

## Test Methods

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using Aquakem 600 Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

## 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 the indicated laboratory

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### 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.com](mailto:customerservices@chemtest.com)



## Final Report



The right chemistry to deliver results

Chemtest Ltd.

Depot Road

Newmarket

CB8 0AL

Tel: 01638 606070

Email: info@chemtest.com

Report No.: 20-08350-1  
Initial Date of Issue: 24-Mar-2020  
Client: Priority Geotechnical Ltd  
Client Address: Unit 12  
Owenacurra Business Park  
Midleton  
County Cork  
Ireland  
Contact(s): Colette Kelly  
Project: P19188 Howth  
Quotation No.: Q20-19850  
Order No.: 12451  
No. of Samples: 4  
Turnaround (Wkdays): 7  
Date Approved: 24-Mar-2020

Date Received: 16-Mar-2020

Date Instructed: 17-Mar-2020

Results Due: 25-Mar-2020

Approved By:

Details: Glynn Harvey, Technical Manager



Project: P19188 Howth  
Client: Priority Geotechnical Ltd  
Quotation No.: Q20-19850

## Results - Water

Determination	Accred.	SOP	Units	LOD	Chemtest Job No.: 20-08350			
					Chemtest Sample ID:	Client Sample ID:	Sample Location:	Date Sampled:
Chloride	U	1220	mg/l	1.0	986732	P1	4M00M14	09-Mar-2020
Sulphate	U	1220	mg/l	1.0	986732	P1	4M00M14	09-Mar-2020
Calcium	U	1415	mg/l	5.0	986732	P1	4M00M14	09-Mar-2020
Sodium	U	1415	mg/l	5.0	986732	P1	4M00M14	09-Mar-2020
Arsenic (Dissolved)	U	1450	µg/l	1.0	986732	P1	4M00M14	09-Mar-2020
Cadmium (Dissolved)	U	1450	µg/l	0.080	986732	P1	4M00M14	09-Mar-2020
Chromium (Dissolved)	U	1450	µg/l	1.0	986732	P1	4M00M14	09-Mar-2020
Copper (Dissolved)	U	1450	µg/l	1.0	986732	P1	4M00M14	09-Mar-2020
Mercury (Dissolved)	U	1450	µg/l	0.50	986732	P1	4M00M14	09-Mar-2020
Nickel (Dissolved)	U	1450	µg/l	1.0	986732	P1	4M00M14	09-Mar-2020
Lead (Dissolved)	U	1450	µg/l	1.0	986732	P1	4M00M14	09-Mar-2020
Selenium (Dissolved)	U	1450	µg/l	1.0	986732	P1	4M00M14	09-Mar-2020
Tin (Dissolved)	U	1450	µg/l	1.0	986732	P1	4M00M14	09-Mar-2020
Vanadium (Dissolved)	U	1450	µg/l	1.0	986732	P1	4M00M14	09-Mar-2020
Zinc (Dissolved)	U	1450	µg/l	1.0	986732	P1	4M00M14	09-Mar-2020
Dibutyl Tin	N	1730	µg/l	0.050	986732	P1	4M00M14	09-Mar-2020
Tributyl Tin	N	1730	µg/l	0.050	986732	P1	4M00M14	09-Mar-2020

SOP	Title	Parameters included	Method summary
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[customerservices@chemtest.com](mailto:customerservices@chemtest.com)



## Final Report

**eurofins** Chemtest  
Eurofins Chemtest Ltd  
Depot Road  
Newmarket  
CB8 0AL  
Tel: 01638 606070  
Email: info@chemtest.com

**Report No.:** 20-19234-1  
**Initial Date of Issue:** 31-Jul-2020  
**Client:** Priority Geotechnical Ltd  
**Client Address:** Unit 12  
Owenacurra Business Park  
Midleton  
County Cork  
Ireland  
**Contact(s):** Colette Kelly  
**Project:** P19188 Howth  
**Quotation No.:** Q20-19850  
**Order No.:** 12451  
**No. of Samples:** 2  
**Turnaround (Wkdays):** 7  
**Date Approved:** 31-Jul-2020

**Date Received:** 24-Jul-2020  
**Date Instructed:** 24-Jul-2020  
**Results Due:** 03-Aug-2020

**Approved By:**

**Details:** Glynn Harvey, Technical Manager

## Results - Water

Project: P19188 Howth		Chemtest Job No.: 20-19234		20-19234	
Client: Priority Geotechnical Ltd		Chemtest Sample ID.: 1037335		1037335	
Quotation No.: Q20-19850		Client Sample ID.: P7		P8	
		Sample Location: 5000M90		5000M90	
		Sample Type: WATER		WATER	
		Date Sampled: 26-Jun-2020		23-Jul-2020	
Determinand	Accred.	SOP	Units	LOD	
Chloride	U	1220	mg/l	1.0	[B] 200
Sulphate	U	1220	mg/l	1.0	[B] 23
Calcium	U	1415	mg/l	5.0	[B] 13
Sodium	U	1415	mg/l	0.50	[B] 110
Arsenic (Dissolved)	U	1450	µg/l	1.0	[B] 1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	[B] < 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0
Copper (Dissolved)	U	1450	µg/l	1.0	[B] 19
Mercury (Dissolved)	U	1450	µg/l	0.50	[B] < 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	[B] 8.9
Lead (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	[B] 4.0
Tin (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	[B] 4.6
Zinc (Dissolved)	U	1450	µg/l	1.0	[B] 4.2
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050



### 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/MCERT's accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1037335		P7	5MXM90	26-Jun-2020	B	Plastic Bottle 1000ml

### Test Methods

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

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All water samples will be retained for 14 days from the date of receipt

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## Final Report

Report No.: 20-17649-1

Initial Date of Issue: 14-Jul-2020

Client: Priority Geotechnical Ltd

Client Address: Unit 12  
Owenacurra Business Park  
Midleton  
County Cork  
Ireland

Contact(s): Colette Kelly

Project: P19188 Howth

Quotation No.: Q20-19850

Order No.: 12451

No. of Samples: 2

Turnaround (Wkdays): 7

Date Approved: 14-Jul-2020

Approved By:

Details: Glynn Harvey, Technical Manager

## Results - Water

Project: P19188 Howth

Client: Priority Geotechnical Ltd		Chemtest Job No.: 20-17649		20-17649	
Quotation No.: Q20-19850		Chemtest Sample ID.: 1029605		1029606	
		Client Sample ID.: P7		P8	
		Sample Location: 5mxm76		5mxm76	
		Sample Type: WATER		WATER	
		Date Sampled: 10-Jun-2020		08-Jul-2020	
Determinand	Accred.	SOP	Units	LOD	
Chloride	U	1220	mg/l	1.0	[B] 220 160
Sulphate	U	1220	mg/l	1.0	[B] 35 48
Calcium	U	1415	mg/l	5.0	[B] 26 45
Sodium	U	1415	mg/l	0.50	[B] 240 60
Arsenic (Dissolved)	U	1450	µg/l	1.0	[B] 2.0 1.2
Cadmium (Dissolved)	U	1450	µg/l	0.080	[B] < 0.080 < 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	[B] 5.2 3.9
Copper (Dissolved)	U	1450	µg/l	1.0	[B] 17 16
Mercury (Dissolved)	U	1450	µg/l	0.50	[B] < 0.50 < 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	[B] 9.3 8.0
Lead (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0 < 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	[B] 6.1 3.6
Tin (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0 < 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	[B] 10 8.3
Zinc (Dissolved)	U	1450	µg/l	1.0	[B] 9.2 7.3
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050 < 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050 < 0.050

## Deviations

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Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1029605		P7	5mxm76	10-Jun-2020	B	Plastic Bottle 1000ml

## Test Methods

SOP	Title	Parameters included	Method summary
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## Final Report

Report No.: 20-14336-1  
 Initial Date of Issue: 10-Jun-2020  
 Client: Priority Geotechnical Ltd  
 Client Address: Unit 12  
 Owenacurra Business Park  
 Midleton  
 County Cork  
 Ireland  
 Contact(s): Colette Kelly  
 Project: P19188 Howth  
 Quotation No.: Q20-19850  
 Order No.: 12451  
 No. of Samples: 2  
 Turnaround (Wkdays): 7  
 Date Approved: 10-Jun-2020  
 Approved By:

Details: Glynn Harvey, Technical Manager

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



Project: P19188 Howth		Chemtest Job No.: 20-14336		20-14336	
Client: Priority Geotechnical Ltd		Chemtest Sample ID.: 1013979		1013980	
Quotation No.: Q20-19850		Client Sample ID.: P5		P6	
		Sample Location: SMX060		SMX060	
		Sample Type: WATER		WATER	
		Date Sampled: 26-May-2020		05-Jun-2020	
Determinand	Accred.	SOP	Units	LOD	
Chloride	U	1220	mg/l	1.0	95
Sulphate	U	1220	mg/l	1.0	8.1
Calcium	U	1415	mg/l	5.0	10
Sodium	U	1415	mg/l	0.50	82
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	1.0
Copper (Dissolved)	U	1450	µg/l	1.0	6.9
Mercury (Dissolved)	U	1450	µg/l	0.50	0.56
Nickel (Dissolved)	U	1450	µg/l	1.0	< 1.0
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	2.1
Tin (Dissolved)	U	1450	µg/l	1.0	< 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	5.2
Zinc (Dissolved)	U	1450	µg/l	1.0	7.7
Diethyl Tin	N	1730	µg/l	0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050

## Results - Water

SOP	Title	Parameters included	Method summary
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## Final Report

**Report No.:** 20-13488-1  
**Initial Date of Issue:** 04-Jun-2020  
**Client:** Priority Geotechnical Ltd  
**Client Address:** Unit 12  
Owenacurra Business Park  
Midleton  
County Cork  
Ireland

**Contact(s):** Colette Kelly  
**Project:** P19188 Howth

**Quotation No.:** Q20-19850

**Order No.:** 12451

**No. of Samples:** 4

**Turnaround (Wkdays):** 7

**Date Approved:** 04-Jun-2020

**Approved By:**

**Details:** Glynn Harvey, Technical Manager

**Date Received:** 28-May-2020

**Date Instructed:** 29-May-2020

**Results Due:** 08-Jun-2020

## Results - Water

Determination	Accred.	Units	SOP	LOD	Chemtest Job No.:			
					Client Sample ID:	Client Sample ID:	Client Sample ID:	Client Sample ID:
Chloride	U	1220 mg/l	1.0	[B] 250	20-13488	20-13488	20-13488	20-13488
Sulphate	U	1220 mg/l	1.0	[B] 14	1010093	1010094	1010095	1010096
Calcium	U	1415 mg/l	5.0	[B] 76	P5	P6	P7	P8
Sodium	U	1415 mg/l	0.50	[B] 210	5MAM28	5MAM28	5MAM28	5MAM28
Arsenic (Dissolved)	U	1450 µg/l	1.0	[B] 1.1	WATER	WATER	WATER	WATER
Cadmium (Dissolved)	U	1450 µg/l	0.080	[B] < 0.080	01-Apr-2020	08-Apr-2020	14-Apr-2020	26-May-2020
Chromium (Dissolved)	U	1450 µg/l	1.0	[B] 1.3	WATER	WATER	WATER	WATER
Copper (Dissolved)	U	1450 µg/l	1.0	[B] < 1.0	WATER	WATER	WATER	WATER
Mercury (Dissolved)	U	1450 µg/l	0.50	[B] 2.8	WATER	WATER	WATER	WATER
Nickel (Dissolved)	U	1450 µg/l	1.0	[B] 5.0	WATER	WATER	WATER	WATER
Lead (Dissolved)	U	1450 µg/l	1.0	[B] < 1.0	WATER	WATER	WATER	WATER
Selenium (Dissolved)	U	1450 µg/l	1.0	[B] 5.7	WATER	WATER	WATER	WATER
Tin (Dissolved)	U	1450 µg/l	1.0	[B] < 1.0	WATER	WATER	WATER	WATER
Vanadium (Dissolved)	U	1450 µg/l	1.0	[B] 7.8	WATER	WATER	WATER	WATER
Zinc (Dissolved)	U	1450 µg/l	1.0	[B] 8.2	WATER	WATER	WATER	WATER
Diethyl Tin	N	1730 µg/l	0.050	< 0.050	WATER	WATER	WATER	WATER
Tributyl Tin	N	1730 µg/l	0.050	< 0.050	WATER	WATER	WATER	WATER

### 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/MCERT's accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1010093		P5	5MXM28	01-Apr-2020	B	Plastic Tub 500g
1010094		P6	5MXM28	08-Apr-2020	B	Plastic Tub 500g
1010095		P7	5MXM28	14-Apr-2020	B	Plastic Tub 500g

### Test Methods

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection



**Report Information**

**Key**

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- M MCERTS and UKAS accredited
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- 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 the indicated 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
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

**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.com](mailto:customerservices@chemtest.com)



**Final Report**

**Report No.:** 20-13483-1  
**Initial Date of Issue:** 04-Jun-2020  
**Client:** Priority Geotechnical Ltd  
**Client Address:** Unit 12  
 Owenacurra Business Park  
 Midleton  
 County Cork  
 Ireland  
**Contact(s):** Colette Kelly  
**Project:** P19188 Howth  
**Quotation No.:** Q20-19850  
**Order No.:** 12451  
**No. of Samples:** 2  
**Turnaround (Wkdays):** 7  
**Date Approved:** 04-Jun-2020

**Date Received:** 28-May-2020

**Date Instructed:** 29-May-2020

**Results Due:** 08-Jun-2020

**Approved By:**

**Details:** Glynn Harvey, Technical Manager

Chemtest Ltd.

Depot Road

Newmarket

CB8 0AL

Tel: 01638 606070

Email: [info@chemtest.com](mailto:info@chemtest.com)

Project: P19188 Howth

Client: Priority Geotechnical Ltd		Chemtest Job No.:		20-13483	20-13483
Quotation No.: Q20-19850		Chemtest Sample ID.:		1010083	1010084
		Client Sample ID.:		P5	P6
		Sample Location:		5MXM76	5MXM76
		Sample Type:		WATER	
		Date Sampled:		14-May-2020	21-May-2020
Determinand	Accred.	SOP	Units	LOD	
Chloride	U	1220	mg/l	1.0	[B] 110 140
Sulphate	U	1220	mg/l	1.0	[B] 3.3 7.8
Calcium	U	1415	mg/l	5.0	[B] 160 160
Sodium	U	1415	mg/l	0.50	[B] 130 97
Arsenic (Dissolved)	U	1450	µg/l	1.0	[B] 1.0 < 1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	[B] < 0.080 < 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	[B] 4.1 2.9
Copper (Dissolved)	U	1450	µg/l	1.0	[B] 3.9 3.3
Mercury (Dissolved)	U	1450	µg/l	0.50	[B] 0.90 < 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	[B] 3.8 5.2
Lead (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0 < 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	[B] 3.2 2.9
Tin (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0 < 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	[B] 5.0 5.7
Zinc (Dissolved)	U	1450	µg/l	1.0	[B] 4.3 7.8
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050 < 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050 < 0.050

**Deviations**

In accordance with UKAS Policy on Deviating Samples TPS 03, 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 UKASACERT's accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sample Date:	Deviation Code(s):	Containers Received:
1010083		P5	5MXM76	14-May-2020	B	Plastic Bottle 1000ml

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using Aquakem 600 Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

**Report Information**

**Key**

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- 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 the indicated 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
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

**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.com](mailto:customerservices@chemtest.com)



## Final Report

Report No.: 20-13329-1  
 Initial Date of Issue: 01-Jun-2020  
 Client: Priority Geotechnical Ltd  
 Client Address: Unit 12  
 Owenacurra Business Park  
 Midleton  
 County Cork  
 Ireland  
 Contact(s): Colette Kelly  
 Project: P19188 Howth  
 Quotation No.: Q20-19850  
 Order No.: 12451  
 No. of Samples: 4  
 Turnaround (Wkdays): 7  
 Date Approved: 01-Jun-2020  
 Approved By:

Details: Glynn Harvey, Technical Manager

### Results - Water

Client: Priority Geotechnical Ltd		Chemtest Job No.: 20-13329		20-13329		20-13329		20-13329		20-13329	
Quotation No.: Q20-19850		Chemtest Sample ID: 1009300		P1		P2		P3		P4	
		Client Sample ID: 500060		Sample Location: WATER		500060		500060		500060	
		Sample Type: WATER		Date Sampled: 20-May-2020		21-May-2020		22-May-2020		25-May-2020	
Determination		Accred.	LOD	Units	LOD	Units	LOD	Units	LOD	Units	LOD
Chloride	U	1220	mg/l	1.0	94	mg/l	68	mg/l	56	mg/l	86
Sulphate	U	1220	mg/l	1.0	2.2	mg/l	2.0	mg/l	2.1	mg/l	4.6
Calcium	U	1415	mg/l	5.0	31	mg/l	38	mg/l	25	mg/l	21
Sodium	U	1415	mg/l	0.50	71	mg/l	82	mg/l	46	mg/l	79
Arsenic (Dissolved)	U	1450	µg/l	1.0	< 1.0	µg/l	< 1.0	µg/l	< 1.0	µg/l	< 1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080	µg/l	< 0.080	µg/l	< 0.080	µg/l	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	< 1.0	µg/l	< 1.0	µg/l	< 1.0	µg/l	< 1.0
Copper (Dissolved)	U	1450	µg/l	1.0	< 1.0	µg/l	< 1.0	µg/l	< 1.0	µg/l	< 1.0
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50	µg/l	< 0.50	µg/l	< 0.50	µg/l	< 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	< 1.0	µg/l	1.2	µg/l	< 1.0	µg/l	1.1
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	µg/l	< 1.0	µg/l	< 1.0	µg/l	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	< 1.0	µg/l	< 1.0	µg/l	< 1.0	µg/l	< 1.0
Tin (Dissolved)	U	1450	µg/l	1.0	< 1.0	µg/l	< 1.0	µg/l	< 1.0	µg/l	< 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	< 1.0	µg/l	< 1.0	µg/l	< 1.0	µg/l	1.1
Zinc (Dissolved)	U	1450	µg/l	1.0	< 1.0	µg/l	< 1.0	µg/l	< 1.0	µg/l	< 1.0
Diethyl Tin	N	1730	µg/l	0.050	< 0.050	µg/l	< 0.050	µg/l	< 0.050	µg/l	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	µg/l	< 0.050	µg/l	< 0.050	µg/l	< 0.050



SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using Aquakem 600 Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

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- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
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- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

**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.com](mailto:customerservices@chemtest.com)



Tel: 01538 606070

Email: [info@chemtest.com](mailto:info@chemtest.com)

<b>Report No.:</b>	20-12274-1
<b>Initial Date of Issue:</b>	19-May-2020
<b>Client</b>	Priority Geotechnical Ltd
<b>Client Address:</b>	Unit 12 Owenacurra Business Park Midleton County Cork Ireland
<b>Contact(s):</b>	Colette Kelly
<b>Project</b>	P19188 Howth
<b>Quotation No.:</b>	Q20-19850
<b>Order No.:</b>	12451
<b>No. of Samples:</b>	4
<b>Turnaround (Wkdays):</b>	7
<b>Date Approved:</b>	19-May-2020

*W. H. H. H.*

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Page 1 of 4

**P19188** Howth

**Project:**

### Results - Water

	Project: P13188 HOWI	Client: Priority Geotechnical Ltd Quotation No.: Q20-19850	Chemtest Job No.: Chemtest Sample ID.: Q20-19850									
			Client Sample ID:		P1	P2	P3	P4				
			Sample Location:		SMAVM76	SMAVM76	SMAVM76	SMAVM76				
			Sample Type:		WATER	WATER	WATER	WATER				
			Date Sampled:		06-May-2020	07-May-2020	08-May-2020	11-May-2020				
			Determinand	Accred.	SOP	Units	LOD					
Chloride	U	1220	mg/l	1.0	11	180	110	20-12274	20-12274			
Sulphate	U	1220	mg/l	1.0	< 1.0	2.4	1.5	1004503	1004504			
Calcium	U	1415	mg/l	5.0	12	< 5.0	32					
Sodium	U	1415	mg/l	0.50	7.2	140	88					
Arsenic (Dissolved)	U	1450	µg/l	1.0	< 1.0	1.1	< 1.0	< 1.0	< 1.0			
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080	0.16	0.14	< 0.080	< 0.080			
Chromium (Dissolved)	U	1450	µg/l	1.0	< 1.0	2.3	1.6	2.1	2.1			
Copper (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0			
Mercury (Dissolved)	U	1450	µg/l	0.50	1.0	1.9	0.53	0.51	0.51			
Nickel (Dissolved)	U	1450	µg/l	1.0	< 1.0	3.3	2.7	3.6	3.6			
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0			
Selenium (Dissolved)	U	1450	µg/l	1.0	1.1	5.5	3.0	4.5	4.5			
Tin (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0			
Vanadium (Dissolved)	U	1450	µg/l	1.0	< 1.0	2.6	1.8	2.4	2.4			
Zinc (Dissolved)	U	1450	µg/l	1.0	50	6.6	4.6	5.9	5.9			
Dibutyl Tin	N	1730	µg/g	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050			
Diethyl Tin	N	1730	µg/g	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050			

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

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All Asbestos testing is performed at the indicated laboratory

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## Sample Deviation Codes

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- D - Broken Container
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## Sample Retention and Disposal

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All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

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[customerservices@chemtest.com](mailto:customerservices@chemtest.com)



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## Final Report



The right chemistry to deliver results

Chemtest Ltd.

