
1,2,4-Trimethylbenzene	U	1760	µg/l	1.0	< 1.0							
Sec-Butylbenzene	U	1760	µg/l	1.0	< 1.0							
1,3-Dichlorobenzene	N	1760	µg/l	1.0	< 1.0							
4-Isopropyltoluene	U	1760	µg/l	1.0	< 1.0							
1,4-Dichlorobenzene	U	1760	µg/l	1.0	< 1.0							
N-Butylbenzene	U	1760	µg/l	1.0	< 1.0							
1,2-Dichlorobenzene	U	1760	µg/l	1.0	< 1.0							
1,2-Dibromo-3-Chloropropane	U	1760	µg/l	50	< 50							
1,2,4-Trichlorobenzene	U	1760	µg/l	1.0	< 1.0							
Hexachlorobutadiene	U	1760	µg/l	1.0	< 1.0							
1,2,3-Trichlorobenzene	U	1760	µg/l	2.0	< 2.0							
Methyl Tert-Butyl Ether	N	1760	µg/l	1.0	< 1.0							
Total Phenols	U	1920	mg/l	0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030

Results - Water

Project: 16-0486/C6669A - City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-19349
Quotation No.:			**Chemtest Sample ID.:**		336846
Order No.:			Client Sample Ref.:		SW8
			Sample Type:		WATER
			Date Sampled:		10-Aug-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
pH	U	1010		N/A	8.0
Alkalinity (Total)	U	1220	mg CaCO3/l	10	69
Chloride	U	1220	mg/l	1.0	18
Ammonia (Free)	U	1220	mg/l	0.010	< 0.010
Nitrite	U	1220	mg/l	0.020	< 0.020
Nitrate	U	1220	mg/l	0.50	3.5
Sulphate	U	1220	mg/l	1.0	8.3
Sulphide	U	1325	mg/l	0.050	< 0.050
Arsenic (Dissolved)	U	1450	µg/l	1.0	< 1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	4.1
Copper (Dissolved)	U	1450	µg/l	1.0	1.4
Iron (Dissolved)	N	1480	µg/l	20	610
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50
Manganese (Dissolved)	U	1450	µg/l	1.0	14
Nickel (Dissolved)	U	1450	µg/l	1.0	1.1
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	< 1.0
Zinc (Dissolved)	U	1450	µg/l	1.0	3.8
Dissolved Organic Carbon	U	1610	mg/l	2.0	16
Aliphatic TPH >C5-C6	N	1675	µg/l	0.10	
Aliphatic TPH >C6-C8	N	1675	µg/l	0.10	
Aliphatic TPH >C8-C10	N	1675	µg/l	0.10	
Aliphatic TPH >C10-C12	N	1675	µg/l	0.10	
Aliphatic TPH >C12-C16	N	1675	µg/l	0.10	
Aliphatic TPH >C16-C21	N	1675	µg/l	0.10	
Aliphatic TPH >C21-C35	N	1675	µg/l	0.10	
Aliphatic TPH >C35-C44	N	1675	µg/l	0.10	
Total Aliphatic Hydrocarbons	N	1675	µg/l	5.0	
Aromatic TPH >C5-C7	N	1675	µg/l	0.10	
Aromatic TPH >C7-C8	N	1675	µg/l	0.10	
Aromatic TPH >C8-C10	N	1675	µg/l	0.10	
Aromatic TPH >C10-C12	N	1675	µg/l	0.10	
Aromatic TPH >C12-C16	N	1675	µg/l	0.10	
Aromatic TPH >C16-C21	N	1675	µg/l	0.10	
Aromatic TPH >C21-C35	N	1675	µg/l	0.10	
Aromatic TPH >C35-C44	N	1675	µg/l	0.10	
Total Aromatic Hydrocarbons	N	1675	µg/l	5.0	
Total Petroleum Hydrocarbons	N	1675	µg/l	10	

