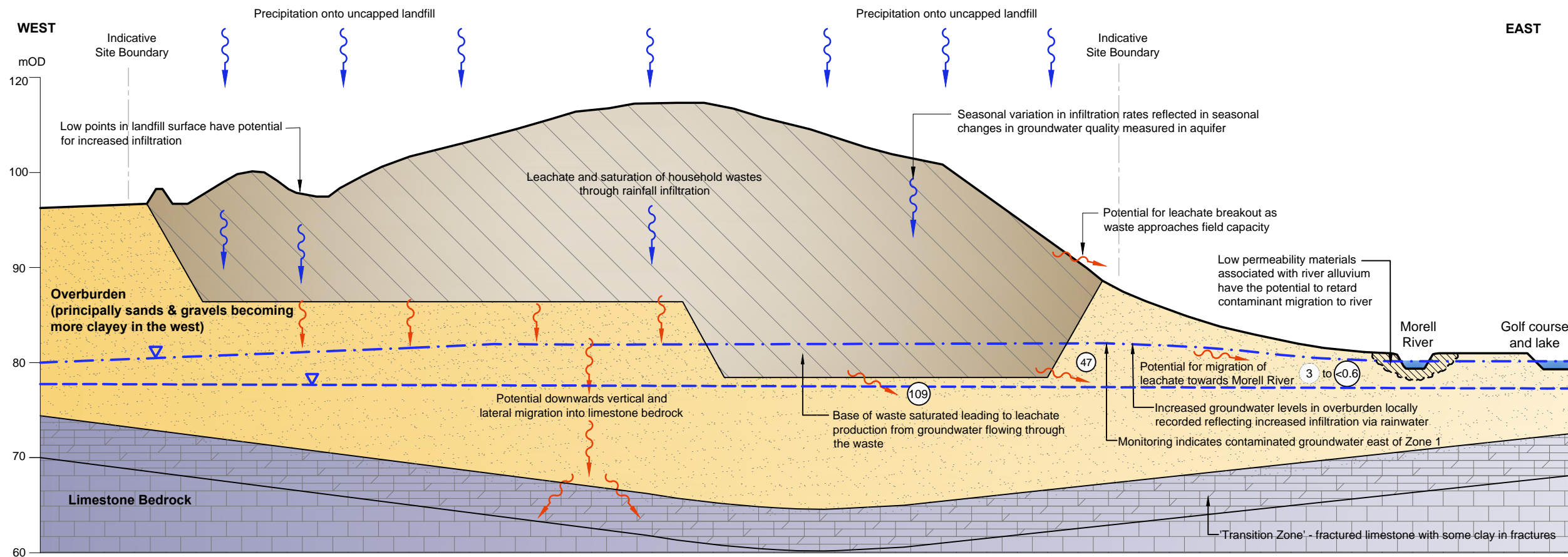


**Figure 6: Updated Conceptual Site Model (Version 3)**

**KEY:**

	Groundwater Level in the Overburden
	Groundwater Head in the Limestone Bedrock
	Migrating Leachate
	Ammoniacal Nitrogen Concentration July 2016 (mg/l)



**Groundwater Conceptual Site Model for Zone 1: Current Scenario**

0	05/05/2017	EIS SUBMISSION	AR	MB	CD	RR
Rev	Rev. Date	Purpose of revision	Drawn	Checked	Rev'd	Appr'd
<b>JACOBS</b>						
<small>Jacobs House, Shrewsbury Business Park, Silkia Drive, Shrewsbury SY2 6LG Tel: +44(0)1743 284800 www.jacobs.com</small>						
Client	 Kildare County Council Comhairle Contae Chill Dara					
Project	KERDIFFSTOWN LANDFILL REMEDATION PROJECT					
Drawing title	<b>FIGURE 6</b> HYDROGEOLOGY CONCEPTUAL SITE MODEL (ZONE 1)					
Drawing status	EIS SUBMISSION					
Scale	NTS		DO NOT SCALE			
Jacobs No.	32EW5604					
Client No.	6286					
Drawing number	32EW5604-00-016					Rev
						0
<small>This drawing is not to be used in whole or part other than for the intended purpose and project as defined on this drawing. Refer to the contract for full terms and conditions.</small>						

I:\projects\32EW5604-00-016.dwg - 05/05/2017 09:23:59 - FIGURE 6 GW - airberts  
 I:\projects\32EW5604-00-016.dwg - 05/05/2017 09:23:59 - FIGURE 6 GW - airberts

**Figure 7: Groundwater Ammoniacal Nitrogen Distribution (Quarter 1 2017)**

7a: January 2017

7b: February 2017

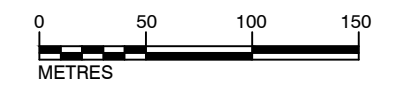
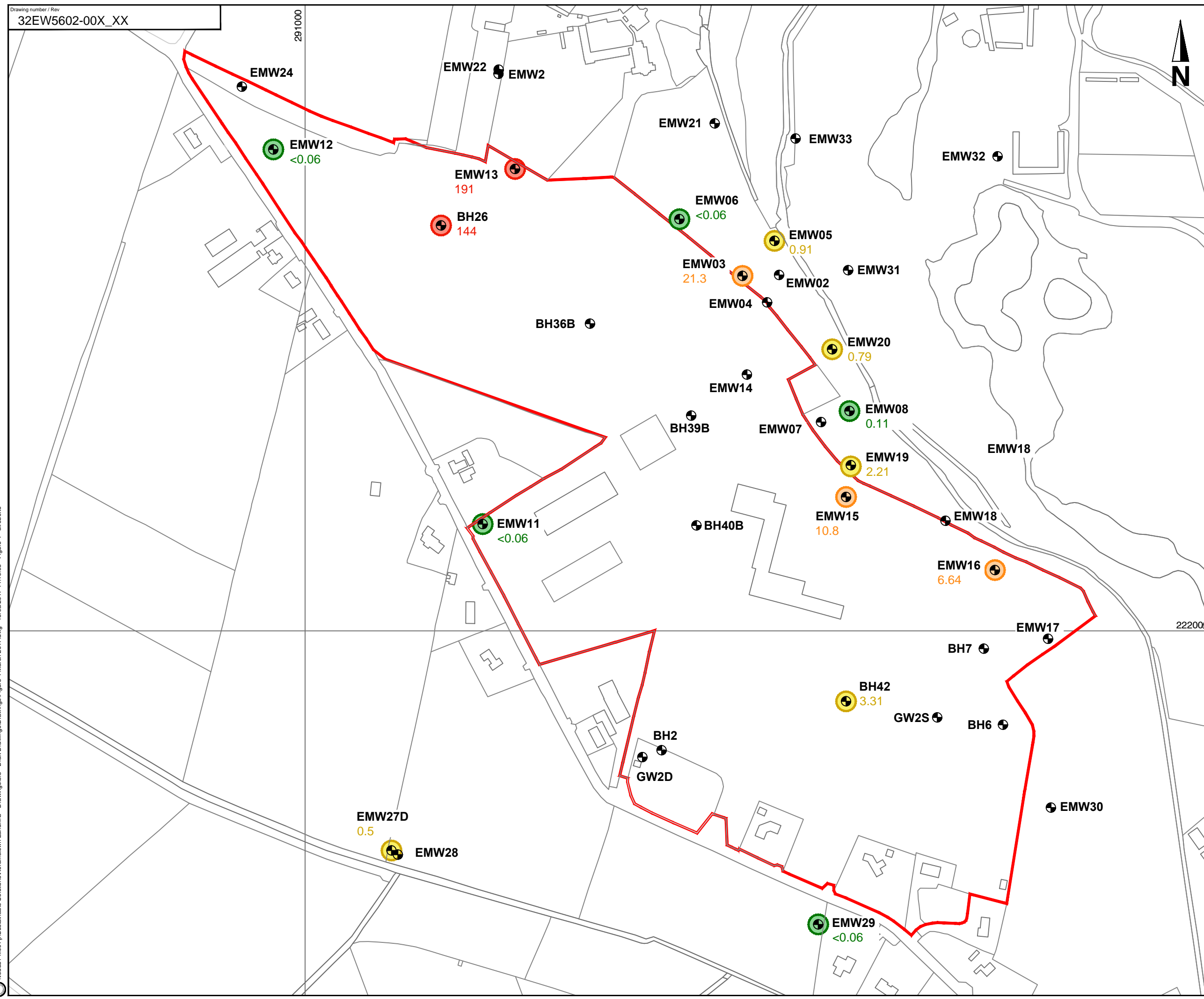
7c: March 2017