Depot Road

Newmarket

CB8 0AL

Tel: 01638 606070

Email: info@chemtest.com

Report No.: 20-12267-1

Initial Date of Issue: 18-May-2020

Client: Priority Geotechnical Ltd

Client Address: Unit 12  
Owenacurra Business Park  
Midleton  
County Cork  
Ireland

Contact(s): Colette Kelly

Project: P19188 Howth

Quotation No.: Q20-19850

Order No.: 12451

No. of Samples: 4

Turnaround (Wkdays): 7

Date Approved: 18-May-2020

Approved By:

Date Received: 13-May-2020

Date Instructed: 14-May-2020

Results Due: 22-May-2020

Details: Glynn Harvey, Technical Manager



The right chemistry to deliver results

## Results - Water

Project: P19188 Howth		Chemtest Job No.: 20-12267		20-12267		20-12267		20-12267		20-12267	
Client: Priority Geotechnical Ltd		Chemtest Sample ID: 1004476		P5		P6		P7		P8	
Quotation No.: Q20-19850		Client Sample ID: 500014		500014		500014		500014		500014	
		Sample Location: WATER		WATER		WATER		WATER		WATER	
		Sample Type: WATER		WATER		WATER		WATER		WATER	
		Date Sampled: 18-Mar-2020		25-Mar-2020		14-Apr-2020		12-May-2020			
Determinand	Accred	SOP	Units	LOD	Result	Result	Result	Result	Result	Result	Result
Chloride	U	1220	mg/l	1.0	[B] 210	[B] 150	[B] 150	[B] 150	[B] 150	[B] 150	[B] 150
Sulphate	U	1220	mg/l	1.0	[B] 9.5	[B] 11	[B] 11	[B] 35	[B] 35	[B] 35	[B] 35
Calcium	U	1415	mg/l	5.0	[B] 21	[B] 20	[B] 20	[B] 19	[B] 19	[B] 19	[B] 19
Sodium	U	1415	mg/l	0.50	[B] 140	[B] 140	[B] 96	[B] 84	[B] 84	[B] 84	[B] 84
Arsenic (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Cadmium (Dissolved)	U	1450	µg/l	0.050	[B] < 0.050	[B] < 0.050	[B] < 0.050	[B] < 0.050	[B] < 0.050	[B] < 0.050	[B] < 0.050
Chromium (Dissolved)	U	1450	µg/l	1.0	[B] 2.7	[B] 1.6	[B] 1.6	[B] 1.9	[B] 1.9	[B] 1.9	[B] 1.9
Copper (Dissolved)	U	1450	µg/l	1.0	[B] 1.9	[B] 1.2	[B] 1.2	[B] 7.2	[B] 7.2	[B] 7.2	[B] 7.2
Mercury (Dissolved)	U	1450	µg/l	0.50	[B] 1.1	[B] < 0.50	[B] < 0.50	[B] 0.60	[B] 0.60	[B] 0.60	[B] 0.60
Nickel (Dissolved)	U	1450	µg/l	1.0	[B] 2.0	[B] 1.8	[B] 1.8	[B] 5.4	[B] 5.4	[B] 5.4	[B] 5.4
Lead (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	[B] 7.3	[B] 3.5	[B] 3.5	[B] 5.6	[B] 5.6	[B] 5.6	[B] 5.6
Tin (Dissolved)	U	1450	µg/l	1.0	[B] 480	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	[B] 4.6	[B] 3.8	[B] 3.8	[B] 7.3	[B] 7.3	[B] 7.3	[B] 7.3
Zinc (Dissolved)	U	1450	µg/l	1.0	[B] 7.0	[B] 4.3	[B] 4.3	[B] 5.0	[B] 5.0	[B] 5.0	[B] 5.0
Diethyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050



### 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/MCERT's accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1004476		P5	5MXM14	18-Mar-2020	B	Plastic Bottle 1000ml
1004477		P6	5MXM14	25-Mar-2020	B	Plastic Bottle 1000ml
1004478		P7	5MXM14	14-Apr-2020	B	Plastic Tub 500g

### Test Methods

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

**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 the indicated 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
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

**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.com](mailto:customerservices@chemtest.com)



**Final Report**

**Report No.:** 20-09757-1  
**Initial Date of Issue:** 06-Apr-2020  
**Client:** Priority Geotechnical Ltd  
**Client Address:** Unit 12  
 Owenacurra Business Park  
 Midleton  
 County Cork  
 Ireland  
**Contact(s):** Colette Kelly  
**Project:** P19188 Howth  
**Quotation No.:** Q20-19850  
**Order No.:** 12451  
**No. of Samples:** 4  
**Turnaround (Wkdays):** 7  
**Date Approved:** 06-Apr-2020

**Date Received:** 30-Mar-2020  
**Date Instructed:** 31-Mar-2020  
**Results Due:** 08-Apr-2020

**Approved By:**

**Details:** Glynn Harvey, Technical Manager

Project: P19188 Howth

Client: Priority Geotechnical Ltd		Chemtest Job No.:		20-09757	20-09757	20-09757	20-09757
Quotation No.: Q20-19850		Chemtest Sample ID.:		993912	993913	993914	993915
		Client Sample ID.:		P1	P2	P3	P4
		Sample Location:		5MXM28	5MXM28	5MXM28	5MXM28
		Sample Type:		WATER	WATER	WATER	WATER
		Date Sampled:		23-Mar-2020	24-Mar-2020	25-Mar-2020	27-Mar-2020
Determinand	Accred.	SOP	Units	LOD			
Chloride	U	1220	mg/l	1.0	210	250	160
Sulphate	U	1220	mg/l	1.0	< 1.0	2.4	< 1.0
Calcium	U	1415	mg/l	5.0	43	100	95
Sodium	U	1415	mg/l	0.50	280	290	210
Arsenic (Dissolved)	U	1450	µg/l	1.0	< 1.0	1.1	< 1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080	< 0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	< 1.0	1.9	< 1.0
Copper (Dissolved)	U	1450	µg/l	1.0	< 1.0	1.4	< 1.0
Mercury (Dissolved)	U	1450	µg/l	0.50	0.63	0.75	< 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	1.8	2.4	1.3
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	5.7	7.7	4.2
Tin (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	1.8	3.0	1.8
Zinc (Dissolved)	U	1450	µg/l	1.0	6.2	12	5.2
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050	< 0.050

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride, Chloride, Nitrite, Nitrate, Total Oxidisable Nitrogen (TON), Sulphate, Phosphate, Alkalinity, Ammonium	Automated colorimetric analysis using Aquilab 600 Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium, Potassium, Calcium, Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Mercury, Molybdenum, Nickel, Selenium, Tin, Vanadium, Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GC/MS detection

**Report Information**

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- U/S Unsuitable Sample
- N/E not evaluated
- < "less than"
- > "greater than"

Comments or interpretations are beyond the scope of UKAS accreditation

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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 the indicated 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
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

**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.com](mailto:customerservices@chemtest.com)



**Final Report**

**Report No.:** 20-08354-1

**Initial Date of Issue:** 24-Mar-2020

**Client:** Priority Geotechnical Ltd

**Client Address:** Unit 12  
Owenacurra Business Park  
Midleton  
County Cork  
Ireland

**Contact(s):** Colette Kelly

**Project:** P19188 Howth

**Quotation No.:** Q20-19850

**Order No.:** 12451

**No. of Samples:** 4

**Turnaround (Wkdays):** 7

**Date Approved:** 24-Mar-2020

**Approved By:**

**Details:** Glynn Harvey, Technical Manager

Chemtest Ltd.  
Depot Road  
Newmarket  
CB8 0AL  
Tel: 01638 606070  
Email: [info@chemtest.com](mailto:info@chemtest.com)



Project: P19188 Howth

Client: Priority Geotechnical Ltd	Chemtest Job No.:	20-08354	20-08354	20-08354	20-08354
Quotation No.: Q20-19850	Chemtest Sample ID.:	966739	966740	966741	966742
	Client Sample ID.:	P1	P2	P3	P4
	Sample Location:	5MXM14	5MXM14	5MXM14	5MXM14
	Sample Type:	WATER	WATER	WATER	WATER
	Date Sampled:	09-Mar-2020	10-Mar-2020	11-Mar-2020	13-Mar-2020
Determinand	Accred.	SOP	Units	LOD	
Chloride	U	1220	mg/l	1.0	310
Sulphate	U	1220	mg/l	1.0	2.8
Calcium	U	1415	mg/l	5.0	70
Sodium	U	1415	mg/l	0.50	200
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	< 1.0
Copper (Dissolved)	U	1450	µg/l	1.0	1.7
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	1.8
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	5.0
Tin (Dissolved)	U	1450	µg/l	1.0	< 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	1.6
Zinc (Dissolved)	U	1450	µg/l	1.0	1.9
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050

SCP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride, Chloride, Nitrite, Nitrate, Total, Oxidisable Nitrogen (TON), Sulfate, Phosphate, Alkalinity, Ammonium	Automated colorimetric analysis using Aquakem 600 Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium, Potassium, Calcium, Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals including Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Mercury, Molybdenum, Nickel, Selenium, Tin, Vanadium, Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GC/MS detection

**Report Information**

**Key**

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- N/E not evaluated
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- > "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 the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

**Sample Deviation Codes**

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- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

**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.com](mailto:customerservices@chemtest.com)



**Final Report**

**Report No.:** 20-19228-1  
**Initial Date of Issue:** 31-Jul-2020  
**Client:** Priority Geotechnical Ltd  
**Client Address:** Unit 12  
 Owenacurra Business Park  
 Midleton  
 County Cork  
 Ireland  
**Contact(s):** Colette Kelly  
**Project:** P19188 Howth  
**Quotation No.:** Q20-19850  
**Order No.:** 12451  
**No. of Samples:** 2  
**Turnaround (Wkdays):** 7  
**Date Approved:** 31-Jul-2020

**Date Received:** 24-Jul-2020  
**Date Instructed:** 24-Jul-2020  
**Results Due:** 03-Aug-2020

**Approved By:**

**Details:** Glynn Harvey, Technical Manager

## Results - Water

Project: P19188 Howth

Client: Priority Geotechnical Ltd	Chemtest Job No.:		20-19228	20-19228
Quotation No.: Q20-19850	Chemtest Sample ID.:		1037298	1037299
	Client Sample ID.:		P7	P8
	Sample Location:		bmxm90	bmxm91
	Sample Type:		WATER	WATER
	Date Sampled:		26-Jun-2020	23-Jul-2020
Determinand	Accred.	SOP	Units	LOD
Chloride	U	1220	mg/l	1.0
Sulphate	U	1220	mg/l	1.0
Calcium	U	1415	mg/l	5.0
Sodium	U	1415	mg/l	0.50
Arsenic (Dissolved)	U	1450	µg/l	1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080
Chromium (Dissolved)	U	1450	µg/l	1.0
Copper (Dissolved)	U	1450	µg/l	1.0
Mercury (Dissolved)	U	1450	µg/l	0.50
Nickel (Dissolved)	U	1450	µg/l	1.0
Lead (Dissolved)	U	1450	µg/l	1.0
Selenium (Dissolved)	U	1450	µg/l	1.0
Tin (Dissolved)	U	1450	µg/l	1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0
Zinc (Dissolved)	U	1450	µg/l	1.0
Dibutyl Tin	N	1730	µg/l	0.050
Tributyl Tin	N	1730	µg/l	0.0500

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### Deviations

In accordance with UKAS Policy on Deviating Samples, TFS 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 testing. This policy and the respective holding times applied, can be supplied upon request. The reason a sample is obtained as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTR accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1037298		P7	bmxm90	26-Jun-2020	B	Plastic Bottle 1000ml

## Test Methods

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquagem 600' Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

## Report Information

### Key

U	UKAS accredited
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U/S	Unsuitable Sample
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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

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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
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

### 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

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[customerservices@chemtest.com](mailto:customerservices@chemtest.com)





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

## Final Report

Report No.: 20-17647-1  
Initial Date of Issue: 14-Jul-2020  
Client: Priority Geotechnical Ltd  
Client Address: Unit 12  
Owenacurra Business Park  
Midleton  
County Cork  
Ireland  
Contact(s): Colette Kelly  
Project: P19188 Howth  
Quotation No.: Q20-19850  
Order No.: 12451  
No. of Samples: 2  
Turnaround (Wkdays): 7  
Date Approved: 14-Jul-2020  
Approved By:

Details: Glynn Harvey, Technical Manager

Date Received: 10-Jul-2020  
Date Instructed: 10-Jul-2020  
Results Due: 20-Jul-2020

## Results - Water

Determination	Accred.	SOP	Units	LOD	Chemtest Job No.		Client Sample ID		Sample Location		Sample Type		Date Sampled	
					20-17647	20-17647	1029598	1029599	P7	P8	Water	Water	10-Jun-2020	08-Jul-2020
Chloride	U	1220	mg/l	1.0	[B] 97	[B] 97	1.20	1.20	[B] 91	[B] 91	1.20	1.20	[B] 91	[B] 91
Sulphate	U	1220	mg/l	1.0	[B] 91	[B] 91	1.20	1.20	[B] 13	[B] 13	1.20	1.20	[B] 13	[B] 13
Calcium	U	1415	mg/l	5.0	[B] 96	[B] 96	1.20	1.20	[B] 15	[B] 15	1.20	1.20	[B] 15	[B] 15
Sodium	U	1450	µg/l	1.0	[B] 1.7	[B] 1.7	2.0	2.0	[B] 4.2	[B] 4.2	2.0	2.0	[B] 4.2	[B] 4.2
Arsenic (Dissolved)	U	1450	µg/l	0.080	[B] 5.1	[B] 5.1	4.9	4.9	[B] 15	[B] 15	17	17	[B] 15	[B] 15
Cadmium (Dissolved)	U	1450	µg/l	1.0	[B] 1.7	[B] 1.7	2.0	2.0	[B] 4.2	[B] 4.2	2.0	2.0	[B] 4.2	[B] 4.2
Chromium (Dissolved)	U	1450	µg/l	1.0	[B] 1.7	[B] 1.7	2.0	2.0	[B] 4.2	[B] 4.2	2.0	2.0	[B] 4.2	[B] 4.2
Copper (Dissolved)	U	1450	µg/l	1.0	[B] 1.7	[B] 1.7	2.0	2.0	[B] 4.2	[B] 4.2	2.0	2.0	[B] 4.2	[B] 4.2
Mercury (Dissolved)	U	1450	µg/l	0.50	[B] 1.7	[B] 1.7	2.0	2.0	[B] 4.2	[B] 4.2	2.0	2.0	[B] 4.2	[B] 4.2
Nickel (Dissolved)	U	1450	µg/l	1.0	[B] 1.7	[B] 1.7	2.0	2.0	[B] 4.2	[B] 4.2	2.0	2.0	[B] 4.2	[B] 4.2
Lead (Dissolved)	U	1450	µg/l	1.0	[B] 1.7	[B] 1.7	2.0	2.0	[B] 4.2	[B] 4.2	2.0	2.0	[B] 4.2	[B] 4.2
Selenium (Dissolved)	U	1450	µg/l	1.0	[B] 1.7	[B] 1.7	2.0	2.0	[B] 4.2	[B] 4.2	2.0	2.0	[B] 4.2	[B] 4.2
Tin (Dissolved)	U	1450	µg/l	1.0	[B] 1.7	[B] 1.7	2.0	2.0	[B] 4.2	[B] 4.2	2.0	2.0	[B] 4.2	[B] 4.2
Vanadium (Dissolved)	U	1450	µg/l	1.0	[B] 1.7	[B] 1.7	2.0	2.0	[B] 4.2	[B] 4.2	2.0	2.0	[B] 4.2	[B] 4.2
Zinc (Dissolved)	U	1450	µg/l	1.0	[B] 1.7	[B] 1.7	2.0	2.0	[B] 4.2	[B] 4.2	2.0	2.0	[B] 4.2	[B] 4.2
Dibutyl Tin	N	1730	µg/l	0.050	[B] 4.2	[B] 4.2	6.4	6.4	[B] 4.2	[B] 4.2	6.4	6.4	[B] 4.2	[B] 4.2
Tributyl Tin	N	1730	µg/l	0.050	[B] 4.2	[B] 4.2	6.4	6.4	[B] 4.2	[B] 4.2	6.4	6.4	[B] 4.2	[B] 4.2

## Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63, Eurofins 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:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1029598		P7	6mxm76	10-Jun-2020	B	Plastic Bottle 1000ml

## Test Methods

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

## 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  
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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 the indicated 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  
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

### 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.com](mailto:customerservices@chemtest.com)



## Final Report

Report No.: 20-14337-1

Initial Date of Issue: 10-Jun-2020

Client: Priority Geotechnical Ltd

Client Address: Unit 12  
Owenacurra Business Park  
Midleton  
County Cork  
Ireland

Contact(s): Colette Kelly

Project: P19188 Howth

Quotation No.:

Date Received: 08-Jun-2020

Order No.: 12451

Date Instructed: 08-Jun-2020

No. of Samples: 2

Turnaround (Wkdays): 7

Results Due: 16-Jun-2020

Date Approved: 10-Jun-2020

Approved By:

Details: Glynn Harvey, Technical Manager

**Chemtest**

The right chemistry to deliver results

Chemtest Ltd.