Results - Water

Project: 16-0486/C6669A - City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-19349
Quotation No.:			**Chemtest Sample ID.:**		336846
Order No.:			Client Sample Ref.:		SW8
			Sample Type:		WATER
			Date Sampled:		10-Aug-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
Naphthalene	U	1700	µg/l	0.10	< 0.10
Acenaphthylene	U	1700	µg/l	0.10	< 0.10
Acenaphthene	U	1700	µg/l	0.10	< 0.10
Fluorene	U	1700	µg/l	0.10	< 0.10
Phenanthrene	U	1700	µg/l	0.10	< 0.10
Anthracene	U	1700	µg/l	0.10	< 0.10
Fluoranthene	U	1700	µg/l	0.10	< 0.10
Pyrene	U	1700	µg/l	0.10	< 0.10
Benzo[a]anthracene	U	1700	µg/l	0.10	< 0.10
Chrysene	U	1700	µg/l	0.10	< 0.10
Benzo[b]fluoranthene	U	1700	µg/l	0.10	< 0.10
Benzo[k]fluoranthene	U	1700	µg/l	0.10	< 0.10
Benzo[a]pyrene	U	1700	µg/l	0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	1700	µg/l	0.10	< 0.10
Dibenz(a,h)Anthracene	U	1700	µg/l	0.10	< 0.10
Benzo[g,h,i]perylene	U	1700	µg/l	0.10	< 0.10
Total Of 16 PAH's	U	1700	µg/l	2.0	< 2.0
Dichlorodifluoromethane	U	1760	µg/l	1.0	
Chloromethane	U	1760	µg/l	1.0	
Vinyl Chloride	N	1760	µg/l	1.0	
Bromomethane	U	1760	µg/l	5.0	
Chloroethane	U	1760	µg/l	2.0	
Trichlorofluoromethane	U	1760	µg/l	1.0	
1,1-Dichloroethene	U	1760	µg/l	1.0	
Trans 1,2-Dichloroethene	U	1760	µg/l	1.0	
1,1-Dichloroethane	U	1760	µg/l	1.0	
cis 1,2-Dichloroethene	U	1760	µg/l	1.0	
Bromochloromethane	U	1760	µg/l	5.0	
Trichloromethane	U	1760	µg/l	1.0	
1,1,1-Trichloroethane	U	1760	µg/l	1.0	
Tetrachloromethane	U	1760	µg/l	1.0	
1,1-Dichloropropene	U	1760	µg/l	1.0	
Benzene	U	1760	µg/l	1.0	
1,2-Dichloroethane	U	1760	µg/l	2.0	
Trichloroethene	N	1760	µg/l	1.0	
1,2-Dichloropropane	U	1760	µg/l	1.0	
Dibromomethane	U	1760	µg/l	10	
Bromodichloromethane	U	1760	µg/l	5.0	
cis-1,3-Dichloropropene	N	1760	µg/l	10	
Toluene	U	1760	µg/l	1.0	

Results - Water

Project: 16-0486/C6669A - City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-19349
Quotation No.:			**Chemtest Sample ID.:**		336846
Order No.:			Client Sample Ref.:		SW8
			Sample Type:		WATER
			Date Sampled:		10-Aug-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
Trans-1,3-Dichloropropene	N	1760	µg/l	10	
1,1,2-Trichloroethane	U	1760	µg/l	10	
Tetrachloroethene	U	1760	µg/l	1.0	
1,3-Dichloropropane	U	1760	µg/l	2.0	
Dibromochloromethane	U	1760	µg/l	10	
1,2-Dibromoethane	U	1760	µg/l	5.0	
Chlorobenzene	N	1760	µg/l	1.0	
1,1,1,2-Tetrachloroethane	U	1760	µg/l	2.0	
Ethy benzene	U	1760	µg/l	1.0	
m & p-Xylene	U	1760	µg/l	1.0	
o-Xylene	U	1760	µg/l	1.0	
Styrene	U	1760	µg/l	1.0	
Tribromomethane	U	1760	µg/l	1.0	
Isopropylbenzene	U	1760	µg/l	1.0	
Bromobenzene	U	1760	µg/l	1.0	
1,2,3-Trichloropropane	N	1760	µg/l	50	
N-Propylbenzene	U	1760	µg/l	1.0	
2-Chlorotoluene	U	1760	µg/l	1.0	
1,3,5-Trimethylbenzene	U	1760	µg/l	1.0	
4-Chlorotoluene	U	1760	µg/l	1.0	
Tert-Butylbenzene	U	1760	µg/l	1.0	
1,2,4-Trimethylbenzene	U	1760	µg/l	1.0	
Sec-Butylbenzene	U	1760	µg/l	1.0	
1,3-Dichlorobenzene	N	1760	µg/l	1.0	
4-Isopropyltoluene	U	1760	µg/l	1.0	
1,4-Dichlorobenzene	U	1760	µg/l	1.0	
N-Butylbenzene	U	1760	µg/l	1.0	
1,2-Dichlorobenzene	U	1760	µg/l	1.0	
1,2-Dibromo-3-Chloropropane	U	1760	µg/l	50	
1,2,4-Trichlorobenzene	U	1760	µg/l	1.0	
Hexachlorobutadiene	U	1760	µg/l	1.0	
1,2,3-Trichlorobenzene	U	1760	µg/l	2.0	
Methyl Tert-Butyl Ether	N	1760	µg/l	1.0	
Total Phenols	U	1920	mg/l	0.030	< 0.030