**KEY:**

- Former WA0047-02 Waste Licence Boundary
- Groundwater Monitoring Point

**Ammoniacal Nitrogen Concentrations**

- <0.5mg/l
- 0.5 - 5mg/l
- 5 - 50mg/l
- >50mg/l



Rev	Rev. Date	Purpose of revision	Drawn	Checked	Rev'd	Apprv'd
0	13/03/2017					



Client  
 Kildare County Council  
Comhairle Contae Chill Dara

Project  
KERDIFFSTOWN LANDFILL  
REMEDATION PROJECT

Drawing title  
**FIGURE 7a**  
AMMONIACAL NITROGEN  
DISTRIBUTION. JANUARY 2017

Drawing status  
Scale AS SHOWN DO NOT SCALE

Jacobs No. 32EW5602

Drawing number 32EW5602-00X\_XX Rev 0

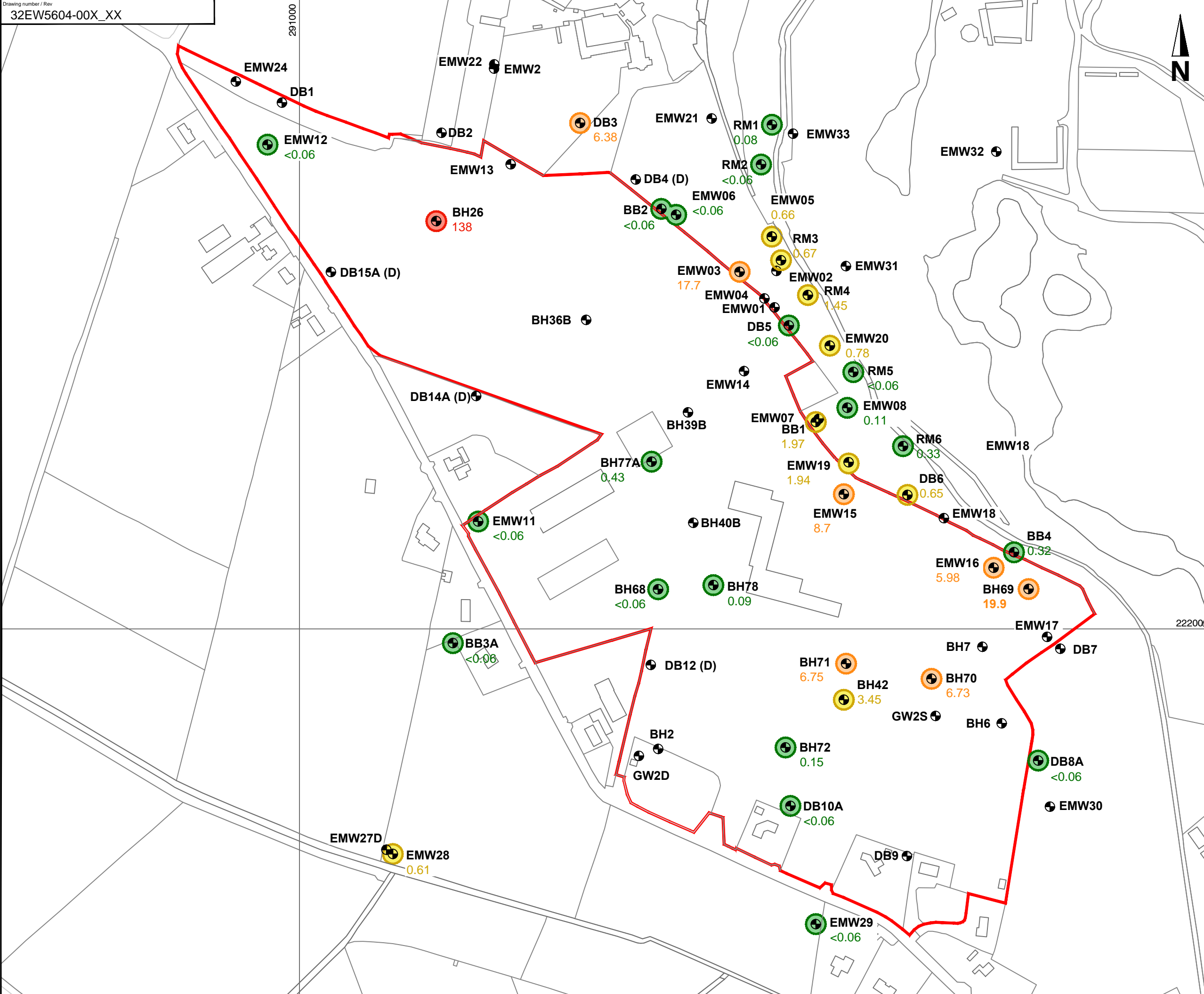
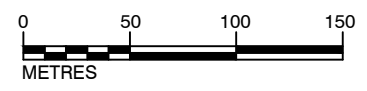
This drawing is not to be used in whole or part other than for the intended purpose and project as defined on this drawing. Refer to the contract for full terms and conditions.

KEY:

- Former WA0047-02 Waste Licence Boundary
- Groundwater Monitoring Point

Ammoniacal Nitrogen Concentrations

- <0.5mg/l
- 0.5 - 5mg/l
- 5 - 50mg/l
- >50mg/l



Rev	Rev. Date	Purpose of revision	Drawn	Checked	Rev'd	Appr'd
0	07/04/2017					



Client: Kildare County Council  
Comhairle Contae Chill Dara

Project: KERDIFFSTOWN LANDFILL  
REMEDATION PROJECT

Drawing title: **FIGURE 7b**  
AMMONIACAL NITROGEN  
DISTRIBUTION. FEBRUARY 2017

Scale	AS SHOWN	DO NOT SCALE
Jacobs No.	32EW5604	
Client no.		

Drawing number	Rev
32EW5604-00X_XX	0

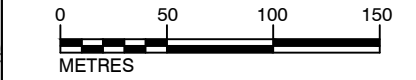
This drawing is not to be used in whole or part other than for the intended purpose and project as defined on this drawing. Refer to the contract for full terms and conditions.