Depot Road

Newmarket

CB8 0AL

Tel: 01638 606070

Email: [info@chemtest.com](mailto:info@chemtest.com)

Project: P19188 Howth

Client: Priority Geotechnical Ltd		Chemtest Job No.:		20-14337	20-14337	
Quotation No.:		Chemtest Sample ID.:		1013981	1013982	
		Client Sample ID.:		P5	P6	
		Sample Location:		6MXM90	6MXM90	
		Sample Type:		WATER	WATER	
		Date Sampled:		26-May-2020	05-Jun-2020	
Determinand	Accred.	SOP	Units	LOD		
Chloride	U	1220	mg/l	1.0	71	98
Sulphate	U	1220	mg/l	1.0	8.1	15
Calcium	U	1415	mg/l	5.0	6.6	8.3
Sodium	U	1415	mg/l	0.50	55	68
Arsenic (Dissolved)	U	1450	µg/l	1.0	< 1.0	1.1
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0
Copper (Dissolved)	U	1450	µg/l	1.0	4.6	6.2
Mercury (Dissolved)	U	1450	µg/l	0.50	0.82	< 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	1.5	2.0
Tin (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	5.2	9.0
Zinc (Dissolved)	U	1450	µg/l	1.0	1.4	< 1.0
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride, Chloride, Nitrate, Nitrate Total, Oxidisable Nitrogen (TON), Sulfate, Phosphate, Ammonia, Ammonium	Automated colorimetric analysis using Aquatem 800 Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium, Potassium, Calcium, Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Mercury, Molybdenum, Nickel, Selenium, Tin, Vanadium, Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organic-Leads	Organic-Leads	Solvent extraction / GC/MS detection



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- > "greater than"

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All results are expressed on a dry weight basis

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For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated 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
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

**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.com](mailto:customerservices@chemtest.com)



**Final Report**

**Report No.:** 20-13517-1  
**Initial Date of Issue:** 05-Jun-2020  
**Client:** Priority Geotechnical Ltd  
**Client Address:** Unit 12  
 Owenacurra Business Park  
 Midleton  
 County Cork  
 Ireland  
**Contact(s):** Colette Kelly  
**Project:** P19188 Howth  
**Quotation No.:** Q20-19850  
**Order No.:** 12451  
**No. of Samples:** 4  
**Turnaround (Wkdays):** 7  
**Date Approved:** 05-Jun-2020

**Date Received:** 29-May-2020

**Date Instructed:** 29-May-2020

**Results Due:** 08-Jun-2020

**Approved By:**

**Details:** Glynn Harvey, Technical Manager

Chemtest Ltd.

Depot Road

Newmarket

CB8 0AL

Tel: 01638 606070

Email: [info@chemtest.com](mailto:info@chemtest.com)

Project: P19188 Howth

Client: Priority Geotechnical Ltd	Chemtest Job No.:	20-13517	20-13517	20-13517	20-13517
Quotation No.: Q20-19850	Chemtest Sample ID.:	1010202	1010203	1010204	1010205
	Client Sample ID.:	P5	P6	P7	P8
	Sample Location:	6MXM28	6MXM28	6MXM28	6MXM28
	Sample Type:	WATER	WATER	WATER	WATER
	Date Sampled:	02-Apr-2020	09-Apr-2020	15-Apr-2020	27-May-2020
Determinand	Accred.	SOP	Units	LOD	
Chloride	U	1220	mg/l	1.0	[B] 120
Sulphate	U	1220	mg/l	1.0	[B] 9.5
Calcium	U	1415	mg/l	5.0	[B] 8.4
Sodium	U	1415	mg/l	0.50	[B] 120
Arsenic (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	[B] < 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	[B] 1.2
Copper (Dissolved)	U	1450	µg/l	1.0	[B] 2.7
Mercury (Dissolved)	U	1450	µg/l	0.50	[B] < 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0
Lead (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	[B] 2.9
Tin (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	[B] 6.1
Zinc (Dissolved)	U	1450	µg/l	1.0	[B] 4.4
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050

In accordance with UKAS Policy on Deviating Samples TPS 03, 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 deviating as detailed below. Where applicable the analysis remains UKASACERT's accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sample Date:	Deviation Code(s):	Containers Received:
1010202		P5	6MXM28	02-Apr-2020	B	Plastic Tub 500g
1010203		P6	6MXM28	09-Apr-2020	B	Plastic Tub 500g
1010204		P7	6MXM28	15-Apr-2020	B	Plastic Tub 500g

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

**Report Information**

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All water samples will be retained for 14 days from the date of receipt  
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[customerservices@chemtest.com](mailto:customerservices@chemtest.com)



## Final Report

Report No.: 20-13478-1  
 Initial Date of Issue: 04-Jun-2020  
 Client: Priority Geotechnical Ltd  
 Client Address: Unit 12  
 Owenacurra Business Park  
 Middleton  
 County Cork  
 Ireland  
 Contact(s): Colette Kelly  
 Project: P19188 Howth  
 Quotation No.: Q20-19850  
 Order No.: 12451  
 No. of Samples: 2  
 Turnaround (Wkdays): 7  
 Date Approved: 04-Jun-2020

Approved By:

Details: Glynn Harvey, Technical Manager



The right chemistry to deliver results

Chemtest Ltd.

Depot Road

Newmarket

CB8 0AL

Tel: 01638 606070

Email: info@chemtest.com

Date Received: 28-May-2020

Date Instructed: 28-May-2020

Results Due: 05-Jun-2020



The right chemistry to deliver results

Project: P19188 Howth

Client: Priority Geotechnical Ltd

Quotation No.: Q20-19850

Determination	Accred.	SOP	Units	LOD	Chemtest Job No.:	
					20-13478	20-13478
Chloride	U	1220	mg/l	1.0	32	60
Sulphate	U	1220	mg/l	1.0	4.6	18
Calcium	U	1415	mg/l	5.0	9.8	5.2
Sodium	U	1415	mg/l	0.50	26	49
Arsenic (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0
Copper (Dissolved)	U	1450	µg/l	1.0	5.1	7.5
Mercury (Dissolved)	U	1450	µg/l	0.50	0.84	1.0
Nickel (Dissolved)	U	1450	µg/l	1.0	< 1.0	1.1
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0
Tin (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	3.5	6.6
Zinc (Dissolved)	U	1450	µg/l	1.0	1.9	2.4
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050

## Results - Water



SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

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 For all other tests the samples were dried at < 37°C prior to analysis  
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 Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

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- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

**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

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## Final Report

**Report No.:** 20-13320-1  
**Initial Date of Issue:** 01-Jun-2020  
**Client:** Priority Geotechnical Ltd  
**Client Address:** Unit 12  
 Owenacurra Business Park  
 Middleton  
 County Cork  
 Ireland  
**Contact(s):** Colette Kelly  
**Project:** P19188 Howth  
**Quotation No.:** Q20-19850  
**Order No.:** 12451  
**No. of Samples:** 4  
**Turnaround (Wkdays):** 7  
**Date Approved:** 01-Jun-2020  
**Approved By:**

**Details:** Glynn Harvey, Technical Manager



The right chemistry to deliver results

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



The right chemistry to deliver results

Project: P19188 Howth

Client: Priority Geotechnical Ltd	Chemtest Job No.:	20-13320	20-13320	20-13320	20-13320	20-13320
Quotation No.: Q20-19850	Chemtest Sample ID.:	1009259	1009260	1009261	1009262	1009263
	Client Sample ID.:	P1	P2	P3	P4	P5
	Sample Location:	6MXM90	6MXM90	6MXM90	6MXM90	6MXM90
	Sample Type:	WATER	WATER	WATER	WATER	WATER
	Date Sampled	20-May-2020	21-May-2020	22-May-2020	23-May-2020	24-May-2020
Determinand	Accred.	SOP	Units	LOD		
Chloride	U	1220	mg/l	1.0	56	67
Sulphate	U	1220	mg/l	1.0	< 1.0	1.6
Calcium	U	1415	mg/l	5.0	24	20
Sodium	U	1415	mg/l	0.50	55	62
Arsenic (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0
Copper (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0
Mercury (Dissolved)	U	1450	µg/l	0.50	2.2	0.81
Nickel (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0
Tin (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0
Zinc (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050

## Results - Water

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride, Chloride, Nitrite, Nitrate, Total, Oxidisable Nitrogen (TON), Sulfate, Phosphate, Alkalinity, Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
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1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

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## Final Report

**Report No.:** 20-12404-1  
**Initial Date of Issue:** 21-May-2020  
**Client:** Priority Geotechnical Ltd  
**Client Address:** Unit 12  
 Owenacurra Business Park  
 Middleton  
 County Cork  
 Ireland  
**Contact(s):** Colette Kelly  
**Project:** P19188 Howth  
**Quotation No.:** Q20-19850  
**Order No.:** 12451  
**No. of Samples:** 4  
**Turnaround (Wkdays):** 7  
**Date Approved:** 21-May-2020  
**Approved By:**  
  
**Details:** Glynn Harvey, Technical Manager

### Results - Water

Project: P19188 Howth		Chemtest Job No.:		20-12404	20-12404	20-12404	20-12404
Client: Priority Geotechnical Ltd		Chemtest Sample ID.:		1004937	1004937	1004937	1004940
Quotation No.: Q20-19850		Client Sample ID.:		P5	P6	P7	P8
		Sample Location:		6MXM14	6MXM14	6MXM14	6MXM14
		Sample Type:		WATER	WATER	WATER	WATER
		Date Sampled:		19-Mar-2020	26-Mar-2020	15-Apr-2020	13-May-2020
Determinand	Accred.	SOP	Units	LOD			
Chloride	U	1220	mg/l	1.0	[B] 120	[B] 160	34
Sulphate	U	1220	mg/l	1.0	[B] 8.5	[B] 9.9	[B] 84
Calcium	U	1415	mg/l	5.0	[B] 24	[B] 19	[B] 12
Sodium	U	1415	mg/l	0.50	[B] 140	[B] 85	[B] 110
Arsenic (Dissolved)	U	1450	µg/l	1.0	[B] 1.0	[B] 1.0	[B] 1.4
Cadmium (Dissolved)	U	1450	µg/l	0.060	[B] 0.060	[B] 0.060	[B] 0.060
Chromium (Dissolved)	U	1450	µg/l	1.0	[B] 2.7	[B] 1.9	[B] 2.3
Copper (Dissolved)	U	1450	µg/l	1.0	[B] 2.2	[B] 2.1	[B] 9.9
Mercury (Dissolved)	U	1450	µg/l	0.50	[B] 2.4	[B] 0.50	[B] 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	[B] 1.1	[B] 1.0	[B] 2.0
Lead (Dissolved)	U	1450	µg/l	1.0	[B] 1.0	[B] 1.0	[B] 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	[B] 4.7	[B] 3.5	[B] 4.2
Tin (Dissolved)	U	1450	µg/l	1.0	[B] 1.0	[B] 1.0	[B] 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	[B] 5.2	[B] 5.6	[B] 11
Zinc (Dissolved)	U	1450	µg/l	1.0	[B] 4.0	[B] 3.2	[B] 4.2
Diethyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050	< 0.050



### 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/MCERT's accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1004937		P5	6MXM14	19-Mar-2020	B	Plastic Bottle 1000ml
1004938		P6	6MXM14	26-Mar-2020	B	Plastic Bottle 1000ml
1004939		P7	6MXM14	15-Apr-2020	B	Plastic Tub 500g

### Test Methods

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using Aquakem 600 Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

### 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 the indicated 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
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

#### 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.com](mailto:customerservices@chemtest.com)



### Final Report

Report No.: 20-12296-1

Initial Date of Issue: 18-May-2020

Client: Priority Geotechnical Ltd

Client Address: Unit 12  
Owenacurra Business Park  
Midleton  
County Cork  
Ireland

Contact(s): Colette Kelly

Project: P19188 Howth

Quotation No.: Q20-19850

Date Received: 13-May-2020

Order No.: 12451

Date Instructed: 14-May-2020

No. of Samples: 4

Turnaround (Wkdays): 7

Results Due: 22-May-2020

Date Approved: 18-May-2020

Approved By:



Details: Glynn Harvey, Technical Manager

Chemtest Ltd.  
Depot Road  
Newmarket  
CB8 0AL  
Tel: 01638 606070  
Email: [info@chemtest.com](mailto:info@chemtest.com)

The right chemistry to deliver results

Project: P19188 Howth

Client: Priority Geotechnical Ltd	Chemtest Job No.:				20-12296	20-12296	20-12296	20-12296
Quotation No.: Q20-19850	Chemtest Sample ID.:				1004552	1004553	1004554	1004555
	Client Sample ID.:				P1	P2	P3	P4
	Sample Location:				6MXM76	6MXM76	6MXM76	6MXM76
	Sample Type:				WATER	WATER	WATER	WATER
	Date Sampled:				06-May-2020	07-May-2020	08-May-2020	11-May-2020
Determinand	Accred.	SOP	Units	LOD				
Chloride	U	1220	mg/l	1.0	43	35	28	48
Sulphate	U	1220	mg/l	1.0	< 1.0	< 1.0	1.5	4.1
Calcium	U	1415	mg/l	5.0	< 5.0	8.9	8.9	8.9
Sodium	U	1415	mg/l	0.50	32	27	22	40
Arsenic (Dissolved)	U	1450	µg/l	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
Chromium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	1.9
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Lead (Dissolved)	U	1450	µg/l	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
Tin (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	1.0	1.2	1.2	2.9
Zinc (Dissolved)	U	1450	µg/l	1.0	1.5	< 1.0	1.3	< 1.0
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050	< 0.050	< 0.050

The right chemistry to deliver results

## Test Methods

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride, Chloride, Nitrite, Nitrate, Total Oxidisable Nitrogen (TON), Sulfate, Phosphate, Alkalinity, Ammonium	Automated colorimetric analysis using Aquatam 600 Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium, Potassium, Calcium, Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals including Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Mercury, Molybdenum, Nickel, Selenium, Tin, Vanadium, Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GC/MS detection

## Report Information

### Key

- U UKAS accredited
- M MCERTS and UKAS accredited
- N Unaccredited
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- 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 the indicated 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
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

### 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.com](mailto:customerservices@chemtest.com)



## Final Report

Report No.: 20-09756-1

Initial Date of Issue: 06-Apr-2020

Client: Priority Geotechnical Ltd

Client Address: Unit 12  
Owenacurra Business Park  
Midleton  
County Cork  
Ireland

Contact(s): Colette Kelly

Project: P19188 Howth

Quotation No.: Q20-19850

Order No.: 12451

No. of Samples: 4

Turnaround (Wkdays): 7

Date Approved: 06-Apr-2020

Approved By:



Details: Glynn Harvey, Technical Manager

Chemtest Ltd.  
Depot Road  
Newmarket  
CB8 0AL  
Tel: 01638 606070  
Email: [info@chemtest.com](mailto:info@chemtest.com)

Date Received: 30-Mar-2020

Date Instructed: 31-Mar-2020

Results Due: 08-Apr-2020



Project: P19188 Howth

Client: Priority Geotechnical Ltd		Chemtest Job No.:		20-09756	20-09756	20-09756	20-09756
Quotation No.: Q20-19850		Chemtest Sample ID.:		993908	993909	993910	993911
		Client Sample ID.:		P1	P2	P3	P4
		Sample Location:		6MXM28	6MXM28	6MXM28	6MXM28
		Sample Type:		WATER	WATER	WATER	WATER
		Date Sampled:		24-Mar-2020	25-Mar-2020	26-Mar-2020	27-Mar-2020
Determinand	Accred.	SOP	Units	LOD			
Chloride	U	1220	mg/l	1.0	91	140	57
Sulphate	U	1220	mg/l	1.0	< 1.0	< 1.0	< 1.0
Calcium	U	1415	mg/l	5.0	42	52	30
Sodium	U	1415	mg/l	0.50	87	100	41
Arsenic (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080	< 0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0
Copper (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50	< 0.50	< 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	2.0	3.6	< 1.0
Tin (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	< 1.0	1.6	1.4
Zinc (Dissolved)	U	1450	µg/l	1.0	1.3	2.6	< 1.0
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050	< 0.050

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride, Chloride, Nitrite, Nitrate, Total Oxidisable Nitrogen (TON), Sulfate, Phosphate, Alkalinity, Ammonium	Automated colorimetric analysis using Aquatrain 800 Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium, Potassium, Calcium, Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals including Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Mercury, Molybdenum, Nickel, Selenium, Tin, Vanadium, Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GC/MS detection

**Report Information**

**Key**

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- 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 the indicated 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
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

**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.com](mailto:customerservices@chemtest.com)



**Final Report**

**Report No.:** 20-08358-1

**Initial Date of Issue:** 24-Mar-2020

**Client:** Priority Geotechnical Ltd

**Client Address:** Unit 12  
Owenacurra Business Park  
Midleton  
County Cork  
Ireland

**Contact(s):** Colette Kelly

**Project:** P19188 Howth

**Quotation No.:** Q20-19850

**Order No.:** 12451

**No. of Samples:** 4

**Turnaround (Wkdays):** 7

**Date Approved:** 24-Mar-2020

**Approved By:**

**Details:** Glynn Harvey, Technical Manager

**Date Received:** 16-Mar-2020

**Date Instructed:** 17-Mar-2020

**Results Due:** 25-Mar-2020

Project: P19188 Howth

Client: Priority Geotechnical Ltd	Chemtest Job No.:	20-08358	20-08358	20-08358	20-08358
Quotation No.: Q20-19850	Chemtest Sample ID.:	986755	986756	986757	986758
	Client Sample ID.:	P1	P2	P3	P4
	Sample Location:	6MXM14	6MXM14	6MXM14	6MXM14
	Sample Type:	WATER	WATER	WATER	WATER
	Date Sampled:	10-Mar-2020	11-Mar-2020	12-Mar-2020	13-Mar-2020
Determinand	Accred.	SOP	Units	LOD	
Chloride	U	1220	mg/l	1.0	300
Sulphate	U	1220	mg/l	1.0	3.1
Calcium	U	1415	mg/l	5.0	59
Sodium	U	1415	mg/l	0.50	160
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	< 1.0
Copper (Dissolved)	U	1450	µg/l	1.0	1.5
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	< 1.0
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	3.2
Tin (Dissolved)	U	1450	µg/l	1.0	< 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	< 1.0
Zinc (Dissolved)	U	1450	µg/l	1.0	1.6
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride, Chloride, Nitrate, Nitrite, Total Dissolvable Nitrogen (TDN), Sulfate, Phosphate, Alkalinity, Ammonium	Automated colorimetric analysis using Aquatam 600 Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium, Potassium, Calcium, Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Mercury, Molybdenum, Nickel, Selenium, Tin, Vanadium, Zinc	Fraction of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organoleads	Organoleads	Solvent extraction / GC/MS detection

**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 the indicated 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
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

**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.com](mailto:customerservices@chemtest.com)



**Final Report**

<b>Report No.:</b>	20-12407-1	
<b>Initial Date of Issue:</b>	21-May-2020	
<b>Client</b>	Priority Geotechnical Ltd	
<b>Client Address:</b>	Unit 12 Owenacurra Business Park Midleton County Cork Ireland	
<b>Contact(s):</b>	Colette Kelly	
<b>Project</b>	P19188 Howth	
<b>Quotation No.:</b>	Q20-19850	<b>Date Received:</b> 14-May-2020
<b>Order No.:</b>	12451	<b>Date Instructed:</b> 15-May-2020
<b>No. of Samples:</b>	4	
<b>Turnaround (Wkdays):</b>	7	<b>Results Due:</b> 26-May-2020
<b>Date Approved:</b>	21-May-2020	
<b>Approved By:</b>		
<b>Details:</b>	Glynn Harvey, Technical Manager	