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Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis
The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols
For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at our Coventry laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.co.uk

Chemtest
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Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.co.uk

UKAS TESTING
2183

Final Report

Report No.: 16-23542-1

Initial Date of Issue: 06-Oct-2016

Client Causeway Geotech Ltd

Client Address: 8 Drumahiskey Road
Balnamore
Ballymoney
County Antrim
BT53 7QL

Contact(s): [redacted]

Project 16-0486 C6669A City Waste Site, Mobouy Road, Derry

Quotation No.:

Order No.:

Date Received: 30-Sep-2016

Date Instructed: 30-Sep-2016

No. of Samples: 17

Turnaround (Wkdays): 5

Results Due: 06-Oct-2016

Date Approved: 06-Oct-2016

Approved By:

[redacted]

Details: [redacted] Laboratory Manager

Results - Water

Project: 16-0486 C6669A City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-23542	16-23542	16-23542	16-23542	16-23542	16-23542	16-23542	16-23542	16-23542
Quotation No.:			**Chemtest Sample ID.:**		358505	358506	358507	358508	358509	358510	358511	358512	358513
			Client Sample Ref.:		SW01	SW02	SW03	SW04	SW05	SW06	SW07	SW08	BH02
			Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
			Date Sampled:		27-Sep-2016	27-Sep-2016	27-Sep-2016	27-Sep-2016	27-Sep-2016	27-Sep-2016	27-Sep-2016	27-Sep-2016	27-Sep-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
pH	U	1010		N/A	7.4	7.3	7.2	7.2	7.1	7.9	7.8	7.8	6.9
Alkalinity (Total)	U	1220	mg CaCO3/l	10	100	99	120	130	120	83	89	84	960
Chloride	U	1220	mg/l	1.0	28	28	31	30	30	20	20	20	170
Ammonia (Free)	U	1220	mg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.020	0.026	0.041	0.093
Nitrite	U	1220	mg/l	0.020	0.10	0.11	0.20	0.20	0.20	0.031	0.029	0.027	< 0.020
Nitrate	U	1220	mg/l	0.50	20	20	21	20	20	3.6	3.6	3.5	< 0.50
Sulphate	U	1220	mg/l	1.0	22	21	26	25	25	9.7	9.8	9.7	< 1.0
Sulphide	U	1325	mg/l	0.050	[B] < 0.050	[B] < 0.050	[B] < 0.050	[B] < 0.050	[B] < 0.050	[B] < 0.050	[B] < 0.050	[B] < 0.050	[B] < 0.050
Arsenic (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	9.7
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	4.2	3.2	5.7	2.9
Copper (Dissolved)	U	1450	µg/l	1.0	2.8	2.7	1.1	1.5	1.4	< 1.0	< 1.0	1.2	1.1
Iron (Dissolved)	N	1450	µg/l	20	59	59	96	120	120	720	690	880	14000
Mercury (Dissolved)	U	1450	µg/l	0.50	0.65	0.89	1.1	1.2	1.1	1.0	0.85	0.88	0.60
Manganese (Dissolved)	U	1450	µg/l	1.0	37	36	230	270	250	33	28	39	12000
Nickel (Dissolved)	U	1450	µg/l	1.0	1.2	1.3	1.5	1.6	1.5	1.5	1.6	1.9	22
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	< 1.0	1.1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	5.3