KEY:

- Former WA0047-02 Waste Licence Boundary
- Groundwater Monitoring Point

Ammoniacal Nitrogen Concentrations

- <0.5mg/l
- 0.5 - 5mg/l
- 5 - 50mg/l
- >50mg/l



Rev	Rev. Date	Purpose of revision	Drawn	Checked	Rev'd	Approved
0	18/04/2017					

**JACOBS**  
 Jacobs, Merrion House, Merrion Road, Dublin 4  
 Tel:+353(1)289 5666  
 www.jacobs.com

Client  
 Kildare County Council  
 Comhairle Contae Chill Dara

Project  
 KERDIFFSTOWN LANDFILL  
 REMEDIATION PROJECT

Drawing title  
**FIGURE 7c**  
 AMMONIACAL NITROGEN  
 DISTRIBUTION, MARCH 2017

Drawing status

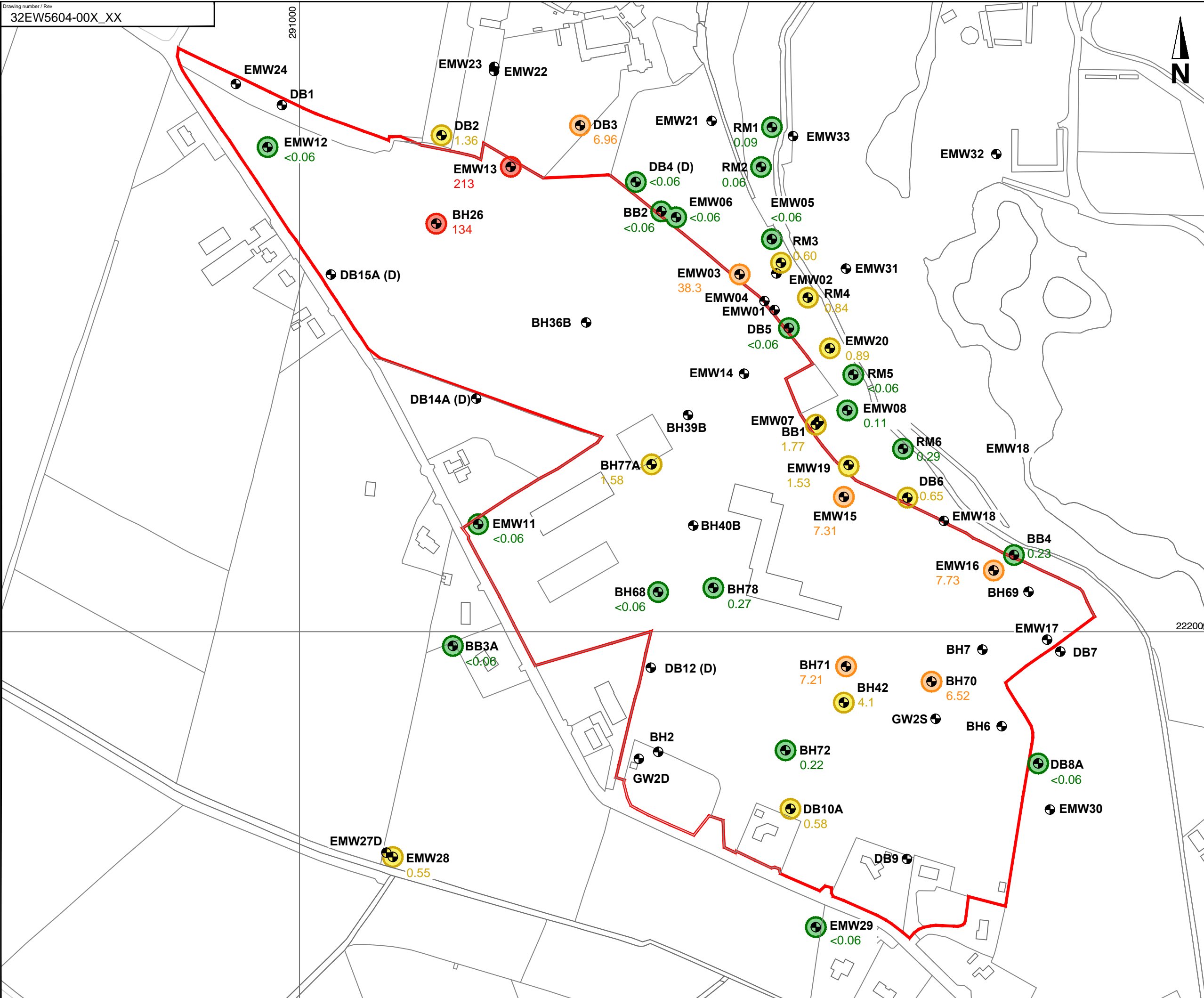
Scale	AS SHOWN	DO NOT SCALE
-------	----------	--------------

Jacobs No.	32EW5604
Client no.	6286

Drawing number	32EW5604-00X_XX	Rev	0
----------------	-----------------	-----	---

This drawing is not to be used in whole or part other than for the intended purpose and project as defined on this drawing. Refer to the contract for full terms and conditions.

I:\ecubt-11001\1\Sustainable Solutions\Kerdiffstown Landfills - Drawings\5.3 - Draft Drawings\Drawings\Figure 4 March Report 2017.dwg - 20/04/2017 10:49:02 - Figure 4 - allberts



**Figure 8: Groundwater Chloride Concentrations (Quarter 1 2017)**

8a: January 2017

8b: February 2017

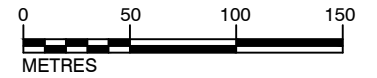
8c: March 2017

291000

Based on Ordnance Survey Ireland data and reproduced under Ordnance Survey Ireland Licence Number "EN0059208". Unauthorised reproduction infringes Ordnance Survey Ireland and Government of Ireland copyright.

- KEY:**
- Former WA0047-02 Waste Licence Boundary
  - Surface Water Monitoring Point
  - Groundwater Monitoring Point
  - Leachate Monitoring Point
  - Landfill Gas Monitoring Well
  - Inferred Groundwater Contour (mAOD)

- Chloride**
- <30mg/l
  - 30mg/l - 100mg/l
  - 100mg/l - 200mg/l
  - >200mg/l



0	13/03/2017		AR	UD	DM	SJM
Rev	Rev. Date	Purpose of revision	Drawn	Checked	Rev'd	Approved