Project: P19188 Howth

Client: Priority Geotechnical Ltd		Chemtest Job No.:		20-12407	20-12407	20-12407	20-12407	
Quotation No.: Q20-19850		Chemtest Sample ID.:		1004948	1004949	1004950	1004951	
		Client Sample ID.:		P5	P6	P7	P8	
		Sample Location:		7MXM14	7MXM14	7MXM14	7MXM14	
		Sample Type:		WATER	WATER	WATER	WATER	
		Date Sampled:		19-Mar-2020	26-Mar-2020	15-Apr-2020	13-May-2020	
Determinand	Accred.	SOP	Units	LOD				
Chloride	U	1220	mg/l	1.0	[B] 280	[B] 180	[B] 170	80
Sulphate	U	1220	mg/l	1.0	[B] 17	[B] 12	[B] 36	15
Calcium	U	1415	mg/l	5.0	[B] 83	[B] 50	[B] 55	56
Sodium	U	1415	mg/l	0.50	[B] 230	[B] 80	[B] 67	14
Arsenic (Dissolved)	U	1450	µg/l	1.0	[B] 1.6	[B] < 1.0	[B] < 1.0	< 1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	[B] < 0.080	[B] < 0.080	[B] < 0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	[B] 4.4	[B] 1.3	[B] 1.4	< 1.0
Copper (Dissolved)	U	1450	µg/l	1.0	[B] 1.8	[B] 1.7	[B] 8.0	2.9
Mercury (Dissolved)	U	1450	µg/l	0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	< 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	[B] 6.2	[B] 2.8	[B] 8.3	3.1
Lead (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	[B] 7.6	[B] 2.7	[B] 3.8	2.0
Tin (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	< 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	[B] 6.6	[B] 3.2	[B] 3.6	2.7
Zinc (Dissolved)	U	1450	µg/l	1.0	[B] 4.9	[B] 4.6	[B] 4.9	3.3
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050	< 0.050	< 0.050

**Deviations**

In accordance with UKAS Policy on Deviating Samples TFS 03, 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/MCER1's accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1004948		P5	7MXM14	19-Mar-2020	B	Plastic Bottle 1000ml
1004949		P6	7MXM14	26-Mar-2020	B	Plastic Bottle 1000ml
1004950		P7	7MXM14	15-Apr-2020	B	Plastic Tub 500g

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

## Report Information

### Key

- U UKAS accredited
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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

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- C - Sample not received in appropriate containers
- D - Broken Container
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### 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.com](mailto:customerservices@chemtest.com)



The right chemistry to deliver results

Chemtest Ltd.

Depot Road

Newmarket

CB8 0AL

Tel: 01638 606070

Email: info@chemtest.com

## Final Report

Report No.: 20-09755-1  
Initial Date of Issue: 06-Apr-2020  
Client: Priority Geotechnical Ltd  
Client Address: Unit 12  
Owenacurra Business Park  
Midleton  
County Cork  
Ireland

Contact(s): Colette Kelly  
Project: P19188 Howth

Quotation No.: Q20-19850

Order No.: 12451

No. of Samples: 4

Turnaround (Wkdays): 7

Date Approved: 06-Apr-2020

Approved By:

Details: Glynn Harvey, Technical Manager

Date Received: 30-Mar-2020

Date Instructed: 31-Mar-2020

Results Due: 08-Apr-2020



The right chemistry to deliver results

Client: Priority Geotechnical Ltd  
Quotation No.: Q20-19850

Determination	Accred.	SOP	Units	LOD	Chemtest Job No.: 20-09755			
					Chemtest Sample ID:	Client Sample ID:	Client Sample ID:	Client Sample ID:
Chloride	U	1220	mg/l	1.0	220	P1	P2	P4
Sulphate	U	1220	mg/l	1.0	< 1.0	7NAX28	7NAX28	7NAX28
Calcium	U	1415	mg/l	5.0	25	WATER	WATER	WATER
Sodium	U	1415	mg/l	0.50	140	24-Mar-2020	26-Mar-2020	27-Mar-2020
Arsenic (Dissolved)	U	1450	µg/l	1.0	< 1.0	WATER	WATER	WATER
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080	25-Mar-2020	26-Mar-2020	27-Mar-2020
Chromium (Dissolved)	U	1450	µg/l	1.0	< 1.0	WATER	WATER	WATER
Copper (Dissolved)	U	1450	µg/l	1.0	< 1.0	WATER	WATER	WATER
Mercury (Dissolved)	U	1450	µg/l	0.50	1.3	WATER	WATER	WATER
Nickel (Dissolved)	U	1450	µg/l	1.0	< 1.0	WATER	WATER	WATER
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	WATER	WATER	WATER
Selenium (Dissolved)	U	1450	µg/l	1.0	2.7	WATER	WATER	WATER
Tin (Dissolved)	U	1450	µg/l	1.0	< 1.0	WATER	WATER	WATER
Vanadium (Dissolved)	U	1450	µg/l	1.0	< 1.0	WATER	WATER	WATER
Zinc (Dissolved)	U	1450	µg/l	1.0	2.4	WATER	WATER	WATER
Diethyl Tin	N	1730	µg/l	0.050	< 0.050	WATER	WATER	WATER
Tributyl Tin	N	1730	µg/l	0.050	< 0.050	WATER	WATER	WATER

## Results - Water



## Test Methods

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using Aquakem 600 Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

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- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
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## Final Report



The right chemistry to deliver results

Chemtest Ltd.

Depot Road

Newmarket

CB8 0AL

Tel: 01638 606070

Email: info@chemtest.com

Report No.: 20-08359-1

Initial Date of Issue: 24-Mar-2020

Client: Priority Geotechnical Ltd

Client Address: Unit 12  
Owenacurra Business Park  
Midleton  
County Cork  
Ireland

Contact(s): Colette Kelly

Project: P19188 Howth

Quotation No.: Q20-19850

Order No.: 12451

No. of Samples: 4

Turnaround (Wkdays): 7

Date Approved: 24-Mar-2020

Approved By:

Details: Glynn Harvey, Technical Manager

Date Received: 16-Mar-2020

Date Instructed: 17-Mar-2020

Results Due: 25-Mar-2020



The right chemistry to deliver results

Project: P19188 Howth

Client: Priority Geotechnical Ltd

Quotation No.: Q20-19850

### Results - Water

Determination	Accred.	SOP	Units	LOD	Chemtest Job No.: 20-08359			
					Chemtest Sample ID:	Client Sample ID:	Sample Location:	Sample Type:
Chloride	U	1220	mg/l	1.0	986759	P1	7MAM14	WATER
Sulphate	U	1220	mg/l	1.0	986761	P2	7MAM14	WATER
Calcium	U	1415	mg/l	5.0	986762	P3	7MAM14	WATER
Sodium	U	1415	mg/l	0.50	986762	P4	7MAM14	WATER
Arsenic (Dissolved)	U	1450	µg/l	1.0	986762	P4	7MAM14	WATER
Cadmium (Dissolved)	U	1450	µg/l	0.080	986762	P4	7MAM14	WATER
Chromium (Dissolved)	U	1450	µg/l	1.0	986762	P4	7MAM14	WATER
Copper (Dissolved)	U	1450	µg/l	1.0	986762	P4	7MAM14	WATER
Mercury (Dissolved)	U	1450	µg/l	0.50	986762	P4	7MAM14	WATER
Nickel (Dissolved)	U	1450	µg/l	1.0	986762	P4	7MAM14	WATER
Lead (Dissolved)	U	1450	µg/l	1.0	986762	P4	7MAM14	WATER
Selenium (Dissolved)	U	1450	µg/l	1.0	986762	P4	7MAM14	WATER
Tin (Dissolved)	U	1450	µg/l	1.0	986762	P4	7MAM14	WATER
Vanadium (Dissolved)	U	1450	µg/l	1.0	986762	P4	7MAM14	WATER
Zinc (Dissolved)	U	1450	µg/l	1.0	986762	P4	7MAM14	WATER
Diethyl Tin	N	1730	µg/l	0.050	986762	P4	7MAM14	WATER
Tributyl Tin	N	1730	µg/l	0.050	986762	P4	7MAM14	WATER

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate, Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

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- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

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## Final Report



The right chemistry to deliver results

Chemtest Ltd.

Depot Road

Newmarket

CB8 0AL

Tel: 01638 606070

Email: info@chemtest.com

Report No.: 20-13525-1  
 Initial Date of Issue: 05-Jun-2020  
 Client: Priority Geotechnical Ltd  
 Client Address: Unit 12  
 Owenacurra Business Park  
 Midleton  
 County Cork  
 Ireland

Contact(s): Colette Kelly  
 Project: P19188 Howth

Quotation No.: Q20-19850

Order No.: 12451

No. of Samples: 4

Turnaround (Wkdays): 7

Date Approved: 05-Jun-2020

Approved By:

Details: Glynn Harvey, Technical Manager

Date Received: 29-May-2020

Date Instructed: 29-May-2020

Results Due: 08-Jun-2020



The right chemistry to deliver results

### Results - Water

Client: Priority Geotechnical Ltd		Chemtest Job No.: 20-13525		20-13525		20-13525		20-13525		20-13525	
Quotation No.: Q20-19850		Chemtest Sample ID: 1010241		1010241		1010242		1010243		1010244	
Sample Location: BMX28		P5		P6		P7		P8		P9	
Sample Type: WATER		WATER		WATER		WATER		WATER		WATER	
Date Sampled: 02-Apr-2020		09-Apr-2020		15-Apr-2020		27-May-2020					
LOD		LOD		LOD		LOD		LOD		LOD	
Accred.		Accred.		Accred.		Accred.		Accred.		Accred.	
SOP		SOP		SOP		SOP		SOP		SOP	
Units		Units		Units		Units		Units		Units	
Determined		Determined		Determined		Determined		Determined		Determined	
Chloride	U 1220 mg/l	1.0	[B] 220	[B] 220	[B] 220	[B] 220	[B] 220	[B] 220	[B] 220	[B] 220	[B] 220
Sulphate	U 1220 mg/l	1.0	[B] 7.9	[B] 7.9	[B] 62	[B] 62	[B] 25	[B] 25	[B] 25	[B] 25	[B] 25
Calcium	U 1415 mg/l	5.0	[B] 5.0	[B] 5.0	[B] 5.0	[B] 5.0	[B] 5.0	[B] 5.0	[B] 5.0	[B] 5.0	[B] 5.0
Sodium	U 1415 mg/l	0.50	[B] 210	[B] 210	[B] 220	[B] 220	[B] 74	[B] 74	[B] 74	[B] 74	[B] 74
Arsenic (Dissolved)	U 1450 µg/l	1.0	[B] 1.0	[B] 1.0	[B] 2.0	[B] 2.0	[B] 1.1	[B] 1.1	[B] 1.1	[B] 1.1	[B] 1.1
Cadmium (Dissolved)	U 1450 µg/l	0.080	[B] < 0.080	[B] < 0.080	[B] < 0.080	[B] < 0.080	[B] < 0.080	[B] < 0.080	[B] < 0.080	[B] < 0.080	[B] < 0.080
Chromium (Dissolved)	U 1450 µg/l	1.0	[B] 1.8	[B] 1.8	[B] 1.8	[B] 1.7	[B] 1.7	[B] 1.7	[B] 1.7	[B] 1.7	[B] 1.7
Copper (Dissolved)	U 1450 µg/l	1.0	[B] 3.2	[B] 3.2	[B] 7.1	[B] 3.6	[B] 3.6	[B] 3.6	[B] 3.6	[B] 3.6	[B] 3.6
Mercury (Dissolved)	U 1450 µg/l	0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50
Nickel (Dissolved)	U 1450 µg/l	1.0	[B] 2.4	[B] 2.4	[B] 2.3	[B] 1.6	[B] 1.6	[B] 1.6	[B] 1.6	[B] 1.6	[B] 1.6
Lead (Dissolved)	U 1450 µg/l	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Selenium (Dissolved)	U 1450 µg/l	1.0	[B] 5.8	[B] 5.8	[B] 3.8	[B] 2.9	[B] 2.9	[B] 2.9	[B] 2.9	[B] 2.9	[B] 2.9
Tin (Dissolved)	U 1450 µg/l	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Vanadium (Dissolved)	U 1450 µg/l	1.0	[B] 6.6	[B] 6.6	[B] 11	[B] 8.4	[B] 8.4	[B] 8.4	[B] 8.4	[B] 8.4	[B] 8.4
Zinc (Dissolved)	U 1450 µg/l	1.0	[B] 7.0	[B] 7.0	[B] 9.4	[B] 7.6	[B] 7.6	[B] 7.6	[B] 7.6	[B] 7.6	[B] 7.6
Dibutyl Tin	N 1730 µg/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
Tributyl Tin	N 1730 µg/l	0.0500	[B] < 0.0500	[B] < 0.0500	[B] < 0.0500	[B] < 0.0500	[B] < 0.0500	[B] < 0.0500	[B] < 0.0500	[B] < 0.0500	[B] < 0.0500

### 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/MCERT's accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1010241		P5	8MXM28	02-Apr-2020	B	Plastic Tub 500g
1010242		P6	8MXM28	09-Apr-2020	B	Plastic Tub 500g
1010243		P7	8MXM28	15-Apr-2020	B	Plastic Tub 500g

### Test Methods

 06-07-2021F 21A/0368  
 FINGAL CO CO PL DEPT

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
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**Final Report**

**Report No.:** 20-12409-1

**Initial Date of Issue:** 21-May-2020

**Client:** Priority Geotechnical Ltd

**Client Address:** Unit 12  
Owenacurra Business Park  
Midleton  
County Cork  
Ireland

**Contact(s):** Colette Kelly

**Project:** P19188 Howth

**Quotation No.:** Q20-19850

**Order No.:** 12451

**No. of Samples:** 4

**Turnaround (Wkdays):** 7

**Date Approved:** 21-May-2020

**Approved By:**

**Details:** Glynn Harvey, Technical Manager

Chemtest Ltd.

Depot Road

Newmarket

CB8 0AL

Tel: 01638 606070

Email: [info@chemtest.com](mailto:info@chemtest.com)

**Date Received:** 14-May-2020

**Date Instructed:** 15-May-2020

**Results Due:** 26-May-2020

Project: P19188 Howth

Client: Priority Geotechnical Ltd		Chemtest Job No.:		20-12409	20-12409	20-12409	20-12409
Quotation No.: Q20-19850		Chemtest Sample ID.:		1004958	1004959	1004960	1004961
		Client Sample ID.:		P5	P6	P7	P8
		Sample Location:		8MXM14	8MXM14	8MXM14	8MXM14
		Sample Type:		WATER	WATER	WATER	WATER
		Date Sampled:		19-Mar-2020	26-Mar-2020	15-Apr-2020	13-May-2020
Determinand	Accred.	SOP	Units	LOD			
Chloride	U	1220	mg/l	1.0	[B] 290	[B] 160	[B] 190 48
Sulphate	U	1220	mg/l	1.0	[B] 14	[B] 13	[B] 70 21
Calcium	U	1415	mg/l	5.0	[B] 39	[B] 31	[B] 6.3 12
Sodium	U	1415	mg/l	0.50	[B] 200	[B] 110	[B] 130 23
Arsenic (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] < 1.0	[B] 1.1 < 1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	[B] < 0.080	[B] < 0.080	[B] < 0.080 < 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	[B] 2.7	[B] 2.2	[B] 2.3 < 1.0
Copper (Dissolved)	U	1450	µg/l	1.0	[B] 2.0	[B] 2.5	[B] 12 3.4
Mercury (Dissolved)	U	1450	µg/l	0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50 < 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	[B] 2.2	[B] 2.2	[B] 4.9 1.0
Lead (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0 < 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	[B] 6.1	[B] 3.7	[B] 4.5 1.4
Tin (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0 < 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	[B] 4.7	[B] 5.2	[B] 7.7 3.2
Zinc (Dissolved)	U	1450	µg/l	1.0	[B] 6.9	[B] 8.5	[B] 6.8 2.0
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050	< 0.050 < 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050	< 0.050 < 0.050

**Deviations**

In accordance with UKAS Policy on Deviating Samples TFS 01, 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/MCEFT's accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1004958		P5	8MXM14	19-Mar-2020	B	Plastic Bottle 1000ml
1004959		P6	8MXM14	26-Mar-2020	B	Plastic Bottle 1000ml
1004960		P7	8MXM14	15-Apr-2020	B	Plastic Tub 500g

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

**Report Information**

**Key**

- U UKAS accredited
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- > "greater than"

Comments or interpretations are beyond the scope of UKAS accreditation

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Uncertainty of measurement for the determinands tested are available upon request

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All results are expressed on a dry weight basis

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- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

**Sample Retention and Disposal**

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All water samples will be retained for 14 days from the date of receipt

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If you require extended retention of samples, please email your requirements to:

[customerservices@chemtest.com](mailto:customerservices@chemtest.com)





The right chemistry to deliver results

Chemtest Ltd.