Zinc (Dissolved)	U	1450	µg/l	1.0	18	14	2.5	3.2	2.4	1.4	1.5	2.1	1.0
Dissolved Organic Carbon	U	1610	mg/l	2.0	6.1	8.1	8.5	7.7	12	14	13	14	44
Aliphatic TPH >C5-C6	N	1675	µg/l	0.10									< 0.10
Aliphatic TPH >C6-C8	N	1675	µg/l	0.10									< 0.10
Aliphatic TPH >C8-C10	N	1675	µg/l	0.10									< 0.10
Aliphatic TPH >C10-C12	N	1675	µg/l	0.10									< 0.10
Aliphatic TPH >C12-C16	N	1675	µg/l	0.10									< 0.10
Aliphatic TPH >C16-C21	N	1675	µg/l	0.10									< 0.10
Aliphatic TPH >C21-C35	N	1675	µg/l	0.10									< 0.10
Aliphatic TPH >C35-C44	N	1675	µg/l	0.10									< 0.10
Total Aliphatic Hydrocarbons	N	1675	µg/l	5.0									< 5.0
Aromatic TPH >C5-C7	N	1675	µg/l	0.10									< 0.10
Aromatic TPH >C7-C8	N	1675	µg/l	0.10									< 0.10
Aromatic TPH >C8-C10	N	1675	µg/l	0.10									< 0.10
Aromatic TPH >C10-C12	N	1675	µg/l	0.10									< 0.10
Aromatic TPH >C12-C16	N	1675	µg/l	0.10									< 0.10
Aromatic TPH >C16-C21	N	1675	µg/l	0.10									< 0.10
Aromatic TPH >C21-C35	N	1675	µg/l	0.10									< 0.10
Aromatic TPH >C35-C44	N	1675	µg/l	0.10									< 0.10
Total Aromatic Hydrocarbons	N	1675	µg/l	5.0									< 5.0
Total Petroleum Hydrocarbons	N	1675	µg/l	10									< 10

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Results - Water

Project: 16-0486 C6669A City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-23542	16-23542	16-23542	16-23542	16-23542	16-23542	16-23542	16-23542	16-23542
Quotation No.:			**Chemtest Sample ID.:**		358505	358506	358507	358508	358509	358510	358511	358512	358513
			Client Sample Ref.:		SW01	SW02	SW03	SW04	SW05	SW06	SW07	SW08	BH02
			Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
			Date Sampled:		27-Sep-2016	27-Sep-2016	27-Sep-2016	27-Sep-2016	27-Sep-2016	27-Sep-2016	27-Sep-2016	27-Sep-2016	27-Sep-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Naphthalene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	1700	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Benzene	U	1760	µg/l	1.0									< 1.0
Toluene	U	1760	µg/l	1.0									< 1.0
Ethy benzene	U	1760	µg/l	1.0									< 1.0
m & p-Xylene	U	1760	µg/l	1.0									< 1.0
o-Xylene	U	1760	µg/l	1.0									< 1.0
Resorcinol	U	1920	mg/l	0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Phenol	U	1920	mg/l	0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Cresols	U	1920	mg/l	0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Xylenols	U	1920	mg/l	0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
1-Naphthol	N	1920	mg/l	0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Trimethylphenols	U	1920	mg/l	0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Total Phenols	U	1920	mg/l	0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030