**JACOBS**  
Jacobs, Merrion House, Merrion Road, Dublin 4  
Tel: +353(1)289 5666  
www.jacobs.com

Client  
 Kildare County Council  
Comhairle Contae Chill Dara

Project  
KERDIFFSTOWN LANDFILL  
SITE REMEDIATION PROJECT

Drawing title  
**FIGURE 8a**  
GROUNDWATER CHLORIDE  
DISTRIBUTION JANUARY 2017

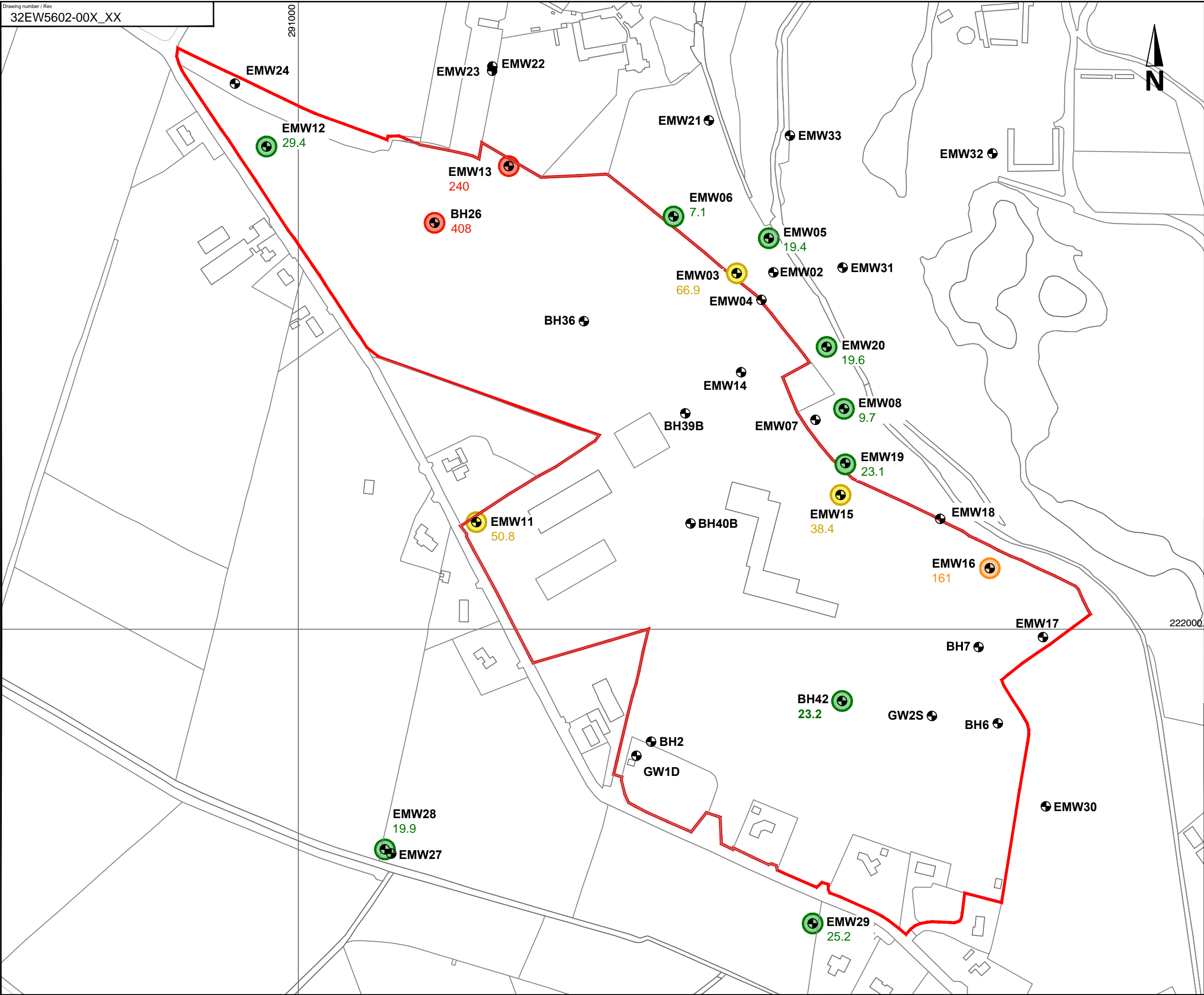
Drawing status  
Scale AS SHOWN DO NOT SCALE

Jacobs No. 32EW5602  
Client no.

Drawing number 32EW5602-00X\_XX Rev 0

This drawing is not to be used in whole or part other than for the intended purpose and project as defined on this drawing. Refer to the contract for full terms and conditions.

\\lecluh1-f1001\1\1\1\Sustainable Solutions\Kerdiffstown Landfills - Drawings\5.3 - Draft Drawings\Drawings\Figures\March 2017.dwg - 13/03/2017 11:27:34 - Figure 3 - airberts





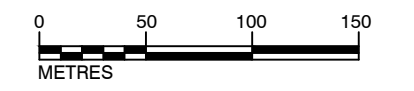
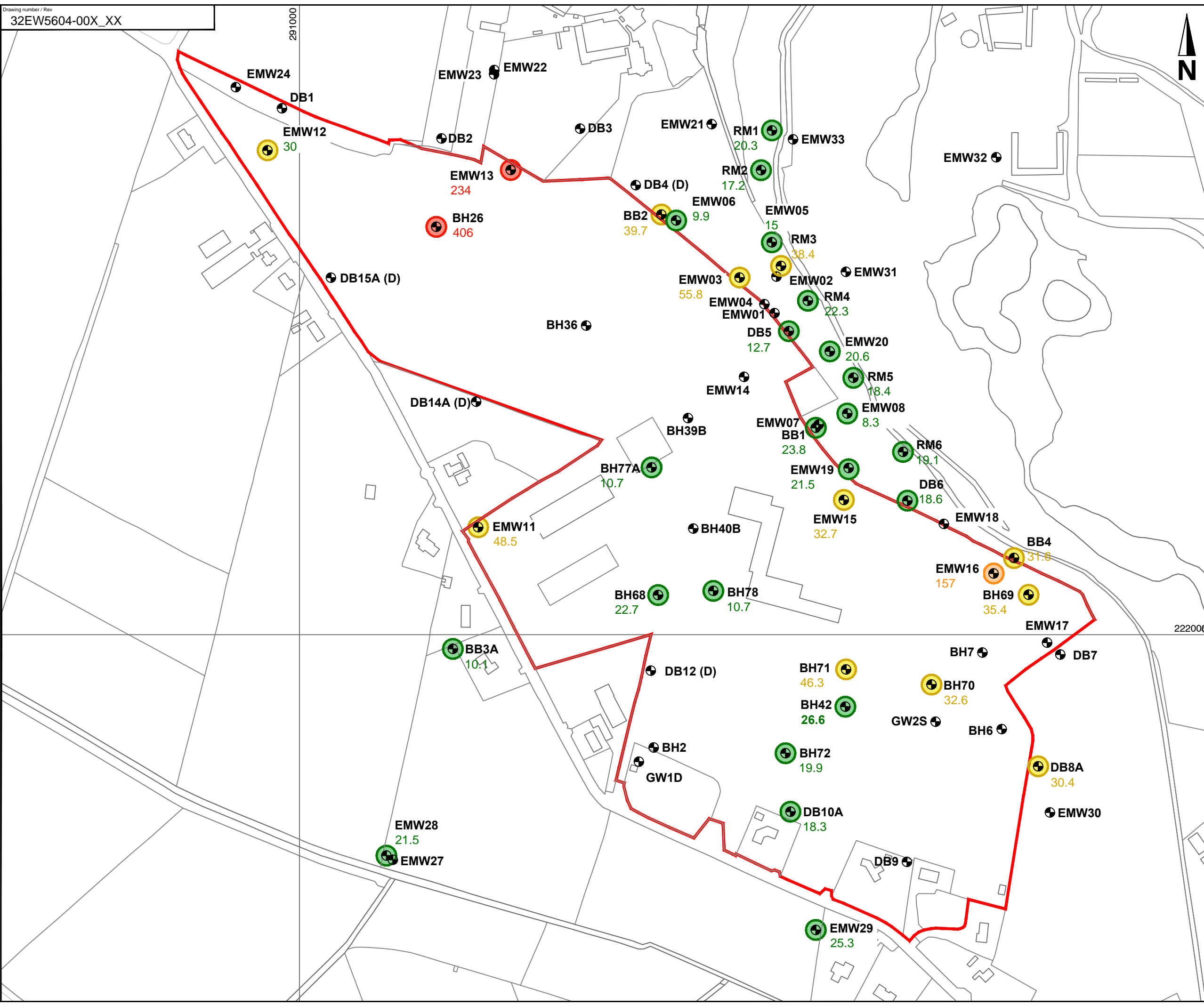
Based on Ordnance Survey Ireland data and reproduced under Ordnance Survey Ireland Licence Number "EN0059208". Unauthorised reproduction infringes Ordnance Survey Ireland and Government of Ireland copyright.