Depot Road

Newmarket

CB8 0AL

Tel: 01638 606070

Email: info@chemtest.com

## Final Report

Report No.: 20-09753-1  
Initial Date of Issue: 06-Apr-2020  
Client: Priority Geotechnical Ltd  
Client Address: Unit 12  
Owenacurra Business Park  
Midleton  
County Cork  
Ireland  
Contact(s): Colette Kelly  
Project: P19188 Howth  
Quotation No.: Q20-19850  
Order No.: 12451  
No. of Samples: 4  
Turnaround (Wkdays): 7  
Date Approved: 06-Apr-2020

Date Received: 30-Mar-2020  
Date Instructed: 31-Mar-2020  
Results Due: 08-Apr-2020

Approved By:

Details: Glynn Harvey, Technical Manager



The right chemistry to deliver results

Project: P19188 Howth

Client: Priority Geotechnical Ltd

Quotation No.: Q20-19850

## Results - Water

Determinand	Accred.	SGP	Units	LOD	Chemtest Job No.	Chemtest Sample ID	Client Sample ID	Sample Location	Sample Type	Date Sampled	20-09753	20-09753	20-09753	20-09753
Chloride	U	1220	mg/l	1.0	993859	P1	WATER	BMXXM28	WATER	24-Mar-2020	993859	993900	993901	993902
Sulphate	U	1220	mg/l	1.0										
Calcium	U	1415	mg/l	5.0										
Sodium	U	1415	mg/l	0.50										
Ammonia (Dissolved)	U	1450	µg/l	1.0										
Cadmium (Dissolved)	U	1450	µg/l	0.080										
Chromium (Dissolved)	U	1450	µg/l	1.0										
Copper (Dissolved)	U	1450	µg/l	1.0										
Mercury (Dissolved)	U	1450	µg/l	0.50										
Nickel (Dissolved)	U	1450	µg/l	1.0										
Lead (Dissolved)	U	1450	µg/l	1.0										
Selenium (Dissolved)	U	1450	µg/l	1.0										
Tin (Dissolved)	U	1450	µg/l	1.0										
Vanadium (Dissolved)	U	1450	µg/l	1.0										
Zinc (Dissolved)	U	1450	µg/l	1.0										
Diethyl Tin	N	1730	µg/l	0.050										
Tributyl Tin	N	1730	µg/l	0.0500										



SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

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- D - Broken Container
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All soil samples will be retained for a period of 45 days from the date of receipt  
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## Final Report



The right chemistry to deliver results  
Chemtest Ltd.  
Depot Road  
Newmarket  
CB8 6AL  
Tel: 01638 606070  
Email: info@chemtest.com

Report No.: 20-08362-1  
Initial Date of Issue: 24-Mar-2020  
Client: Priority Geotechnical Ltd  
Client Address: Unit 12  
Owenacurra Business Park  
Midleton  
County Cork  
Ireland  
Contact(s): Colette Kelly  
Project: P19188 Howth  
Quotation No.: Q20-19850  
Order No.: 12451  
No. of Samples: 4  
Turnaround (Wkdays): 7  
Date Approved: 24-Mar-2020  
Approved By:

Date Received: 16-Mar-2020  
Date Instructed: 17-Mar-2020  
Results Due: 25-Mar-2020

Details: Glynn Harvey, Technical Manager



The right chemistry to deliver results

## Results - Water

Client: Priority Geotechnical Ltd		Chemtest Job No.: 20-08362		Chemtest Sample ID.: 966767		20-08362		20-08362		20-08362	
Quotation No.: Q20-19850		Client Sample ID.: P1		Sample Location: 8MXM14		P2		P3		P4	
		Sample Type: WATER		Date Sampled: 10-Mar-2020		WATER		WATER		WATER	
Determinand	Accred.	SOP	Units	LOD							
Chloride	U	1220	mg/l	1.0	290	300	210	94			
Sulphate	U	1220	mg/l	1.0	7.0	3.9	< 1.0	< 1.0			
Calcium	U	1415	mg/l	5.0	97	89	130	81			
Sodium	U	1415	mg/l	0.50	370	400	270	81			
Arsenic (Dissolved)	U	1450	µg/l	1.0	1.1	1.3	1.0	< 1.0			
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080	< 0.080	< 0.080	< 0.080			
Chromium (Dissolved)	U	1450	µg/l	1.0	3.8	3.4	2.8	1.7			
Copper (Dissolved)	U	1450	µg/l	1.0	1.2	1.2	1.1	1.3			
Mercury (Dissolved)	U	1450	µg/l	0.50	6.0	1.5	0.88	0.72			
Nickel (Dissolved)	U	1450	µg/l	1.0	1.8	1.8	1.6	1.2			
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			
Selenium (Dissolved)	U	1450	µg/l	1.0	4.8	5.0	3.9	2.0			
Tin (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0			
Vanadium (Dissolved)	U	1450	µg/l	1.0	2.7	2.8	3.8	3.0			
Zinc (Dissolved)	U	1450	µg/l	1.0	1.8	1.4	1.2	1.5			
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050			
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050	< 0.050	< 0.050			

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

**Report Information**

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For all other tests the samples were dried at < 37°C prior to analysis  
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Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

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- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

**Sample Retention and Disposal**

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All water samples will be retained for 14 days from the date of receipt  
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## Final Report

Report No.: 20-13528-1  
 Initial Date of Issue: 05-Jun-2020  
 Client: Priority Geotechnical Ltd  
 Client Address: Unit 12  
 Owenacurra Business Park  
 Midleton  
 County Cork  
 Ireland  
 Contact(s): Colette Kelly  
 Project: P19188 Howth  
 Quotation No.: Q20-19850  
 Order No.: 12451  
 No. of Samples: 4  
 Turnaround (Wkdays): 7  
 Date Approved: 05-Jun-2020

Approved By:

Details: Glynn Harvey, Technical Manager



Chemtest Ltd.  
 Depot Road  
 Newmarket  
 CB8 8AL  
 Tel: 01638 606070  
 Email: info@chemtest.com



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## Results - Water

Client: Priority Geotechnical Ltd		Chemtest Job No.: 20-13528		Chemtest Sample ID: 20-13528		Chemtest Sample ID: 20-13528		Chemtest Sample ID: 20-13528	
Quotation No.: Q20-19850		Client Sample ID: P5		Client Sample ID: P6		Client Sample ID: P7		Client Sample ID: P8	
Sample Location: WATER		Sample Location: WATER		Sample Location: WATER		Sample Location: WATER		Sample Location: WATER	
Sample Type: WATER		Sample Type: WATER		Sample Type: WATER		Sample Type: WATER		Sample Type: WATER	
Date Sampled: 01-Apr-2020		Date Sampled: 06-Apr-2020		Date Sampled: 15-Apr-2020		Date Sampled: 27-May-2020		Date Sampled: 27-May-2020	
Determinand	Accred.	SOP	Units	LOD	20-13528	20-13528	20-13528	20-13528	20-13528
Chloride	U	1220	mg/l	1.0	[B] 160	[B] 150	[B] 59	[B] 59	99
Sulphate	U	1220	mg/l	1.0	[B] 8.4	[B] 62	[B] 27	[B] 27	87
Calcium	U	1415	mg/l	5.0	[B] < 5.0	[B] < 5.0	[B] < 5.0	[B] < 5.0	14
Sodium	U	1415	mg/l	0.50	[B] 150	[B] 180	[B] 56	[B] 56	99
Arsenic (Dissolved)	U	1450	µg/l	1.0	[B] 1.4	[B] 2.1	[B] < 1.0	[B] < 1.0	1.8
Cadmium (Dissolved)	U	1450	µg/l	0.080	[B] < 0.080	[B] 0.14	[B] < 0.080	[B] < 0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	[B] 1.2	[B] 1.5	[B] < 1.0	[B] < 1.0	< 1.0
Copper (Dissolved)	U	1450	µg/l	1.0	[B] 7.0	[B] 8.4	[B] 2.7	[B] 2.7	11
Mercury (Dissolved)	U	1450	µg/l	0.50	[B] 12	[B] 2.6	[B] 1.0	[B] 1.0	< 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	[B] 1.0	[B] 1.6	[B] < 1.0	[B] < 1.0	1.2
Lead (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	[B] 4.3	[B] 3.9	[B] 1.1	[B] 1.1	2.1
Tin (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	< 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	[B] 8.8	[B] 15	[B] 7.7	[B] 7.7	13
Zinc (Dissolved)	U	1450	µg/l	1.0	[B] 2.4	[B] 5.4	[B] 2.0	[B] 2.0	4.0
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050



### 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/MCERT's accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1010250		P5	9MXM28	01-Apr-2020	B	Plastic Tub 500g
1010251		P6	9MXM28	09-Apr-2020	B	Plastic Tub 500g
1010252		P7	9MXM28	15-Apr-2020	B	Plastic Tub 500g

### Test Methods

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

**Report Information**

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**Final Report**

**Report No.:** 20-12410-1

**Initial Date of Issue:** 21-May-2020

**Client:** Priority Geotechnical Ltd

**Client Address:** Unit 12  
Owenacurra Business Park  
Midleton  
County Cork  
Ireland

**Contact(s):** Colette Kelly

**Project:** P19188 Howth

**Quotation No.:** Q20-19850

**Order No.:** 12451

**No. of Samples:** 4

**Turnaround (Wkdays):** 7

**Date Approved:** 21-May-2020

**Approved By:**

**Details:** Glynn Harvey, Technical Manager

Chemtest Ltd.  
Depot Road  
Newmarket  
CB8 0AL

Tel: 01638 606070  
Email: [info@chemtest.com](mailto:info@chemtest.com)

**Date Received:** 14-May-2020

**Date Instructed:** 15-May-2020

**Results Due:** 26-May-2020

Project: P19188 Howth

Client: Priority Geotechnical Ltd	Chemtest Job No.: 20-12410 20-12410 20-12410 20-12410			
Quotation No.: Q20-19850	Chemtest Sample ID.: 1004962 1004963 1004964 1004965			
	Client Sample ID.: P5 P6 P7 P8			
	Sample Location: 9MXM14 9MXM14 9MXM14 9MXM14			
	Sample Type: WATER WATER WATER WATER			
	Date Sampled: 19-Mar-2020 26-Mar-2020 15-Apr-2020 13-May-2020			
Determinand	Accred.	SOP	Units	LOD
Chloride	U	1220	mg/l	1.0
Sulphate	U	1220	mg/l	1.0
Calcium	U	1415	mg/l	5.0
Sodium	U	1415	mg/l	0.50
Arsenic (Dissolved)	U	1450	µg/l	1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080
Chromium (Dissolved)	U	1450	µg/l	1.0
Copper (Dissolved)	U	1450	µg/l	1.0
Mercury (Dissolved)	U	1450	µg/l	0.50
Nickel (Dissolved)	U	1450	µg/l	1.0
Lead (Dissolved)	U	1450	µg/l	1.0
Selenium (Dissolved)	U	1450	µg/l	1.0
Tin (Dissolved)	U	1450	µg/l	1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0
Zinc (Dissolved)	U	1450	µg/l	1.0
Dibutyl Tin	N	1730	µg/l	0.050
Tributyl Tin	N	1730	µg/l	0.0500

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Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1004962		P5	9MXM14	19-Mar-2020	B	Plastic Bottle 1000ml
1004963		P6	9MXM14	26-Mar-2020	B	Plastic Bottle 1000ml
1004964		P7	9MXM14	15-Apr-2020	B	Plastic Tub 500g

## Test Methods

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using Aquakem 600 Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
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- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

### 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.com](mailto:customerservices@chemtest.com)





**Tel: 01638 606070**

Email: [info@chemtest.com](mailto:info@chemtest.com)

## Final Report

<b>Report No.:</b>	20-09751-1
<b>Initial Date of Issue:</b>	06-Apr-2020
<b>Client</b>	Priority Geotechnical Ltd
<b>Client Address:</b>	Unit 12 Owenacurra Business Park Midleton County Cork Ireland
<b>Contact(s):</b>	Colette Kelly
<b>Project</b>	P19188
<b>Quotation No.:</b>	Q20-19850
<b>Order No.:</b>	12451
<b>No. of Samples:</b>	4
<b>Turnaround (Wkdays):</b>	7
<b>Date Approved:</b>	06-Apr-2020
<b>Approved By:</b>	
<b>Details:</b>	Glynn Harvey, Technical Manager

**Details:** Glynn Harvey, Technical Manager

Date Received: 30-Mar-2020

Date Instructed: 31-Mar-2020

Results Due: 08-Apr-2020

**Chemtest**  
The right chemistry to deliver results  
Project: P19188

### Results - Water

Project: P19188 Client: Priority Geotechnical Ltd Quotation No.: Q20-19850	Chemist Job No.: 993894  Client Sample ID: 993896  Sample Location: WATER  Date Sampled: 25-Mar-2020	Chemist Sample ID: P1  Sample Type: WATER  Date Sampled: 25-Mar-2020	SOP Units LOD	Accred.		20-09751	20-09751	20-09751	20-09751		
				U	1220	mg/l	1.0	<1.0	170	46	80
				U	1220	mg/l	1.0	<1.0	<1.0	<1.0	<1.0
				U	1415	mg/l	5.0	21	37	340	44
				U	1415	mg/l	0.50	78	130	73	65
				U	1450	µg/l	1.0	<1.0	<1.0	<1.0	<1.0
				U	1450	µg/l	0.080	<0.080	<0.080	<0.080	<0.080
				U	1450	µg/l	1.0	<1.0	<1.0	<1.0	<1.0
				U	1450	µg/l	1.0	<1.0	<1.0	1.0	<1.0
				U	1450	µg/l	0.50	<0.50	<0.50	<0.50	<0.50
U	Nickel (Dissolved)	U	1450	µg/l	1.0	<1.0	<1.0	<1.0			
U	Lead (Dissolved)	U	1450	µg/l	1.0	<1.0	<1.0	<1.0			
U	Selenium (Dissolved)	U	1450	µg/l	1.0	2.9	4.7	1.6			
U	Tm (Dissolved)	U	1450	µg/l	1.0	<1.0	<1.0	<1.0			
U	Vanadium (Dissolved)	U	1450	µg/l	1.0	<1.0	<1.0	<1.0			
U	Zinc (Dissolved)	U	1450	µg/l	1.0	1.9	1.8	<1.0			
N	Dibutyl Tin	U	1730	µg/l	0.050	<0.050	<0.050	<0.050	<0.050		

## Test Methods

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using Aquakem 600 Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

## Report Information

### Key

- U UKAS accredited
- M MCERTS and UKAS accredited
- N Unaccredited
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- 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 the indicated laboratory  
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### Sample Deviation Codes

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- D - Broken Container
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### Sample Retention and Disposal

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## Final Report



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Chemtest Ltd.

Depot Road

Newmarket

CB8 0AL

Tel: 01638 606070

Email: info@chemtest.com

Report No.: 20-08364-1  
 Initial Date of Issue: 24-Mar-2020  
 Client: Priority Geotechnical Ltd  
 Client Address: Unit 12  
 Owenacurra Business Park  
 Midleton  
 County Cork  
 Ireland

Contact(s): Colette Kelly  
 Project: P19188 Howth  
 Quotation No.: Q20-19850  
 Order No.: 12451  
 No. of Samples: 4  
 Turnaround (Wkdays): 7  
 Date Approved: 24-Mar-2020

Date Received: 16-Mar-2020

Date Instructed: 17-Mar-2020

Results Due: 25-Mar-2020

Approved By:

Details: Glynn Harvey, Technical Manager



The right chemistry to deliver results

Project: P19188 Howth

Client: Priority Geotechnical Ltd

Quotation No.: Q20-19850

Chemtest Job No.: 20-08364

Chemtest Sample ID.: 986775

Client Sample ID.: P1

Sample Location: 9MXM14

Sample Type: WATER

Date Sampled: 10-Mar-2020

SOP: 1220

Units: mg/l

LOD: 1.0

Accred: U

Chloride

Sulphate

Calcium

Sodium

Arsenic (Dissolved)

Cadmium (Dissolved)

Chromium (Dissolved)

Copper (Dissolved)

Mercury (Dissolved)

Nickel (Dissolved)

Lead (Dissolved)

Selenium (Dissolved)

Tin (Dissolved)

Vanadium (Dissolved)

Zinc (Dissolved)

Dibutyl Tin

Tributyl Tin

## Results - Water

Determinand	Accred.	SOP	Units	LOD	20-08364	20-08364	20-08364	20-08364
Chloride	U	1220	mg/l	1.0	190	210	110	57
Sulphate	U	1220	mg/l	1.0	8.7	<1.0	<1.0	<1.0
Calcium	U	1415	mg/l	5.0	45	100	42	31
Sodium	U	1415	mg/l	0.50	160	310	85	43
Arsenic (Dissolved)	U	1450	µg/l	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
Chromium (Dissolved)	U	1450	µg/l	1.0	2.3	2.5	1.6	<1.0
Copper (Dissolved)	U	1450	µg/l	1.0	<1.0	<1.0	<1.0	<1.0
Mercury (Dissolved)	U	1450	µg/l	0.50	0.61	0.72	0.52	<0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	<1.0	<1.0	<1.0	<1.0
Lead (Dissolved)	U	1450	µg/l	1.0	<1.0	<1.0	<1.0	<1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	3.0	3.1	1.8	<1.0
Tin (Dissolved)	U	1450	µg/l	1.0	<1.0	<1.0	<1.0	<1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	2.0	2.9	2.5	1.7
Zinc (Dissolved)	U	1450	µg/l	1.0	<1.0	<1.0	<1.0	<1.0
Dibutyl Tin	N	1730	µg/l	0.050	<0.050	<0.050	<0.050	<0.050
Tributyl Tin	N	1730	µg/l	0.0500	<0.050	<0.050	<0.050	<0.050

## Test Methods

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

## Report Information

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All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

### Sample Deviation Codes

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- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

### 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

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The right chemistry to deliver results

Chemtest Ltd.

Depot Road

Newmarket

CB8 0AL

Tel: 01638 606070

Email: info@chemtest.com

## Final Report

Report No.: 20-13523-1  
Initial Date of Issue: 05-Jun-2020  
Client: Priority Geotechnical Ltd  
Client Address: Unit 12  
Owenacurra Business Park  
Midleton  
County Cork  
Ireland

Contact(s): Colette Kelly  
Project: P19188 Howth

Quotation No.: Q20-19850

Order No.: 12451

No. of Samples: 4

Turnaround (Wkdays): 7

Date Approved: 05-Jun-2020

Approved By:

Details: Glynn Harvey, Technical Manager

Date Received: 29-May-2020

Date Instructed: 29-May-2020

Results Due: 08-Jun-2020



The right chemistry to deliver results

## Results - Water

Client: Priority Geotechnical Ltd		Chemtest Job No.: 20-13523	Chemtest Sample ID: 1010236	20-13523	20-13523	20-13523
Quotation No.: Q20-19850		Client Sample Ref.: P5	Client Sample Ref.: P6	Client Sample Ref.: P7	Client Sample Ref.: P8	Client Sample Ref.: P9
Order No.: 12451		Sample Location: 10MMX28	Sample Location: 10MMX28	Sample Location: 10MMX28	Sample Location: 10MMX28	Sample Location: 10MMX28
		Sample Type: WATER	Sample Type: WATER	Sample Type: WATER	Sample Type: WATER	Sample Type: WATER
		Date Sampled: 02-Apr-2020	Date Sampled: 09-Apr-2020	Date Sampled: 15-Apr-2020	Date Sampled: 27-May-2020	Date Sampled: 27-May-2020
Determinand	Accred.	SOP	Units	LOD	Result	Result
Chloride	U	1220	mg/l	1.0	[B] 120	[B] 53
Sulphate	U	1220	mg/l	1.0	[B] 17	[B] 1.0
Calcium	U	1415	mg/l	5.0	[B] 57	[B] 180
Sodium	U	1415	mg/l	0.50	[B] 260	[B] 95
Arsenic (Dissolved)	U	1450	µg/l	1.0	[B] 2.0	[B] 1.1
Cadmium (Dissolved)	U	1450	µg/l	0.080	[B] < 0.080	[B] < 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	[B] 2.1	[B] 1.2
Copper (Dissolved)	U	1450	µg/l	1.0	[B] 8.0	[B] 3.1
Mercury (Dissolved)	U	1450	µg/l	0.50	[B] < 0.50	[B] < 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	[B] 27	[B] 29
Lead (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] < 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	[B] 4.3	[B] 3.3
Tin (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] < 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] < 1.0
Zinc (Dissolved)	U	1450	µg/l	1.0	[B] 9.0	[B] 14
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050

### 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/MCERT's accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1010236	P5		10MXM28	02-Apr-2020	B	Plastic Tub 500g
1010237	P6		10MXM28	09-Apr-2020	B	Plastic Tub 500g
1010238	P7		10MXM28	15-Apr-2020	B	Plastic Tub 500g

### Test Methods

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

**Report Information**

**Key**

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- > "greater than"

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The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

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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 the indicated 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
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

**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.com](mailto:customerservices@chemtest.com)



**Final Report**

**Report No.:** 20-12411-1  
**Initial Date of Issue:** 21-May-2020  
**Client:** Priority Geotechnical Ltd  
**Client Address:** Unit 12  
 Owenacurra Business Park  
 Midleton  
 County Cork  
 Ireland  
**Contact(s):** Colette Kelly  
**Project:** P19188 Howth  
**Quotation No.:** Q20-19850  
**Order No.:** 12451  
**No. of Samples:** 4  
**Turnaround (Wkdays):** 7  
**Date Approved:** 21-May-2020

**Date Received:** 14-May-2020  
**Date Instructed:** 15-May-2020  
**Results Due:** 26-May-2020

**Approved By:**

**Details:** Glynn Harvey, Technical Manager

Chemtest Ltd.