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Results - Water

Project: 16-0486 C6669A City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-23542	16-23542	16-23542	16-23542	16-23542	16-23542	16-23542	16-23542
Quotation No.:			**Chemtest Sample ID.:**		358514	358515	358516	358517	358518	358519	358520	358521
			Client Sample Ref.:		BH04	BH06	BH07	BH102	BH106	BH107	BH206	Piezo03
			Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
			Date Sampled:		27-Sep-2016	27-Sep-2016	27-Sep-2016	27-Sep-2016	27-Sep-2016	27-Sep-2016	27-Sep-2016	27-Sep-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
pH	U	1010		N/A	6.9	5.8	7.2	7.2	6.7	7.1	6.8	8.0
Alkalinity (Total)	U	1220	mg CaCO3/l	10	1700	130	220	110	190	1600	520	110
Chloride	U	1220	mg/l	1.0	400	1000	38	21	51	370	2000	46
Ammonia (Free)	U	1220	mg/l	0.010	0.87	< 0.010	0.014	0.014	0.010	1.1	0.055	0.085
Nitrite	U	1220	mg/l	0.020	< 0.020	< 0.020	< 0.020	< 0.020	0.021	0.023	< 0.020	0.029
Nitrate	U	1220	mg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	3.4
Sulphate	U	1220	mg/l	1.0	< 1.0	14	99	50	3.4	< 1.0	< 1.0	9.8
Sulphide	U	1325	mg/l	0.050	[B] < 0.050	[B] < 0.050	[B] < 0.050	[B] < 0.050	[B] < 0.050	[B] < 0.050	[B] < 0.050	[B] < 0.050
Arsenic (Dissolved)	U	1450	µg/l	1.0	9.3	1.4	< 1.0	< 1.0	< 1.0	14	7.2	1.1
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080	3.7	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	2.3	< 1.0	< 1.0	< 1.0	1.3	5.4	12	11
Copper (Dissolved)	U	1450	µg/l	1.0	2.1	1.8	< 1.0	< 1.0	< 1.0	2.3	7.8	4.1
Iron (Dissolved)	N	1450	µg/l	20	1300	8600	270	82	21000	5000	15000	990
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50	< 0.50	< 0.50	1.2	< 0.50	< 0.50	< 0.50	< 0.50
Manganese (Dissolved)	U	1450	µg/l	1.0	11000	100000	2400	6000	9500	11000	17000	240
Nickel (Dissolved)	U	1450	µg/l	1.0	34	67	1.7	< 1.0	8.0	32	13	2.1
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	6.9	16	1.0	< 1.0	2.0	6.9	10	< 1.0
Zinc (Dissolved)	U	1450	µg/l	1.0	1.7	28	2.0	< 1.0	< 1.0	2.4	2.1	1.6
Dissolved Organic Carbon	U	1610	mg/l	2.0	93	41	14	11	11	77	54	17
Aliphatic TPH >C5-C6	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C6-C8	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C8-C10	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C10-C12	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C12-C16	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C16-C21	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C21-C35	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C35-C44	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10
Total Aliphatic Hydrocarbons	N	1675	µg/l	5.0	< 5.0	< 5.0	< 5.0		< 5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	1675	µg/l	0.10	8.0	9.8	< 0.10		34	3.2	460	< 0.10
Aromatic TPH >C7-C8	N	1675	µg/l	0.10	1000	4.3	< 0.10		15	290	66	< 0.10
Aromatic TPH >C8-C10	N	1675	µg/l	0.10	88	< 0.10	< 0.10		< 0.10	27	110	< 0.10
Aromatic TPH >C10-C12	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C12-C16	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C16-C21	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C21-C35	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C35-C44	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10
Total Aromatic Hydrocarbons	N	1675	µg/l	5.0	1100	14	< 5.0		50	320	630	< 5.0
Total Petroleum Hydrocarbons	N	1675	µg/l	10	1100	14	< 10		49	320	630	< 10