**KEY:**

- Former WA0047-02 Waste Licence Boundary
- Groundwater Monitoring Point

**Chloride Distribution**

- <30mg/l
- 30mg/l - 100mg/l
- 100mg/l - 200mg/l
- >200mg/l



Rev	Rev. Date	Purpose of revision	Drawn	Checked	Rev'd	Apprv'd
0	06/04/2017		AR	UD	DM	SJM



Client: Kildare County Council  
Comhairle Contae Chill Dara

Project: KERDIFFSTOWN LANDFILL SITE REMEDIATION PROJECT

Drawing title: **FIGURE 8b**  
GROUNDWATER CHLORIDE DISTRIBUTION FEBRUARY 2017

Drawing status:

Scale:	AS SHOWN	DO NOT SCALE
Jacobs No.:	32EW5604	
Client no.:		
Drawing number:	32EW5604-00X_XX	Rev 0

This drawing is not to be used in whole or part other than for the intended purpose and project as defined on this drawing. Refer to the contract for full terms and conditions.

291000



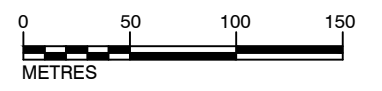
Based on Ordnance Survey Ireland data and reproduced under Ordnance Survey Ireland Licence Number "EN0059208". Unauthorised reproduction infringes Ordnance Survey Ireland and Government of Ireland copyright.

KEY:

- Former WA0047-02 Waste Licence Boundary
- Groundwater Monitoring Point

Chloride Distribution

- <30mg/l
- 30mg/l - 100mg/l
- 100mg/l - 200mg/l
- >200mg/l



Rev	Rev. Date	Purpose of revision	Drawn	Checked	Rev'd	Apprv'd
0	18/04/2017		AR	UD	DM	SJM



Client: Kildare County Council  
Comhairle Contae Chill Dara

Project: KERDIFFSTOWN LANDFILL REMEDIATION PROJECT

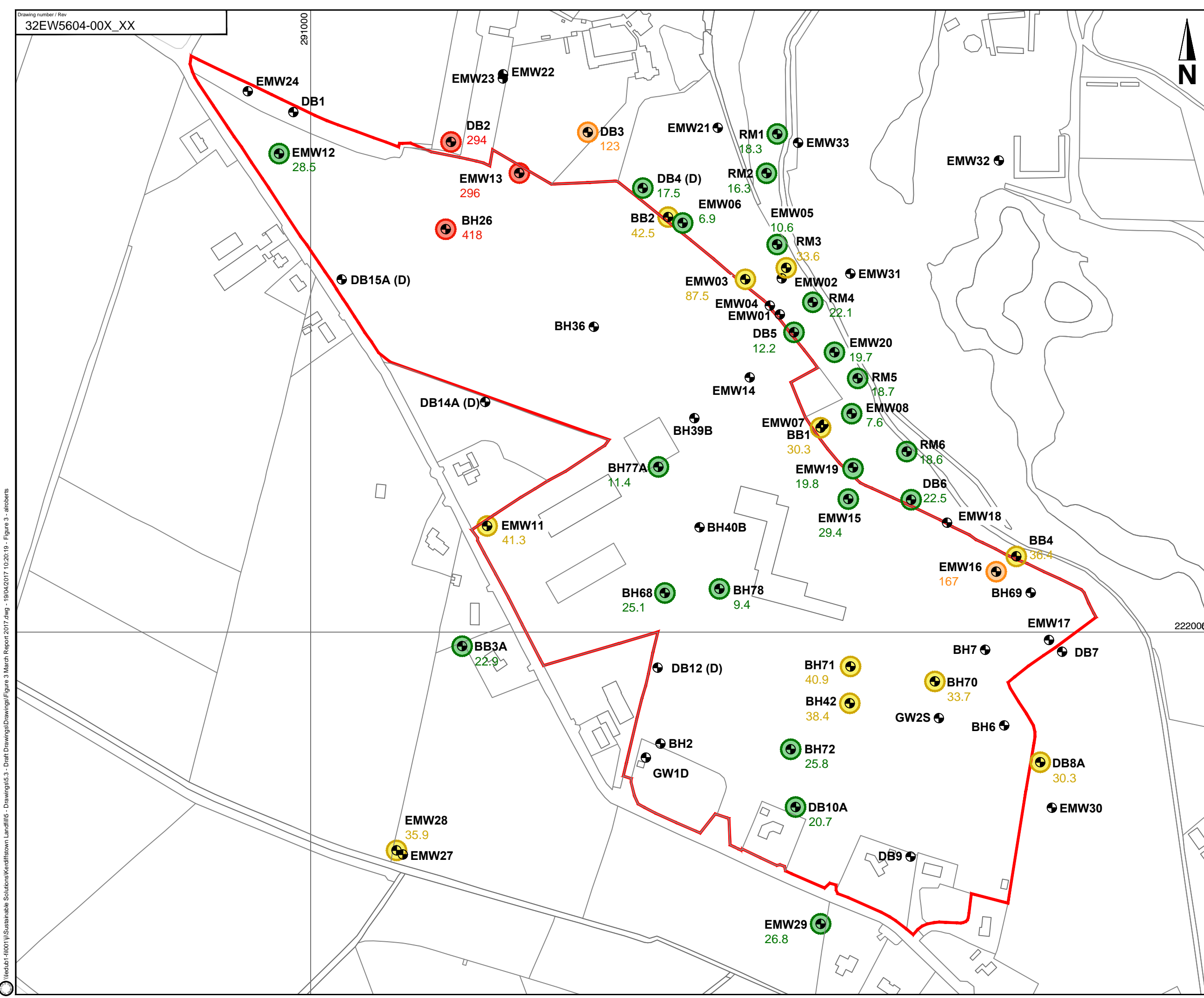
Drawing title: FIGURE 8c GROUNDWATER CHLORIDE DISTRIBUTION MARCH 2017

Drawing status: AS SHOWN DO NOT SCALE

Jacobs No. 32EW5604  
Client no. 6286  
Drawing number 32EW5604-00X\_XX Rev 0

This drawing is not to be used in whole or part other than for the intended purpose and project as defined on this drawing. Refer to the contract for full terms and conditions.