Depot Road

Newmarket

CB8 0AL

Tel: 01638 606070

Email: [info@chemtest.com](mailto:info@chemtest.com)

Project: P19188 Howth

Client: Priority Geotechnical Ltd		Chemtest Job No.:		20-12411	20-12411	20-12411	20-12411
Quotation No.: Q20-19850		Chemtest Sample ID.:		1004966	1004967	1004968	1004969
		Client Sample ID.:		P5	P6	P7	P8
		Sample Location:		10MXM14	10MXM14	10MXM14	10MXM14
		Sample Type:		WATER	WATER	WATER	WATER
		Date Sampled		19-Mar-2020	26-Mar-2020	15-Apr-2020	13-May-2020
Determinand	Accred.	SOP	Units	LOD			
Chloride	U	1220	mg/l	1.0	[B] 200	[B] 120	[B] 120
Sulphate	U	1220	mg/l	1.0	[B] 6.2	[B] 6.1	[B] 3.8
Calcium	U	1415	mg/l	5.0	[B] 440	[B] 460	[B] 440
Sodium	U	1415	mg/l	0.50	[B] 160	[B] 60	[B] 28
Arsenic (Dissolved)	U	1450	µg/l	1.0	[B] 1.8	[B] 1.1	[B] 1.9
Cadmium (Dissolved)	U	1450	µg/l	0.080	[B] < 0.080	[B] < 0.080	[B] < 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	[B] 2.1	[B] 1.2	[B] 1.7
Copper (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Mercury (Dissolved)	U	1450	µg/l	0.50	[B] 2.0	[B] < 0.50	[B] < 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	[B] 17	[B] 15	[B] 51
Lead (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	[B] 4.0	[B] 2.7	[B] 3.8
Tin (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Zinc (Dissolved)	U	1450	µg/l	1.0	[B] 5.8	[B] 8.2	[B] 11
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050	< 0.050

**Deviations**

In accordance with UKAS Policy on Deviating Samples (PS 83), 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/MCER's accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1004966		P5	10MXM14	19-Mar-2020	B	Plastic Bottle 1000ml
1004967		P6	10MXM14	26-Mar-2020	B	Plastic Bottle 1000ml
1004968		P7	10MXM14	15-Apr-2020	B	Plastic Tub 500g



SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride, Chloride, Nitrite, Nitrate, Total, Oxidisable Nitrogen (TON), Sulfate, Phosphate, Alkalinity, Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium, Potassium, Calcium, Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Mercury, Molybdenum, Nickel, Selenium, Tin, Vanadium, Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

**Report Information**

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- N/E not evaluated
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 Charges may apply to extended sample storage

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## Final Report

Email: info@chemtest.com

Tel: 01633 606070



The right chemistry to deliver results

Chemtest Ltd.

Depot Road

Newmarket

CB8 0AL

Report No.: 20-09749-1

Initial Date of Issue: 06-Apr-2020

Client: Priority Geotechnical Ltd

Client Address: Unit 12

Owenacurra Business Park

Middleton

County Cork

Ireland

Contact(s): Colette Kelly

Project: P19188 Howth

Quotation No.: Q20-19850

Order No.: 12451

No. of Samples: 4

Turnaround (Wkdays): 7

Date Approved: 06-Apr-2020

Approved By:

Details: Glynn Harvey, Technical Manager

Date Received: 30-Mar-2020

Date Instructed: 31-Mar-2020

Results Due: 08-Apr-2020

### Results - Water



The right chemistry to deliver results

Project: P19188 Howth

Client: Priority Geotechnical Ltd		Chemtest Job No.:		20-09749	20-09749	20-09749	20-09749
Quotation No.: Q20-19850		Chemtest Sample ID.:		993889	993890	993891	993892
		Client Sample ID.:		P1	P2	P3	P4
		Sample Location:		10MXM28	10MXM28	10MXM28	10MXM28
		Sample Type:		WATER	WATER	WATER	WATER
		Date Sampled:		24-Mar-2020	25-Mar-2020	26-Mar-2020	27-Mar-2020
Determinand	Accred.	SOP	Units	LOD			
Chloride	U	1220	mg/l	1.0	270	390	230
Sulphate	U	1220	mg/l	1.0	1.3	2.5	2.1
Calcium	U	1415	mg/l	5.0	41	16	42
Sodium	U	1415	mg/l	0.50	350	510	350
Arsenic (Dissolved)	U	1450	µg/l	1.0	2.5	2.6	2.6
Cadmium (Dissolved)	U	1450	µg/l	0.080	0.97	0.35	0.27
Chromium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0
Copper (Dissolved)	U	1450	µg/l	1.0	3.3	2.8	3.9
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50	< 0.50	< 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	12	17	15
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	16	10	8.8
Tin (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0
Zinc (Dissolved)	U	1450	µg/l	1.0	4.5	9.9	8.6
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050	< 0.050

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

## Report Information

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- U UKAS accredited
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- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

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If you require extended retention of samples, please email your requirements to:  
[customerservices@chemtest.com](mailto:customerservices@chemtest.com)





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## Final Report

Report No.: 20-08366-1  
 Initial Date of Issue: 24-Mar-2020  
 Client: Priority Geotechnical Ltd  
 Client Address: Unit 12  
 Owenacurra Business Park  
 Midleton  
 County Cork  
 Ireland  
 Contact(s): Colette Kelly  
 Project: P19188 Howth  
 Quotation No.: Q20-19850  
 Order No.: 12451  
 No. of Samples: 4  
 Turnaround (Wkdays): 7  
 Date Approved: 24-Mar-2020  
 Approved By:

Details: Glynn Harvey, Technical Manager



The right chemistry to deliver results

Chemtest Ltd.

Depot Road

Newmarket

CB8 0AL

Tel: 01638 606070

Email: info@chemtest.com

Date Received: 16-Mar-2020  
 Date Instructed: 17-Mar-2020  
 Results Due: 25-Mar-2020



The right chemistry to deliver results

## Results - Water

Client: Priority Geotechnical Ltd		Chemtest Job No.: 20-08366		Chemtest Sample ID: 998783		20-08366		20-08366		20-08366		20-08366	
Quotation No.: Q20-19850		Client Sample ID: 998783		Client Sample ID: 998783		P1		P2		P3		P4	
		Sample Location: 10XXM14		Sample Location: 10XXM14		WATER		WATER		WATER		WATER	
		Sample Type: 10XXM14		Sample Type: 10XXM14		WATER		WATER		WATER		WATER	
		Date Sampled: 10-Mar-2020		Date Sampled: 11-Mar-2020		10-Mar-2020		11-Mar-2020		12-Mar-2020		13-Mar-2020	
Determinand	Accred.	Unit	LOD	Unit	LOD	Unit	LOD	Unit	LOD	Unit	LOD	Unit	LOD
Chloride	U	1220	mg/l	1.0	310	310	360	210	93	93	93	93	93
Sulphate	U	1220	mg/l	1.0	<1.0	<1.0	<1.0	1.3	1.1	1.1	1.1	1.1	1.1
Calcium	U	1415	mg/l	5.0	46	46	42	120	170	170	170	170	170
Sodium	U	1415	mg/l	0.50	420	420	530	350	130	130	130	130	130
Arsenic (Dissolved)	U	1450	µg/l	1.0	1.6	1.6	2.1	1.3	<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	<0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	3.2	3.2	3.5	2.5	1.6	1.6	1.6	1.6	1.6
Copper (Dissolved)	U	1450	µg/l	1.0	2.8	2.8	3.8	3.5	2.5	2.5	2.5	2.5	2.5
Mercury (Dissolved)	U	1450	µg/l	0.50	0.51	0.51	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	13	13	16	9.3	4.6	4.6	4.6	4.6	4.6
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	5.1	5.1	4.9	3.0	1.7	1.7	1.7	1.7	1.7
Tin (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
Vanadium (Dissolved)	U	1450	µg/l	1.0	1.3	1.3	1.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Zinc (Dissolved)	U	1450	µg/l	1.0	1.8	1.8	2.9	4.4	3.4	3.4	3.4	3.4	3.4
Dibutyl Tin	N	1730	µg/l	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Tributyl Tin	N	1730	µg/l	0.0500	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050



SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

**Report Information**

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**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
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

**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.com](mailto:customerservices@chemtest.com)



# Final Report



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

**Report No.:** 20-19237-1  
**Initial Date of Issue:** 31-Jul-2020  
**Client:** Priority Geotechnical Ltd  
**Client Address:** Unit 12  
Owenacurra Business Park  
Midleton  
County Cork  
Ireland  
**Contact(s):** Colette Kelly  
**Project:** P19188 Howrth  
**Quotation No.:** Q20-19850  
**Order No.:** 12451  
**No. of Samples:** 2  
**Turnaround (Wkdays):** 7  
**Date Approved:** 31-Jul-2020

**Date Received:** 24-Jul-2020  
**Date Instructed:** 24-Jul-2020  
**Results Due:** 03-Aug-2020

**Approved By:**

**Details:** Glynn Harvey, Technical Manager

## Results - Water

Project: P19188 Howrth		Chemtest Job No.: 20-19237		Chemtest Sample ID.: 1037341		Client Sample ID.: P7		Sample Location: MAM60		Sample Type: WATER		Date Sampled: 26-Jun-2020		23-Jul-2020	
Client: Priority Geotechnical Ltd		Quotation No.: Q20-19850		Client Sample ID.: 1037341		Client Sample ID.: P7		Sample Location: MAM60		Sample Type: WATER		Date Sampled: 26-Jun-2020		23-Jul-2020	
Determinand	Accred.	SOP	Units	LOO	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Chloride	U	1220	mg/l	1.0	[B] 180	150									
Sulphate	U	1220	mg/l	1.0	[B] 88	64									
Calcium	U	1415	mg/l	5.0	[B] 9.1	10									
Sodium	U	1415	mg/l	0.50	[B] 180	150									
Arsenic (Dissolved)	U	1450	µg/l	1.0	[B] 4.9	3.6									
Cadmium (Dissolved)	U	1450	µg/l	0.080	[B] < 0.080	< 0.080									
Chromium (Dissolved)	U	1450	µg/l	1.0	[B] 5.5	3.5									
Copper (Dissolved)	U	1450	µg/l	1.0	[B] 35	22									
Mercury (Dissolved)	U	1450	µg/l	0.50	[B] < 0.50	< 0.50									
Nickel (Dissolved)	U	1450	µg/l	1.0	[B] 8.9	5.2									
Lead (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	< 1.0									
Selenium (Dissolved)	U	1450	µg/l	1.0	[B] 5.3	4.8									
Tin (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	< 1.0									
Vanadium (Dissolved)	U	1450	µg/l	1.0	[B] 36	29									
Zinc (Dissolved)	U	1450	µg/l	1.0	[B] 7.7	8.8									
Diethyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050									
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050									

## 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/MCERT's accredited but the results may be compromised

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1037341		P7	MAM90	26-Jun-2020	B	Plastic Bottle 1000ml

## Test Methods

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total, Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium, Beryllium; Boron; Cadmium; Chromium, Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium, Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

## Report Information

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## Final Report

Report No.:	20-17653-1	
Initial Date of Issue:	14-Jul-2020	
Client	Priority Geotechnical Ltd	
Client Address:	Unit 12 Owenacurra Business Park Midleton County Cork Ireland	
Contact(s):	Colette Kelly	
Project	P19188 Howth	
Quotation No.:	Q20-19850	Date Received: 10-Jul-2020
Order No.:	12451	Date Instructed: 10-Jul-2020
No. of Samples:	2	
Turnaround (Wkdays):	7	Results Due: 20-Jul-2020
Date Approved:	14-Jul-2020	
Approved By:		

Details: Glynn Harvey, Technical Manager



## Results - Water

Project: P19188 Howth

Client: Priority Geotechnical Ltd	Chemtest Job No.:		20-17653	20-17653
Quotation No.: Q20-19850	Chemtest Sample ID.:		1029615	1029616
	Client Sample ID.:		P7	P8
	Sample Location:		MAM76	MAM76
	Sample Type:		WATER	WATER
	Date Sampled:		10-Jun-2020	08-Jul-2020
Determinand	Accred.	SOP	Units	LOD
Chloride	U	1220	mg/l	1.0
Sulphate	U	1220	mg/l	1.0
Calcium	U	1415	mg/l	5.0
Sodium	U	1415	mg/l	0.50
Arsenic (Dissolved)	U	1450	µg/l	1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080
Chromium (Dissolved)	U	1450	µg/l	1.0
Copper (Dissolved)	U	1450	µg/l	1.0
Mercury (Dissolved)	U	1450	µg/l	0.50
Nickel (Dissolved)	U	1450	µg/l	1.0
Lead (Dissolved)	U	1450	µg/l	1.0
Selenium (Dissolved)	U	1450	µg/l	1.0
Tin (Dissolved)	U	1450	µg/l	1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0
Zinc (Dissolved)	U	1450	µg/l	1.0
Dibutyl Tin	N	1730	µg/l	0.050
Tributyl Tin	N	1730	µg/l	0.050

Page 2 of 5

## Deviations

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Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1029615		P7	MAM76	10-Jun-2020	B	Plastic Bottle 1000ml

## Test Methods

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride, Chloride, Nitrite, Nitrate, Total, Oxidisable Nitrogen (TON); Sulfate, Phosphate, Alkalinity, Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium, Potassium, Calcium, Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Mercury, Molybdenum, Nickel, Selenium, Tin, Vanadium, Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

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The right chemistry to deliver results

Chemtest Ltd.

Depot Road

Newmarket

CB8 0AL

Tel: 01638 606070

Email: info@chemtest.com

## Final Report

Report No.: 20-14330-1  
Initial Date of Issue: 10-Jun-2020  
Client: Priority Geotechnical Ltd  
Client Address: Unit 12  
Owenacurra Business Park  
Midleton  
County Cork  
Ireland  
Contact(s): Colette Kelly  
Project: P19188 Howth  
Quotation No.: Q20-19850  
Order No.: 12451  
No. of Samples: 2  
Turnaround (Wkdays): 7  
Date Approved: 10-Jun-2020

Date Received: 08-Jun-2020

Date Instructed: 08-Jun-2020

Results Due: 16-Jun-2020

Approved By:

Details: Glynn Harvey, Technical Manager

## Results - Water



The right chemistry to deliver results

Client: Priority Geotechnical Ltd	Chemtest Job No.: 20-14330	Chemtest Sample ID: 1013951	Client Sample ID: P5	Sample Location: MAM90	Sample Type: WATER	Date Sampled: 26-May-2020	05-Jun-2020
Quotation No.: Q20-19850	Chemtest Job No.: 20-14330	Chemtest Sample ID: 1013951	Client Sample ID: P5	Sample Location: MAM90	Sample Type: WATER	Date Sampled: 26-May-2020	05-Jun-2020
Determinand	Accred.	SOP	Units	LOD			
Chloride	U	1220	mg/l	1.0	78	61	
Sulphate	U	1220	mg/l	1.0	5.8	12	
Calcium	U	1415	mg/l	5.0	< 5.0	< 5.0	
Sodium	U	1415	mg/l	0.50	72	89	
Arsenic (Dissolved)	U	1450	µg/l	1.0	< 1.0	1.2	
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080	< 0.080	
Chromium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	
Copper (Dissolved)	U	1450	µg/l	1.0	9.8	11	
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50	< 0.50	
Nickel (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	
Selenium (Dissolved)	U	1450	µg/l	1.0	1.7	1.9	
Tin (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	
Vanadium (Dissolved)	U	1450	µg/l	1.0	5.3	8.3	
Zinc (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050	
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050	

## Test Methods

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

## 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 the indicated 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
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

### 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.com](mailto:customerservices@chemtest.com)





The right chemistry to deliver results

Chemtest Ltd.

Depot Road

Newmarket

CB8 0AL

Tel: 01638 606070

Email: info@chemtest.com

## Final Report

Report No.: 20-13485-1  
Initial Date of Issue: 04-Jun-2020  
Client: Priority Geotechnical Ltd  
Client Address: Unit 12  
Owenacurra Business Park  
Midleton  
County Cork  
Ireland  
Contact(s): Colette Kelly  
Project: P19188 Howth  
Quotation No.: Q20-19850  
Order No.: 12451  
No. of Samples: 2  
Turnaround (Wkdays): 7  
Date Approved: 04-Jun-2020

Date Received: 28-May-2020

Date Instructed: 29-May-2020

Results Due: 08-Jun-2020

Approved By:

Details: Glynn Harvey, Technical Manager



The right chemistry to deliver results

Project: P19188 Howth

Client: Priority Geotechnical Ltd

Quotation No.: Q20-19850

Chemtest Job No.: 20-13485

Chemtest Sample ID: 1010087

Client Sample ID: PS

Sample Location: MAM76

Sample Type: WATER

Date Sampled: 14-May-2020

LOD: 21-May-2020

Accred. SOP Units

LOD

20-13485

1010087

PS

MAM76

WATER

21-May-2020

67

9.5

6.7

89

< 1.0

< 0.080

< 1.0

15

4.2

2.0

< 1.0

2.8

1.1

8.3

4.6

< 0.050

< 0.050

## Results - Water

Determinand	Accred.	SOP	Units	LOD	20-13485	1010087	PS	MAM76	WATER	21-May-2020
Chloride	U	1220	mg/l	1.0	[B] 54	[B] 54	[B] 54	[B] 54	[B] 54	67
Sulphate	U	1220	mg/l	1.0	[B] 3.0	[B] 3.0	[B] 3.0	[B] 3.0	[B] 3.0	9.5
Calcium	U	1415	mg/l	0.50	[B] 24	[B] 24	[B] 24	[B] 24	[B] 24	6.7
Sodium	U	1415	mg/l	0.50	[B] 49	[B] 49	[B] 49	[B] 49	[B] 49	89
Arsenic (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	< 1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	[B] < 0.080	[B] < 0.080	[B] < 0.080	[B] < 0.080	[B] < 0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	< 1.0
Copper (Dissolved)	U	1450	µg/l	1.0	[B] 1.2	[B] 1.2	[B] 1.2	[B] 1.2	[B] 1.2	15
Mercury (Dissolved)	U	1450	µg/l	0.50	[B] 14	[B] 14	[B] 14	[B] 14	[B] 14	4.2
Nickel (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	2.0
Lead (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	[B] 1.8	[B] 1.8	[B] 1.8	[B] 1.8	[B] 1.8	2.8
Tin (Dissolved)	U	1450	µg/l	1.0	[B] 1.3	[B] 1.3	[B] 1.3	[B] 1.3	[B] 1.3	1.1
Vanadium (Dissolved)	U	1450	µg/l	1.0	[B] 3.1	[B] 3.1	[B] 3.1	[B] 3.1	[B] 3.1	8.3
Zinc (Dissolved)	U	1450	µg/l	1.0	[B] 6.2	[B] 6.2	[B] 6.2	[B] 6.2	[B] 6.2	4.6
Diethyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050

### 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/MCERT's accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1010087		P5	MAM76	14-May-2020	B	Plastic Bottle 1000ml

### Test Methods

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity, Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

**Report Information**

**Key**

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- I/S Insufficient Sample
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- 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 the indicated 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
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

**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.com](mailto:customerservices@chemtest.com)



**Final Report**

**Report No.:** 20-13338-1  
**Initial Date of Issue:** 01-Jun-2020  
**Client:** Priority Geotechnical Ltd  
**Client Address:** Unit 12  
 Owenacurra Business Park  
 Midleton  
 County Cork  
 Ireland  
**Contact(s):** Colette Kelly  
**Project:** P19188 Howth  
**Quotation No.:** Q20-19850  
**Order No.:** 12451  
**No. of Samples:** 4  
**Turnaround (Wkdays):** 7  
**Date Approved:** 01-Jun-2020

**Date Received:** 27-May-2020  
**Date Instructed:** 27-May-2020  
**Results Due:** 04-Jun-2020

**Approved By:**

**Details:** Glynn Harvey, Technical Manager

Chemtest Ltd.