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Results - Water

Project: 16-0486 C6669A City Waste Site, Mobouy Road, Derry

Client: Causeway Geotech Ltd			**Chemtest Job No.:**		16-23542	16-23542	16-23542	16-23542	16-23542	16-23542	16-23542	16-23542
Quotation No.:			**Chemtest Sample ID.:**		358514	358515	358516	358517	358518	358519	358520	358521
			Client Sample Ref.:		BH04	BH06	BH07	BH102	BH106	BH107	BH206	Piezo03
			Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
			Date Sampled:		27-Sep-2016	27-Sep-2016	27-Sep-2016	27-Sep-2016	27-Sep-2016	27-Sep-2016	27-Sep-2016	27-Sep-2016
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
Naphthalene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	1700	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Benzene	U	1760	µg/l	1.0	12	15	< 1.0		39	1.6	550	< 1.0
Toluene	U	1760	µg/l	1.0	840	4.5	< 1.0		13	720	66	< 1.0
Ethy benzene	U	1760	µg/l	1.0	13	< 1.0	< 1.0		< 1.0	11	100	< 1.0
m & p-Xylene	U	1760	µg/l	1.0	2.2	< 1.0	< 1.0		< 1.0	1.8	7.1	< 1.0
o-Xylene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0		< 1.0	< 1.0	5.2	< 1.0
Resorcinol	U	1920	mg/l	0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Phenol	U	1920	mg/l	0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Cresols	U	1920	mg/l	0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.040	0.030	0.010
Xylenols	U	1920	mg/l	0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
1-Naphthol	N	1920	mg/l	0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Trimethylphenols	U	1920	mg/l	0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.010	0.030	< 0.0050
Total Phenols	U	1920	mg/l	0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	0.050	0.060	< 0.030

Chemtest
The right chemistry to deliver results

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request.The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample ID:	Sample Location ID:	Sample Ref:	Sampled Date:	Deviation Code(s):	Containers Received:
358505		SW01	27-Sep-2016	B	Coloured Winchester 1000ml
358505		SW01	27-Sep-2016	B	EPA Vial 40ml
358506		SW02	27-Sep-2016	B	Coloured Winchester 1000ml
358506		SW02	27-Sep-2016	B	EPA Vial 40ml
358507		SW03	27-Sep-2016	B	Coloured Winchester 1000ml
358507		SW03	27-Sep-2016	B	EPA Vial 40ml
358508		SW04	27-Sep-2016	B	Coloured Winchester 1000ml
358508		SW04	27-Sep-2016	B	EPA Vial 40ml
358509		SW05	27-Sep-2016	B	Coloured Winchester 1000ml
358509		SW05	27-Sep-2016	B	EPA Vial 40ml
358510		SW06	27-Sep-2016	B	Coloured Winchester 1000ml
358510		SW06	27-Sep-2016	B	EPA Vial 40ml
358511		SW07	27-Sep-2016	B	Coloured Winchester 1000ml
358511		SW07	27-Sep-2016	B	EPA Vial 40ml
358512		SW08	27-Sep-2016	B	Coloured Winchester 1000ml
358512		SW08	27-Sep-2016	B	EPA Vial 40ml
358513		BH02	27-Sep-2016	B	Coloured Winchester 1000ml
358513		BH02	27-Sep-2016	B	EPA Vial 40ml
358514		BH04	27-Sep-2016	B	Coloured Winchester 1000ml
358514		BH04	27-Sep-2016	B	EPA Vial 40ml
358515		BH06	27-Sep-2016	B	Coloured Winchester 1000ml
358515		BH06	27-Sep-2016	B	EPA Vial 40ml
358516		BH07	27-Sep-2016	B	Coloured Winchester 1000ml
358516		BH07	27-Sep-2016	B	EPA Vial 40ml
358517		BH102	27-Sep-2016	B	Coloured Winchester 1000ml
358517		BH102	27-Sep-2016	B	EPA Vial 40ml
358518		BH106	27-Sep-2016	B	Coloured Winchester 1000ml
358518		BH106	27-Sep-2016	B	EPA Vial 40ml
358519		BH107	27-Sep-2016	B	Coloured Winchester 1000ml
358519		BH107	27-Sep-2016	B	EPA Vial 40ml
358520		BH206	27-Sep-2016	B	Coloured Winchester 1000ml

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request.The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample ID:	Sample Location ID:	Sample Ref:	Sampled Date:	Deviation Code(s):	Containers Received:
358520		BH206	27-Sep-2016	B	EPA Vial 40ml
358521		Piezo03	27-Sep-2016	B	Coloured Winchester 1000ml
358521		Piezo03	27-Sep-2016	B	EPA Vial 40ml

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis
The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols
For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at our Coventry laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.co.uk