I:\001\1001\1001\Sustainable Solutions\Kerdiffstown Landfills - Drawings\5.3 - Draft Drawings\Drawings\Figure 8 March Report 2017.dwg - 19/04/2017 10:20:19 - Figure 3 - alloberts



**Figure 9: Groundwater Total Phenol Distribution in New Wells (February 2017)**

291 000

Based on Ordnance Survey Ireland data and reproduced under Ordnance Survey Ireland Licence Number "EN0059208". Unauthorised reproduction infringes Ordnance Survey Ireland and Government of Ireland copyright.

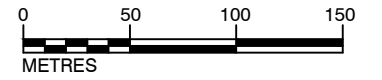
KEY:

- Former WA0047-02 Waste Licence Boundary
- Groundwater Monitoring Point

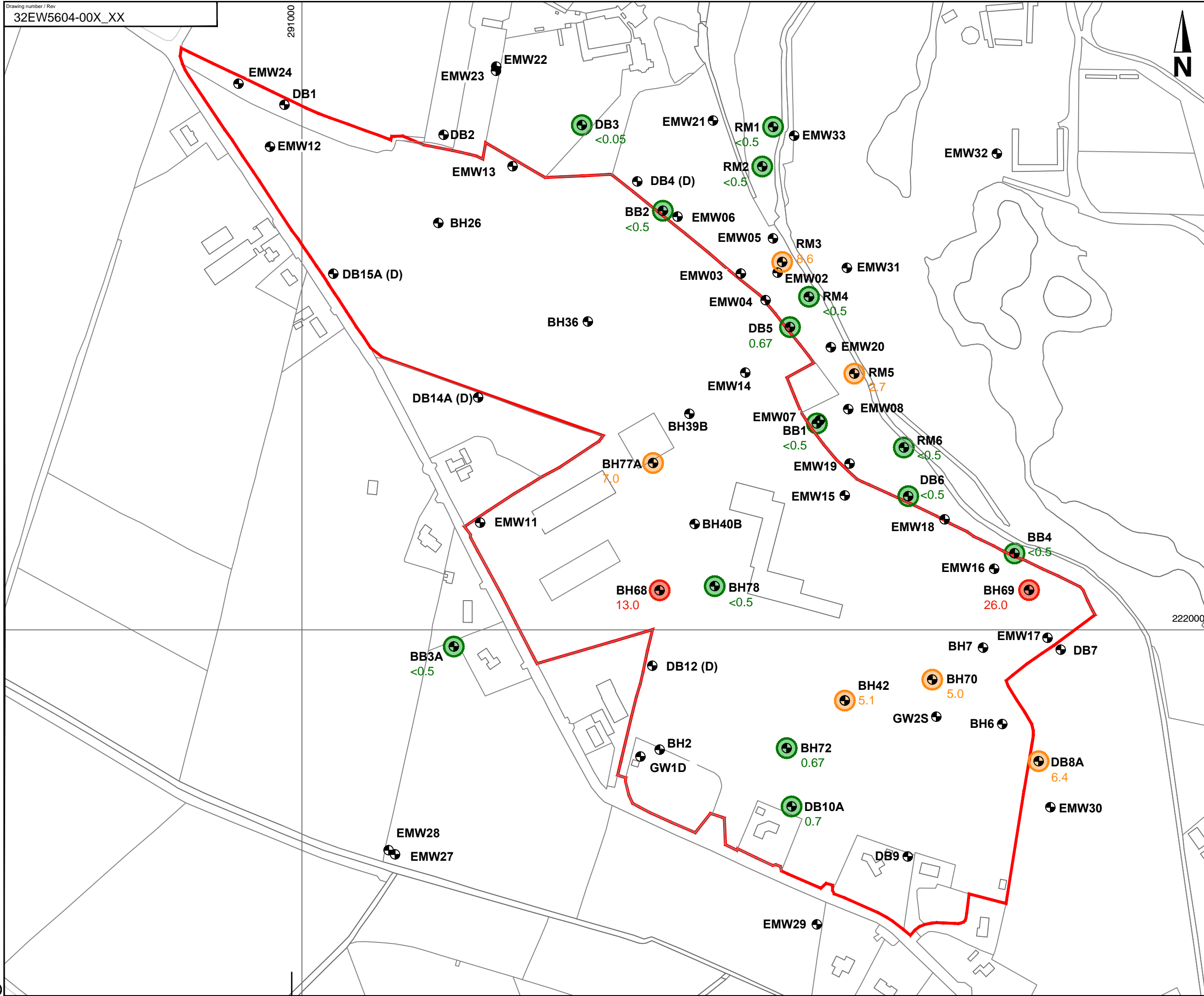
Total Phenol

- <1 µg/l
- 1 µg/l - <10 µg/l
- >10 µg/l

222000



\\ecloud1-f1001\j\ Sustainable Solutions\Kerdiffstown Landfills - Draft Drawings\Drawings\Figure 5 April 2017.dwg - 07/04/2017 11:47:45 - Figure 5 - atrobots



Rev	Rev. Date	Purpose of revision	Drawn	Checked	Rev'd	Apprv'd
0	7/04/2017					



JACOBS  
 Jacobs, Merrion House, Merrion Road, Dublin 4  
 Tel: +353(1)289 5666  
 www.jacobs.com

Client  
 Kildare County Council  
 Comhairle Contae Chill Dara

Project  
 KERDIFFSTOWN LANDFILL  
 REMEDIATION PROJECT

Drawing title  
 FIGURE 9  
 GROUNDWATER TOTAL PHENOL  
 DISTRIBUTION. FEBRUARY 2017

Drawing status	
Scale	AS SHOWN DO NOT SCALE
Jacobs No.	32EW5604
Client no.	
Drawing number	Rev
32EW5604-00X_XX	0

This drawing is not to be used in whole or part other than for the intended purpose and project as defined on this drawing. Refer to the contract for full terms and conditions.