Depot Road

Newmarket

CB8 0AL

Tel: 01638 806070

Email: [info@chemtest.com](mailto:info@chemtest.com)

Project: P19188 Howth

Client: Priority Geotechnical Ltd		Chemtest Job No.:		20-13338	20-13338	20-13338	20-13338	
Quotation No.: Q20-19850		Chemtest Sample ID.:		1009357	1009358	1009359	1009360	
		Client Sample ID.:		P1	P2	P3	P4	
		Sample Location:		MAM90	MAM90	MAM90	MAM90	
		Sample Type:		WATER	WATER	WATER	WATER	
		Date Sampled:		20-May-2020	21-May-2020	22-May-2020	25-May-2020	
Determinand	Accred.	SOP	Units	LOD				
Chloride	U	1220	mg/l	1.0	58	67	38	79
Sulphate	U	1220	mg/l	1.0	< 1.0	2.0	< 1.0	3.5
Calcium	U	1415	mg/l	5.0	25	27	18	14
Sodium	U	1415	mg/l	0.50	55	61	35	71
Arsenic (Dissolved)	U	1450	µg/l	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
Chromium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	2.7
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Lead (Dissolved)	U	1450	µg/l	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
Tin (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050	< 0.050	< 0.050

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride, Chloride, Nitrite, Nitrate, Total Oxidisable Nitrogen (TON), Sulfate, Phosphate, Alkalinity, Ammonium	Automated colorimetric analysis using Aquatem 600 Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium, Potassium, Calcium, Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals including: Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Mercury, Molybdenum, Nickel, Selenium, Tin, Vanadium, Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organic-Leads	Organic-Leads	Solvent extraction / GC/MS detection



**Report Information**

**Key**

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- M MCERTS and UKAS accredited
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Comments or interpretations are beyond the scope of UKAS accreditation

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Uncertainty of measurement for the determinands tested are available upon request

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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 the indicated 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
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

**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.com](mailto:customerservices@chemtest.com)



**Final Report**

**Report No.:** 20-13185-1  
**Initial Date of Issue:** 01-Jun-2020  
**Client:** Priority Geotechnical Ltd  
**Client Address:** Unit 12  
 Owenacurra Business Park  
 Midleton  
 County Cork  
 Ireland  
**Contact(s):** Colette Kelly  
**Project:** P19188 Howth  
**Quotation No.:** Q20-19850  
**Order No.:** 12451  
**No. of Samples:** 4  
**Turnaround (Wkdays):** 7  
**Date Approved:** 01-Jun-2020

**Date Received:** 26-May-2020  
**Date Instructed:** 26-May-2020  
**Results Due:** 03-Jun-2020

**Approved By:**

**Details:** Glynn Harvey, Technical Manager

Chemtest Ltd.  
 Depot Road  
 Newmarket  
 CB8 0AL  
 Tel: 01638 606070  
 Email: [info@chemtest.com](mailto:info@chemtest.com)

Project: P19188 Howth

Client: Priority Geotechnical Ltd		Chemtest Job No.:	20-13185	20-13185	20-13185	20-13185
Quotation No.: Q20-19850		Chemtest Sample ID.:	1008634	1008635	1008636	1008637
		Client Sample ID.:	P5	P6	P7	P8
		Sample Location:	MAM28	MAM28	MAM28	MAM28
		Sample Type:	WATER	WATER	WATER	WATER
		Date Sampled:	27-Mar-2020	03-Apr-2020	23-Apr-2020	21-May-2020
Determinand	Accred.	SOP	Units	LOD		
Chloride	U	1220	mg/l	1.0	[B] 110	[B] 130
Sulphate	U	1220	mg/l	1.0	[B] 8.1	[B] 11
Calcium	U	1415	mg/l	5.0	[B] 28	[B] 31
Sodium	U	1415	mg/l	0.50	[B] 220	[B] 120
Arsenic (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] < 1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	[B] < 0.080	[B] < 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] < 1.0
Copper (Dissolved)	U	1450	µg/l	1.0	[B] 4.1	[B] 4.9
Mercury (Dissolved)	U	1450	µg/l	0.50	[B] < 0.50	[B] < 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	[B] 1.5	[B] 2.3
Lead (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] < 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] 1.8
Tin (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] < 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] 2.7
Zinc (Dissolved)	U	1450	µg/l	1.0	[B] 4.3	[B] 4.7
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050

**Deviations**

In accordance with UKAS Policy on Deviating Samples TFS 01 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/ACCERT's accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sample Date:	Deviation Code(s):	Containers Received:
1008634		P5	MAM28	27-Mar-2020	B	Plastic Bottle 1000ml
1008635		P6	MAM28	03-Apr-2020	B	Plastic Tub 500g
1008636		P7	MAM28	23-Apr-2020	B	Plastic Tub 500g

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride, Chloride, Nitrite, Nitrate, Total, Oxidisable Nitrogen (TON), Sulfate, Phosphate, Alkalinity, Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium, Potassium, Calcium, Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Mercury, Molybdenum, Nickel, Selenium, Tin, Vanadium, Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

**Report Information**

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- M MCERTS and UKAS accredited
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- T This analysis has been subcontracted to an unaccredited laboratory
- I/S Insufficient Sample
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- N/E not evaluated
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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 the indicated 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
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

**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.com](mailto:customerservices@chemtest.com)





## Final Report

Report No.: 20-12277-1  
 Initial Date of Issue: 18-May-2020  
 Client: Priority Geotechnical Ltd  
 Client Address: Unit 12  
 Owenacurra Business Park  
 Midleton  
 County Cork  
 Ireland  
 Contact(s): Colette Kelly  
 Project: P19188 Howth  
 Quotation No.: Q20-19850  
 Order No.: 12451  
 No. of Samples: 4  
 Turnaround (Wkdays): 7  
 Date Approved: 18-May-2020

Approved By:

Details: Glynn Harvey, Technical Manager



The right chemistry to deliver results

Chemtest Ltd.

Depot Road

Newmarket

CB8 0AL

Tel: 01638 606070

Email: info@chemtest.com



The right chemistry to deliver results

Project: P19188 Howth

Client: Priority Geotechnical Ltd

Quotation No: Q20-19850

Determination	Chemtest Job No.: 20-12277		20-12277		20-12277		20-12277		20-12277		20-12277	
	Chemtest Sample ID: 1004507		1004508		1004509		1004510		1004511		1004512	
	Client Sample ID: P1		P2		P3		P4		P5		P6	
	Sample Location: MAM76		MAM76		MAM76		MAM76		MAM76		MAM76	
	Sample Type: WATER		WATER		WATER		WATER		WATER		WATER	
	Date Sampled: 06-May-2020		07-May-2020		08-May-2020		11-May-2020		11-May-2020		11-May-2020	
	Accred.	SOP	Units	LOD								
Chloride	U	1220	mg/l	1.0	44	50	48	82				
Sulphate	U	1220	mg/l	1.0	1.4	<1.0	2.0	4.9				
Calcium	U	1415	mg/l	5.0	9.0	5.9	6.8	<5.0				
Sodium	U	1415	mg/l	0.50	39	43	40	67				
Ammonia (Dissolved)	U	1450	µg/l	1.0	<1.0	<1.0	<1.0	<1.0				
Chromium (Dissolved)	U	1450	µg/l	0.080	0.12	0.095	<0.080	<0.080				
Copper (Dissolved)	U	1450	µg/l	1.0	<1.0	<1.0	<1.0	1.4				
Mercury (Dissolved)	U	1450	µg/l	1.0	<1.0	<1.0	<1.0	5.7				
Nickel (Dissolved)	U	1450	µg/l	0.50	<0.50	<0.50	<0.50	<0.50				
Lead (Dissolved)	U	1450	µg/l	1.0	<1.0	<1.0	<1.0	1.1				
Selenium (Dissolved)	U	1450	µg/l	1.0	<1.0	<1.0	<1.0	<1.0				
Tin (Dissolved)	U	1450	µg/l	1.0	<1.0	1.3	<1.0	2.2				
Vanadium (Dissolved)	U	1450	µg/l	1.0	<1.0	<1.0	<1.0	28				
Zinc (Dissolved)	U	1450	µg/l	1.0	1.3	1.4	1.7	3.5				
Dibutyl Tin	N	1730	µg/l	0.050	<0.050	<0.050	<0.050	<0.050				
Tributyl Tin	N	1730	µg/l	0.0500	<0.050	<0.050	<0.050	<0.050				

## Results - Water



SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

**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 the indicated 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
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

**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.com](mailto:customerservices@chemtest.com)



## Final Report

Report No.: 20-12156-1  
 Initial Date of Issue: 18-May-2020  
 Client: Priority Geotechnical Ltd  
 Client Address: Unit 12  
 Owenacurra Business Park  
 Midleton  
 County Cork  
 Ireland  
 Contact(s): Colette Kelly  
 Project: P19188 Howth  
 Quotation No.: Q20-19850  
 Order No.: 12451  
 No. of Samples: 4  
 Turnaround (Wkdays): 7  
 Date Approved: 18-May-2020

Approved By:

Details: Glynn Harvey, Technical Manager



The right chemistry to deliver results

Chemtest Ltd.

Depot Road

Newmarket

CB8 0AL

Tel: 01638 606070

Email: info@chemtest.com



The right chemistry to deliver results

Project: P19188 Howth

Client: Priority Geotechnical Ltd

Quotation No.: Q20-19850

Chemtest Job No.: 20-12156

Chemtest Sample ID: 1003947

Client Sample ID: P5

Sample Location: MAM14

Sample Type: WATER

Date Sampled: 13-Mar-2020

LOD

Accred.

SOP

Units

Determinand

Chloride

Sulphate

Calcium

Sodium

Arsenic (Dissolved)

Cadmium (Dissolved)

Chromium (Dissolved)

Copper (Dissolved)

Mercury (Dissolved)

Nickel (Dissolved)

Lead (Dissolved)

Selenium (Dissolved)

Tin (Dissolved)

Vanadium (Dissolved)

Zinc (Dissolved)

Dibutyl Tin

Tributyl Tin

## Results - Water

Determinand	Accred.	SOP	Units	LOD	20-12156 1003947 P5 MAM14 WATER 13-Mar-2020	20-12156 1003948 P6 MAM14 WATER 20-Mar-2020	20-12156 1003949 P7 MAM14 WATER 09-Apr-2020	20-12156 1003950 P8 MAM14 WATER 07-May-2020
Chloride	U	1220	mg/l	1.0	[B] 130	[B] 120	[B] 140	[B] 63
Sulphate	U	1220	mg/l	1.0	[B] 9.3	[B] 10	[B] 51	[B] 37
Calcium	U	1415	mg/l	5.0	[B] 57	[B] 51	[B] 22	[B] 54
Sodium	U	1415	mg/l	0.50	[B] 110	[B] 87	[B] 86	[B] 35
Arsenic (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	[B] < 0.080	[B] < 0.080	[B] < 0.080	[B] < 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	[B] 1.5	[B] 1.3	[B] 1.6	[B] < 1.0
Copper (Dissolved)	U	1450	µg/l	1.0	[B] 2.9	[B] 1.5	[B] 12	[B] 12
Mercury (Dissolved)	U	1450	µg/l	0.50	[B] < 0.50	[B] 2.9	[B] 1.0	[B] 0.71
Nickel (Dissolved)	U	1450	µg/l	1.0	[B] 2.1	[B] 2.5	[B] 6.6	[B] 4.2
Lead (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	[B] 4.1	[B] 4.1	[B] 5.8	[B] 3.1
Tin (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	[B] 3.7	[B] 4.3	[B] 7.5	[B] 5.9
Zinc (Dissolved)	U	1450	µg/l	1.0	[B] 6.0	[B] 4.8	[B] 5.0	[B] 3.0
Dibutyl Tin	N	1730	µg/l	0.050	[B] < 0.050	[B] < 0.050	[B] < 0.050	[B] < 0.050
Tributyl Tin	N	1730	µg/l	0.0500	[B] < 0.050	[B] < 0.050	[B] < 0.050	[B] < 0.050

### 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:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1003947		P5	MAM14	13-Mar-2020	B	Plastic Tub 500g
1003948		P6	MAM14	20-Mar-2020	B	Plastic Tub 500g
1003949		P7	MAM14	09-Apr-2020	B	Plastic Bottle 1000ml

### Test Methods

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

**Report Information**

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- I/S Insufficient Sample
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- 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 the indicated 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
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

**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.com](mailto:customerservices@chemtest.com)



**Final Report**

**Report No.:** 20-09334-1  
**Initial Date of Issue:** 30-Mar-2020  
**Client:** Priority Geotechnical Ltd  
**Client Address:** Unit 12  
 Owenacurra Business Park  
 Midleton  
 County Cork  
 Ireland  
**Contact(s):** Colette Kelly  
**Project:** P1988 Howth  
**Quotation No.:** Q20-19850  
**Order No.:** 12451  
**No. of Samples:** 4  
**Turnaround (Wkdays):** 7  
**Date Approved:** 30-Mar-2020

**Date Received:** 25-Mar-2020

**Date Instructed:** 25-Mar-2020

**Results Due:** 02-Apr-2020

**Approved By:**

**Details:** Glynn Harvey, Technical Manager



Project: P1988 Howth

Client: Priority Geotechnical Ltd		Chemtest Job No.:		20-09334	20-09334	20-09334	20-09334
Quotation No.: Q20-19850		Chemtest Sample ID.:		991436	991437	991438	991439
		Client Sample ID.:		P1	P2	P3	P4
		Sample Location:		MAM28	MAM28	MAM28	MAM28
		Sample Type:		WATER	WATER	WATER	WATER
		Date Sampled		19-Mar-2020	20-Mar-2020	22-Mar-2020	23-Mar-2020
Determinand	Accred.	SOP	Units	LOD			
Chloride	U	1220	mg/l	1.0	130	120	210
Sulphate	U	1220	mg/l	1.0	< 1.0	< 1.0	4.3
Calcium	U	1415	mg/l	5.0	54	66	62
Sodium	U	1415	mg/l	0.50	110	100	210
Arsenic (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080	< 0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	1.1	1.0	1.9
Copper (Dissolved)	U	1450	µg/l	1.0	< 1.0	1.2	3.0
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50	< 0.50	< 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	1.4	1.4	2.2
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	3.4	3.0	5.5
Tin (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	2.2	2.3	4.0
Zinc (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	5.4
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050	< 0.050

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride, Chloride, Nitrate, Nitrite, Total Oxidisable Nitrogen (TON), Sulfate, Phosphate, Alkalinity, Ammonium	Automated colorimetric analysis using Aquilam 600 Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium, Potassium, Calcium, Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals including Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Mercury, Molybdenum, Nickel, Selenium, Tin, Vanadium, Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organic-Leads	Organic-Leads	Solvent extraction / GCMS detection

**Report Information**

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- > "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 the indicated 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
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

**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.com](mailto:customerservices@chemtest.com)



**Final Report**

<b>Report No.:</b>	20-07864-1		
<b>Initial Date of Issue:</b>	18-Mar-2020		
<b>Client</b>	Priority Geotechnical Ltd		
<b>Client Address:</b>	Unit 12 Owenacurra Business Park Midleton County Cork Ireland		
<b>Contact(s):</b>	Colette Kelly		
<b>Project</b>	P19188 Howth		
<b>Quotation No.:</b>	Q20-19850	<b>Date Received:</b>	11-Mar-2020
<b>Order No.:</b>	12451	<b>Date Instructed:</b>	12-Mar-2020
<b>No. of Samples:</b>	4		
<b>Turnaround (Wkdays):</b>	7	<b>Results Due:</b>	20-Mar-2020
<b>Date Approved:</b>	18-Mar-2020		
<b>Approved By:</b>			
<b>Details:</b>	Darrell Hall, Director		

The right chemistry to deliver results

Project: P19188 Howth

Client: Priority Geotechnical Ltd	Chemtest Job No.:	20-07864	20-07864	20-07864	20-07864
Quotation No.: Q20-19850	Chemtest Sample ID.:	984359	984360	984361	984362
	Client Sample ID.:	P1	P2	P3	P4
	Sample Location:	MAM14	MAM14	MAM14	MAM14
	Sample Type:	WATER	WATER	WATER	WATER
	Date Sampled:	05-Mar-2020	06-Mar-2020	07-Mar-2020	09-Mar-2020
Determinand	Accred.	SOP	Units	LOD	
Chloride	U	1220	mg/l	1.0	270
Sulphate	U	1220	mg/l	1.0	2.3
Calcium	U	1415	mg/l	5.0	43
Sodium	U	1415	mg/l	0.50	250
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	< 1.0
Copper (Dissolved)	U	1450	µg/l	1.0	< 1.0
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	1.5
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	5.5
Tin (Dissolved)	U	1450	µg/l	1.0	< 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	< 1.0
Zinc (Dissolved)	U	1450	µg/l	1.0	19
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride, Chloride, Nitrate, Total Oxidisable Nitrogen (TON), Sulphate, Phosphate, Alkalinity, Ammonium	Automated colorimetric analysis using Aquatren 600 Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium, Potassium, Calcium, Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals including Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Mercury, Molybdenum, Nickel, Selenium, Tin, Vanadium, Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organic-Leads	Organic-Leads	Solvent extraction / GCMS detection



**Report Information**

**Key**

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- M MCERTS and UKAS accredited
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- 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
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- 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 the indicated 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
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

**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.com](mailto:customerservices@chemtest.com)



**Final Report**

<b>Report No.:</b>	20-19240-1		
<b>Initial Date of Issue:</b>	31-Jul-2020		
<b>Client</b>	Priority Geotechnical Ltd		
<b>Client Address:</b>	Unit 12 Owenacurra Business Park Midleton County Cork Ireland		
<b>Contact(s):</b>	Colette Kelly		
<b>Project</b>	P19188 Howth		
<b>Quotation No.:</b>	Q20-19850	<b>Date Received:</b>	24-Jul-2020
<b>Order No.:</b>	12451	<b>Date Instructed:</b>	24-Jul-2020
<b>No. of Samples:</b>	2		
<b>Turnaround (Wkdays):</b>	7	<b>Results Due:</b>	03-Aug-2020
<b>Date Approved:</b>	31-Jul-2020		
<b>Approved By:</b>			
<b>Details:</b>	Glynn Harvey, Technical Manager		



## Results - Water

Project: P19188 Howth

Client: Priority Geotechnical Ltd	Chemtest Job No.:		20-19240	20-19240
Quotation No.: Q20-19850	Chemtest Sample ID.:		1037379	1037380
	Client Sample ID.:		P7	P8
	Sample Location:		MGM90	MGM90
	Sample Type:		WATER	WATER
	Date Sampled:		26-Jun-2020	23-Jul-2020
Determinand	Accred.	SOP	Units	LOD
Chloride	U	1220	mg/l	1.0
Sulphate	U	1220	mg/l	1.0
Calcium	U	1415	mg/l	5.0
Sodium	U	1415	mg/l	0.50
Arsenic (Dissolved)	U	1450	µg/l	1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080
Chromium (Dissolved)	U	1450	µg/l	1.0
Copper (Dissolved)	U	1450	µg/l	1.0
Mercury (Dissolved)	U	1450	µg/l	0.50
Nickel (Dissolved)	U	1450	µg/l	1.0
Lead (Dissolved)	U	1450	µg/l	1.0
Selenium (Dissolved)	U	1450	µg/l	1.0
Tin (Dissolved)	U	1450	µg/l	1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0
Zinc (Dissolved)	U	1450	µg/l	1.0
Dibutyl Tin	N	1730	µg/l	0.050
Tributyl Tin	N	1730	µg/l	0.050

Page 2 of 5

### Deviations

In accordance with UKAS Policy on Deriving Samples, TFS 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 tests'. This policy and the respective holding times applied, can be applied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCE/RTI accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1037379		P7	MGM90	26-Jun-2020	B	Plastic Bottle 1000ml

## Test Methods

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

## Report Information

06-07-2021F 21A/0368  
FINGAL CO CO PL DEPT

### Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
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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

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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

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All Asbestos testing is performed at the indicated 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
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

### 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.com](mailto:customerservices@chemtest.com)



## Final Report

Report No.: 20-17651-1  
 Initial Date of Issue: 14-Jul-2020  
 Client: Priority Geotechnical Ltd  
 Client Address: Unit 12  
 Owenacurra Business Park  
 Midleton  
 County Cork  
 Ireland  
 Contact(s): Colette Kelly  
 Project: P19188 Howth  
 Quotation No.: Q20-19850  
 Order No.: 12451  
 No. of Samples: 2  
 Turnaround (Wkdays): 7  
 Date Approved: 14-Jul-2020

Approved By:

Details: Glynn Harvey, Technical Manager



Chemtest

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

## Results - Water

Project: P19188 Howth		Chemtest Job No.: 20-17651		Chemtest Sample ID.: 1029611		Client Sample ID.: P7		MGM76		WATER		MGM76		WATER		Date Sampled: 10-Jun-2020		08-Jul-2020	
Client: Priority Geotechnical Ltd		Quotation No.: Q20-19850		Sample Location:		Sample Type:		Date Sampled:		Sample Type:		Date Sampled:		Sample Type:		Date Sampled:		Sample Type:	
Determinand	Accred.	SOP	Units	LOD	LOD	LOD	LOD	LOD	LOD	LOD	LOD	LOD	LOD	LOD	LOD	LOD	LOD	LOD	LOD
Chloride	U	1220	mg/l	1.0	[B] 140	120													
Sulphate	U	1220	mg/l	1.0	[B] 95	110													
Calcium	U	1415	mg/l	5.0	[B] 5.0	8.1													
Sodium	U	1415	mg/l	0.50	[B] 150	130													
Arsenic (Dissolved)	U	1450	µg/l	1.0	[B] 4.1	3.9													
Cadmium (Dissolved)	U	1450	µg/l	0.080	[B] < 0.080	< 0.080													
Cromium (Dissolved)	U	1450	µg/l	1.0	[B] 6.3	5.8													
Copper (Dissolved)	U	1450	µg/l	1.0	[B] 17	18													
Mercury (Dissolved)	U	1450	µg/l	0.50	[B] < 0.50	< 0.50													
Nickel (Dissolved)	U	1450	µg/l	1.0	[B] 4.3	3.5													
Lead (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	< 1.0													
Selenium (Dissolved)	U	1450	µg/l	1.0	[B] 3.7	3.5													
Tin (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0	< 1.0													
Vanadium (Dissolved)	U	1450	µg/l	1.0	[B] 31	31													
Zinc (Dissolved)	U	1450	µg/l	1.0	[B] 4.8	5.9													
Diethyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050													
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050													

## Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63, Eurofins 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:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1029611		P7	MGM76	10-Jun-2020	B	Plastic Bottle 1000ml

## Test Methods

SOP	Title	Parameters Included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total, Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection



## 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 the indicated 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
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

### 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.com](mailto:customerservices@chemtest.com)



## Final Report

**Report No.:** 20-14326-1  
**Initial Date of Issue:** 10-Jun-2020  
**Client:** Priority Geotechnical Ltd  
**Client Address:** Unit 12  
Owenacurra Business Park  
Midleton  
County Cork  
Ireland  
**Contact(s):** Colette Kelly  
**Project:** P19188 Howth  
**Quotation No.:** Q20-19850  
**Order No.:** 12451  
**No. of Samples:** 2  
**Turnaround (Wkdays):** 7  
**Date Approved:** 10-Jun-2020

### Approved By:

**Details:** Glynn Harvey, Technical Manager



Chemtest Ltd.  
Depot Road  
Newmarket  
CB8 0AL  
Tel: 01638 606070  
Email: [info@chemtest.com](mailto:info@chemtest.com)

Project: P19188 Howth

Client: Priority Geotechnical Ltd	Chemtest Job No.:		20-14326	20-14326		
Quotation No.: Q20-19850	Chemtest Sample ID.:		1013925	1013926		
	Client Sample ID.:		P5	P6		
	Sample Location:		MGM90	MGM90		
	Sample Type:		WATER	WATER		
	Date Sampled:		26-May-2020	05-Jun-2020		
Determinand	Accred.	SOP	Units	LOD		
Chloride	U	1220	mg/l	1.0	69	55
Sulphate	U	1220	mg/l	1.0	6.3	15
Calcium	U	1415	mg/l	5.0	7.2	< 5.0
Sodium	U	1415	mg/l	0.50	67	91
Arsenic (Dissolved)	U	1450	µg/l	1.0	1.1	2.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0
Copper (Dissolved)	U	1450	µg/l	1.0	11	10
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50	< 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	2.3	1.9
Tin (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	7.5	12
Zinc (Dissolved)	U	1450	µg/l	1.0	< 1.0	3.7
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride, Chloride, Nitrate, Total Dissolvable Nitrogen (TDN), Sulfate, Phosphate, Alkalinity, Ammonium	Automated colorimetric analysis using Aquakem 600 Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium, Potassium, Calcium, Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Mercury, Molybdenum, Nickel, Selenium, Tin, Vanadium, Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organic-Leads	Organic-Leads	Solvent extraction / GC/MS detection

**Report Information**

**Key**

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- 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 the indicated 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
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

**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.com](mailto:customerservices@chemtest.com)



**Final Report**

**Report No.:** 20-13486-1  
**Initial Date of Issue:** 04-Jun-2020  
**Client:** Priority Geotechnical Ltd  
**Client Address:** Unit 12  
 Owenacurra Business Park  
 Midleton  
 County Cork  
 Ireland  
**Contact(s):** Colette Kelly  
**Project:** P19188 Howth  
**Quotation No.:** Q20-19850  
**Order No.:** 12451  
**No. of Samples:** 2  
**Turnaround (Wkdays):** 7  
**Date Approved:** 04-Jun-2020

**Date Received:** 28-May-2020  
**Date Instructed:** 29-May-2020  
**Results Due:** 08-Jun-2020

**Approved By:**

**Details:** Glynn Harvey, Technical Manager

Chemtest Ltd.

Depot Road

Newmarket

CB8 0AL

Tel: 01638 606070

Email: [info@chemtest.com](mailto:info@chemtest.com)

Project: P19188 Howth

Client: Priority Geotechnical Ltd		Chemtest Job No.:		20-13486	20-13486
Quotation No.: Q20-19850		Chemtest Sample ID.:		1010089	1010090
		Client Sample ID.:		P5	P6
		Sample Location:		MGM76	MGM76
		Sample Type:		WATER	WATER
		Date Sampled:		14-May-2020	21-May-2020
Determinand	Accred.	SOP	Units	LOD	
Chloride	U	1220	mg/l	1.0	[B] 41 81
Sulphate	U	1220	mg/l	1.0	[B] 3.0 13
Calcium	U	1415	mg/l	5.0	[B] 32 7.6
Sodium	U	1415	mg/l	0.50	[B] 42 75
Arsenic (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0 < 1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	[B] < 0.080 < 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0 < 1.0
Copper (Dissolved)	U	1450	µg/l	1.0	[B] 2.7 8.0
Mercury (Dissolved)	U	1450	µg/l	0.50	[B] 1.9 2.1
Nickel (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0 1.7
Lead (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0 < 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	[B] 1.1 2.3
Tin (Dissolved)	U	1450	µg/l	1.0	[B] < 1.0 < 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	[B] 3.0 8.0
Zinc (Dissolved)	U	1450	µg/l	1.0	[B] 3.4 4.4
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050 < 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050 < 0.050

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/MCER's accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sample Date:	Deviation Code(s):	Containers Received:
1010089		P5	MGM76	14-May-2020	B	Plastic Bottle 1000ml



SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

**Report Information**

**Key**

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- I/S Insufficient Sample
- U/S Unsuitable Sample
- N/E not evaluated
- < "less than"
- > "greater than"

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 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 the indicated 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
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

**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.com](mailto:customerservices@chemtest.com)



## Final Report

Report No.: 20-13339-1  
 Initial Date of Issue: 01-Jun-2020  
 Client: Priority Geotechnical Ltd  
 Client Address: Unit 12  
 Owenacurra Business Park  
 Middleton  
 County Cork  
 Ireland  
 Contact(s): Colette Kelly  
 Project: P19188 Howth  
 Quotation No.: Q20-19850  
 Order No.: 12451  
 No. of Samples: 4  
 Turnaround (Wkdays): 7  
 Date Approved: 01-Jun-2020

Approved By:

Details: Glynn Harvey, Technical Manager



The right chemistry to deliver results

Chemtest Ltd.

Depot Road

Newmarket

CB8 0AL

Tel: 01638 606070

Email: info@chemtest.com



The right chemistry to deliver results

Project: P19188 Howth

Client: Priority Geotechnical Ltd

Quotation No.: Q20-19850

Chemist Job No.:	20-13339	20-13339	20-13339	20-13339
Chemist Sample ID.:	1009361	1009362	1009363	1009364
Client Sample ID.:	P1	P2	P3	P4
Sample Location:	MGM90	MGM90	MGM90	MGM90
Sample Type:	WATER	WATER	WATER	WATER
Date Sampled:	20-May-2020	21-May-2020	22-May-2020	25-May-2020
Determinand	Accred.	SOP	Units	LOD
Chloride	U	1220	mg/l	1.0
Sulphate	U	1220	mg/l	1.0
Calcium	U	1415	mg/l	5.0
Sodium	U	1415	mg/l	0.50
Arsenic (Dissolved)	U	1450	µg/l	1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080
Chromium (Dissolved)	U	1450	µg/l	1.0
Copper (Dissolved)	U	1450	µg/l	1.0
Mercury (Dissolved)	U	1450	µg/l	0.50
Nickel (Dissolved)	U	1450	µg/l	1.0
Lead (Dissolved)	U	1450	µg/l	1.0
Selenium (Dissolved)	U	1450	µg/l	1.0
Tin (Dissolved)	U	1450	µg/l	1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0
Zinc (Dissolved)	U	1450	µg/l	1.0
Dibutyl Tin	N	1730	µg/l	0.050
Tributyl Tin	N	1730	µg/l	0.0500

## Results - Water

## Test Methods

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

## Report Information

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 For all other tests the samples were dried at < 37°C prior to analysis  
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- D - Broken Container
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### Sample Retention and Disposal

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## Final Report

Report No.: 20-13190-1  
 Initial Date of Issue: 01-Jun-2020  
 Client: Priority Geotechnical Ltd  
 Client Address: Unit 12  
 Owenacurra Business Park  
 Midleton  
 County Cork  
 Ireland  
 Contact(s): Colette Kelly  
 Project: P19188 Howth  
 Quotation No.: Q20-19850  
 Order No.: 12451  
 No. of Samples: 4  
 Turnaround (Wkdays): 7  
 Date Approved: 01-Jun-2020  
 Approved By:

Details: Glynn Harvey, Technical Manager

### Results - Water

Client: Priority Geotechnical Ltd		Chemtest Job No.: 20-13190		20-13190		20-13190		20-13190		20-13190	
Quotation No.: Q20-19850		Chemtest Sample ID: P5		1009655		1009655		1009657		1009658	
		Client Sample ID: P5		1009655		1009655		1009657		1009658	
		Sample Location: MGM28		MGM28		MGM28		MGM28		MGM28	
		Sample Type: WATER		WATER		WATER		WATER		WATER	
		Date Sampled: 27-Mar-2020		03-Apr-2020		23-Apr-2020		21-May-2020			
Determinand	Accred.	SCPI	Units	LOD	20-13190	20-13190	20-13190	20-13190	20-13190	20-13190	20-13190
Chloride	U	1220	mg/l	1.0	[B] 96	[B] 89	[B] 89	[B] 140	[B] 140	[B] 140	100
Sulphate	U	1220	mg/l	1.0	[B] 5.7	[B] 6.7	[B] 6.7	[B] 26	[B] 26	[B] 26	65
Calcium	U	1415	mg/l	5.0	[B] 28	[B] 13	[B] 13	[B] 5.0	[B] 5.0	[B] 5.0	6.3
Sodium	U	1415	mg/l	0.50	[B] 96	[B] 94	[B] 94	[B] 130	[B] 130	[B] 130	120
Ammonia (Dissolved)	U	1450	µg/l	1.0	[B] 1.0	[B] 1.0	[B] 1.0	[B] 1.0	[B] 1.0	[B] 1.0	< 1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	[B] 1.0	[B] 1.0	[B] 1.0	[B] 0.080	[B] 0.080	[B] 0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	[B] 1.0	[B] 1.0	[B] 1.0	[B] 1.0	[B] 1.0	[B] 1.0	< 1.0
Copper (Dissolved)	U	1450	µg/l	1.0	[B] 2.5	[B] 3.7	[B] 3.7	[B] 1.0	[B] 1.0	[B] 1.0	2.0
Mercury (Dissolved)	U	1450	µg/l	0.50	[B] 1.0	[B] 1.0	[B] 1.0	[B] 0.50	[B] 0.50	[B] 0.50	0.67
Nickel (Dissolved)	U	1450	µg/l	1.0	[B] 1.4	[B] 1.7	[B] 1.7	[B] 1.2	[B] 1.2	[B] 1.2	< 1.0
Lead (Dissolved)	U	1450	µg/l	1.0	[B] 1.0	[B] 1.0	[B] 1.0	[B] 1.0	[B] 1.0	[B] 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	[B] 1.5	[B] 1.7	[B] 1.7	[B] 1.1	[B] 1.1	[B] 1.1	< 1.0
Tin (Dissolved)	U	1450	µg/l	1.0	[B] 1.0	[B] 1.0	[B] 1.0	[B] 1.0	[B] 1.0	[B] 1.0	< 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	[B] 1.0	[B] 1.0	[B] 1.0	[B] 1.0	[B] 1.0	[B] 1.0	< 1.0
Zinc (Dissolved)	U	1450	µg/l	1.0	[B] 2.5	[B] 4.3	[B] 4.3	[B] 1.0	[B] 1.0	[B] 1.0	< 1.0
Diethyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050



### 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/MCER's accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1008655		P5	MGM28	27-Mar-2020	B	Plastic Bottle 1000ml
1008656		P6	MGM28	03-Apr-2020	B	Plastic Tub 500g
1008657		P7	MGM28	23-Apr-2020	B	Plastic Tub 500g

### Test Methods

SOP	Title	Parameters included	Method summary
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aqualum 600' Discrete Analyser.
1415	Cations in Waters by ICP-MS	Sodium; Potassium; Calcium; Magnesium	Direct determination by inductively coupled plasma - mass spectrometry (ICP-MS).
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1730	Organo-Leads	Organo-Leads	Solvent extraction / GCMS detection

**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 the indicated 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
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

**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.com](mailto:customerservices@chemtest.com)



**Final Report**

<b>Report No.:</b>	20-12292-1	
<b>Initial Date of Issue:</b>	18-May-2020	
<b>Client</b>	Priority Geotechnical Ltd	
<b>Client Address:</b>	Unit 12 Owenacurra Business Park Midleton County Cork Ireland	
<b>Contact(s):</b>	Colette Kelly	
<b>Project</b>	P19188 Howth	
<b>Quotation No.:</b>	Q20-19850	<b>Date Received:</b> 13-May-2020
<b>Order No.:</b>	12451	<b>Date Instructed:</b> 14-May-2020
<b>No. of Samples:</b>	4	
<b>Turnaround (Wkdays):</b>	7	<b>Results Due:</b> 22-May-2020
<b>Date Approved:</b>	18-May-2020	
<b>Approved By:</b>		
<b>Details:</b>	Glynn Harvey, Technical Manager	

Project: P19188 Howth

Client: Priority Geotechnical Ltd		Chemtest Job No.:		20-12292	20-12292	20-12292	20-12292	
Quotation No.: Q20-19850		Chemtest Sample ID.:		1004539	1004540	1004541	1004542	
		Client Sample ID.:		P1	P2	P3	P4	
		Sample Location:		MGM76	MGM76	MGM76	MGM76	
		Sample Type:		WATER	WATER	WATER	WATER	
		Date Sampled:		06-May-2020	07-May-2020	08-May-2020	11-May-2020	
Determinand	Accred.	SOP	Units	LOD				
Chloride	U	1220	mg/l	1.0	33	39	34	58
Sulphate	U	1220	mg/l	1.0	< 1.0	1.1	2.2	3.7
Calcium	U	1415	mg/l	5.0	30	7.7	< 5.0	< 5.0
Sodium	U	1415	mg/l	0.50	31	35	31	51
Arsenic (Dissolved)	U	1450	µg/l	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
Chromium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	1.1
Copper (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	3.1
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	1.7
Tin (Dissolved)	U	1450	µg/l	1.0	1.2	< 1.0	< 1.0	< 1.0
Vanadium (Dissolved)	U	1450	µg/l	1.0	1.2	1.6	1.6	3.2
Zinc (Dissolved)	U	1450	µg/l	1.0	2.4	< 1.0	< 1.0	< 1.0
Dibutyl Tin	N	1730	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050	< 0.050	< 0.050

SOP	Title	Parameters included	Method summary
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**Final Report**

**Report No.:** 20-12149-1  
**Initial Date of Issue:** 18-May-2020  
**Client:** Priority Geotechnical Ltd  
**Client Address:** Unit 12  
 Owenacurra Business Park  
 Midleton  
 County Cork  
 Ireland  
**Contact(s):** Colette Kelly  
**Project:** P19188 Howth  
**Quotation No.:** Q20-19850  
**Order No.:** 12451  
**No. of Samples:** 4  
**Turnaround (Wkdays):** 7  
**Date Approved:** 18-May-2020

**Date Received:** 12-May-2020  
**Date Instructed:** 12-May-2020  
**Results Due:** 20-May-2020

**Approved By:**

**Details:** Glynn Harvey, Technical Manager

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