**Figure 10: Groundwater Mecoprop Distribution in New Wells (February 2017)**

291 000

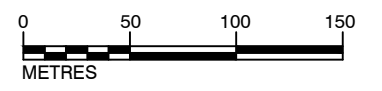
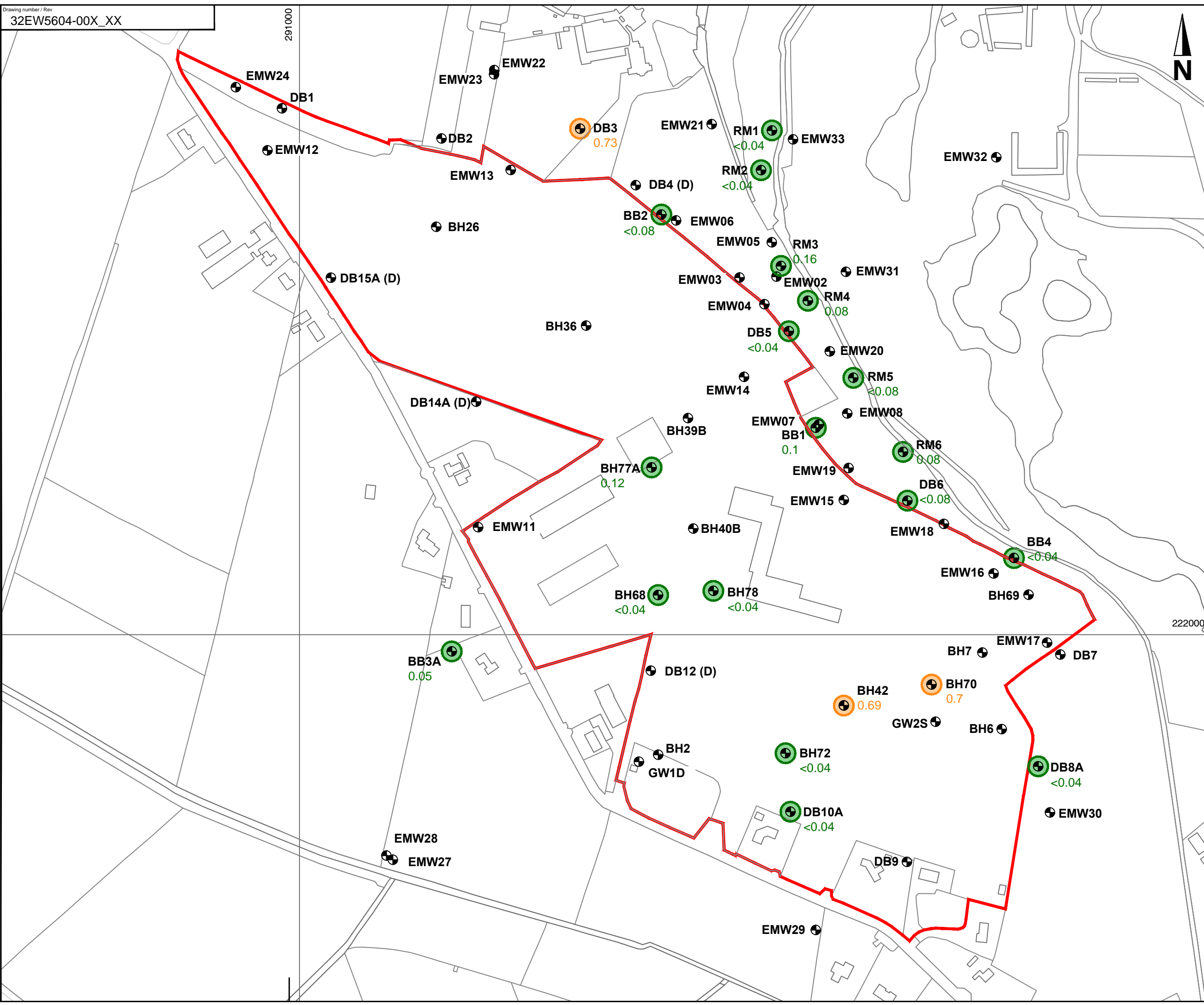
Based on Ordnance Survey Ireland data and reproduced under Ordnance Survey Ireland Licence Number "EN0059208". Unauthorised reproduction infringes Ordnance Survey Ireland and Government of Ireland copyright.

**KEY:**

- Former WA0047-02 Waste Licence Boundary
- Groundwater Monitoring Point

**Mecroprop**

- <0.25 µg/l
- 0.25 - 10 µg/l
- >10 µg/l



Rev	Rev. Date	Purpose of revision	Drawn	Checked	Rev'd	Apprv'd
0	7/04/2017		AR	UD	DM	SJM



Client: Kildare County Council  
 Project: KERDIFFSTOWN LANDFILL REMEDIATION PROJECT

Drawing title: **FIGURE 10**  
 GROUNDWATER MECOPROP DISTRIBUTION. FEBRUARY 2017

Drawing status	
Scale: AS SHOWN	DO NOT SCALE
Jacobs No. 32EW5604	
Drawing number 32EW5604-00X_XX	Rev 0

This drawing is not to be used in whole or part other than for the intended purpose and project as defined on this drawing. Refer to the contract for full terms and conditions.

## Appendix C. Borehole Logs

Glover Site Investigations Ltd						Site Kerdiffstown Landfill		Borehole Number W0047EMW01	
Boring Method Cable Percussion		Casing Diameter 200mm cased to 7.30m		Ground Level (mOD) 81.15		Client		Job Number 10-161	
		Location 291473.8 E 222320.7 N		Dates 10/05/2010		Engineer EPA		Sheet 1/1	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.50	D1				80.65	0.50 (0.50)	MADE GROUND: Brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse		
1.00	D2				80.15	1.00 (0.50)	Brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is subrounded to subangular fine to coarse (Possible Made Ground)		
1.30	D3				79.85	1.30 (0.30)	Brown mottled grey and orange sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse		
2.00	D4				79.15	2.00 (0.70)	Brown sandy gravelly CLAY with some decayed organic matter. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse		
2.50	D5					(1.40)	Brown sandy very gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse		
3.00	D6								
3.40	D7				77.75	3.40 (1.60)	Grey and dark grey sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse		
4.00	D8					(1.60)			
5.00	D9				76.15	5.00 (1.00)	Brown gravelly sandy CLAY. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse (wet)		
6.00	D10				75.15	6.00 (1.30)	Brown grey sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse		
7.00	D11			10/05/2010:	73.85	7.30	Complete at 7.30m		

**Remarks**  
 Borehole backfilled due to health and safety concerns over pedestrians in vicinity.  
 Standpipe installed.  
 Water added from 1.80m to 7.30m.

Scale (approx)	1:50	Logged By	JC/HH
Figure No.		10-161.W0047EMW01	



# Glover Site Investigations Ltd

Site  
Kerdiffstown Landfill

Borehole Number  
W0047EMW01

Installation Type Gas and Water Monitoring	Dimensions Internal Diameter of Tube [A] = 50 mm Diameter of Filter Zone = 200 mm	Client EPA	Job Number 10-161
	Location 291473.8 E 222320.7 N		Ground Level (mOD) 81.15

Legend	Water	Instr (A)	Level (mOD)	Depth (m)	Description	Groundwater Strikes During Drilling														
						Date	Time	Depth Struck (m)	Casing Depth (m)	Inflow Rate	Readings				Depth Sealed (m)					
			80.80	0.35	Concrete															
			80.25	0.90	Bentonite Seal															
			80.15	1.00	Fine Gravel Filter															
						Groundwater Observations During Drilling														
						Start of Shift					End of Shift									
						Date	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (mOD)	Date	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (mOD)			
						10/05/10								7.30						
						Instrument Groundwater Observations														
						Inst. [A] Type :														
						Instrument [A]			Remarks											
						Date	Time	Depth (m)								Level (mOD)				
			73.85	7.30	Slotted Standpipe															

Remarks  
Geosock fitted.

# Glover Site Investigations Ltd

Site  
Kerdiffstown Landfill

Borehole Number  
W0047EMW02

Boring Method Cable Percussion	Casing Diameter 200mm cased to 6.00m	Ground Level (mOD) 81.21	Client	Job Number 10-161
	Location 291462.4 E 222360.1 N	Dates 10/05/2010	Engineer EPA	Sheet 1/1

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.60	D1				80.61	(0.60)	TOPSOIL		
1.00	D2					0.60	Brown orange slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is subrounded to subangular fine to coarse		
2.00	D3					(2.80)			
3.00	D4								
3.40	D5				77.81	3.40	Grey brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse		
3.80	D6				77.41	3.80			
4.00	D7				77.21	(0.20)	Brown orange sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse		
						4.00	Grey clayey very gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse		
5.00	D8			Water Strike(1) at 4.80m.		(1.50)			∇1
					75.71	5.50	Dark grey sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse		
6.00	D9			10/05/2010:	75.21	6.00	Complete at 6.00m		

Remarks Standpipe installed. Double security lockable cover fitted with security tags.	Scale (approx)	Logged By
	1:50	JC/HH
	Figure No. 10-161.W0047EMW02	

# Glover Site Investigations Ltd

Site  
Kerdiffstown Landfill

Borehole Number  
W0047EMW02

Installation Type Gas and Water Monitoring	Dimensions Internal Diameter of Tube [A] = 50 mm Diameter of Filter Zone = 200 mm	Client EPA	Job Number 10-161
	Location 291462.4 E 222360.1 N		Ground Level (mOD) 81.21

Legend	Water	Instr (A)	Level (mOD)	Depth (m)	Description	Groundwater Strikes During Drilling										
						Date	Time	Depth Struck (m)	Casing Depth (m)	Inflow Rate	Readings				Depth Sealed (m)	
			80.86	0.35	Concrete			4.80		Water Strike						
			80.31	0.90	Bentonite Seal											
			80.21	1.00	Fine Gravel Filter											
Groundwater Observations During Drilling																
						Start of Shift					End of Shift					
						Date	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (mOD)	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (mOD)
						10/05/10							6.00			
Instrument Groundwater Observations																
Inst. [A] Type :																
					Slotted Standpipe	Date	Instrument [A]			Remarks						
						Time	Depth (m)	Level (mOD)								
			75.21	6.00												

**Remarks**  
Two lockable flush covers fitted.  
Geosock fitted.  
Gas tap fitted.

# Glover Site Investigations Ltd

Site  
Kerdiffstown Landfill

Borehole Number  
W0047EMW03

Boring Method Symmetrix Drilling	Casing Diameter 150mm cased to 17.50m	Ground Level (mOD) 86.26	Client	Job Number 10-161
	Location 291418 E 222372.8 N	Dates 10/05/2010	Engineer EPA	Sheet 1/2

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-1.00	D1					(1.00)	Brown sandy subangular to subrounded fine to coarse GRAVEL. Sand is fine to coarse		
1.00-2.50	D2				85.26	1.00 (1.50)	Brown fine to medium SAND with occasional lenses of silt		
2.50-4.00	D3				83.76	2.50 (1.50)	Brown orange gravelly silty fine to coarse SAND. Gravel is subangular to subrounded fine to coarse		
4.00-5.50	D4				82.26	4.00 (1.50)	Brown grey sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse		
5.50-7.00	D5				80.76	5.50	Dark grey and black sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse (damp)		∇1
7.00-8.50	D6					(3.00)			
8.50-9.00	D7				77.76	8.50 (1.50)	Grey sandy gravelly silty CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse (damp)		
					76.26	10.00			

Water Strike(1) at 6.00m.

Remarks Double security lockable cover fitted with security tags. Standpipe installed.	Scale (approx)	Logged By
	1:50	JC/HH
	Figure No. 10-161.W0047EMW03	

# Glover Site Investigations Ltd

Site  
Kerdiffstown Landfill

Borehole Number  
W0047EMW03

Boring Method Symmetrix Drilling	Casing Diameter 150mm cased to 17.50m	Ground Level (mOD) 86.26	Client	Job Number 10-161
	Location 291418 E 222372.8 N	Dates 10/05/2010	Engineer EPA	Sheet 2/2

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
10.00-11.50	D8						Grey sandy gravelly silty CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse (damp) becoming wet below 11.50m		
11.50-13.00	D9					(4.00)			
13.00-14.50	D10								
14.50-16.00	D11				72.26	14.00	Grey sandy silty subangular to subrounded fine to coarse GRAVEL. Sand is fine to coarse (wet)		
16.00-17.50	D12				69.76	16.50	Grey sandy gravelly CLAY with low cobble and boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. Cobbles and boulders are subangular to subrounded		
				10/05/2010:	68.76	17.50	Complete at 17.50m		

Remarks	Scale (approx)	Logged By
	1:50	JC/HH
	Figure No. 10-161.W0047EMW03	

# Glover Site Investigations Ltd

Site  
Kerdiffstown Landfill

Borehole Number  
W0047EMW03

Installation Type Gas and Water Monitoring	Dimensions Internal Diameter of Tube [A] = 50 mm Diameter of Filter Zone = 150 mm		Client EPA	Job Number 10-161
	Location 291418 E 222372.8 N	Ground Level (mOD) 86.26		

Legend	Water	Instr (A)	Level (mOD)	Depth (m)	Description	Groundwater Strikes During Drilling														
						Date	Time	Depth Struck (m)	Casing Depth (m)	Inflow Rate	Readings				Depth Sealed (m)					
			85.91	0.35	Concrete Bentonite Seal															
			84.96	1.30	Fine Gravel Filter			6.00		Water Strike										
			84.76	1.50																
						Groundwater Observations During Drilling														
						Start of Shift					End of Shift									
						Date	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (mOD)	Date	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (mOD)			
						10/05/10								17.50						
						Instrument Groundwater Observations														
						Inst. [A] Type :														
						Instrument [A]			Remarks											
						Date	Time	Depth (m)								Level (mOD)				
			68.76	17.50	Slotted Standpipe															

Remarks  
Two lockable flush covers fitted.  
Geosock fitted.  
Gas tap fitted.

# Glover Site Investigations Ltd

Site  
Kerdiffstown Landfill

Borehole Number  
W0047EMW04

Boring Method Cable Percussion	Casing Diameter 200mm cased to 7.00m	Ground Level (mOD) 83.72	Client	Job Number 10-161
	Location 291446.8 E 222346.7 N	Dates 10/05/2010	Engineer EPA	Sheet 1/1

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.50	D1				83.42	(0.30) 0.30	TOPSOIL		
1.00	D2						Brown slightly clayey gravelly fine to coarse SAND with rootlets. Gravel is subrounded to rounded fine to coarse		
1.50	D3					(2.30)			
2.00	D4								
2.60	D5			Slight Flow(1) at 3.00m.	81.12	2.60	Grey brown sandy subrounded to rounded fine to coarse GRAVEL. Sand is medium to coarse		∇1
3.40	D6				80.32	3.40	Brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is subrounded to subangular fine to coarse (damp)		
3.90	D7				79.82	3.90	Grey sandy gravelly CLAY. Sand is fine to coarse. Gravel is subrounded to angular fine to coarse (damp)		
4.50	D8								
5.50	D9					(3.10)			
7.00	D10			10/05/2010:	76.72	7.00	Complete at 7.00m		

<b>Remarks</b> Standpipe installed. Double security lockable cover fitted with security tags. Water added from 2.60m to 3.00m.	Scale (approx)	Logged By
	1:50	JC/HH
	Figure No. 10-161.W0047EMW04	

# Glover Site Investigations Ltd

Site  
Kerdiffstown Landfill

Borehole Number  
W0047EMW04

Installation Type Gas and Water Monitoring	Dimensions Internal Diameter of Tube [A] = 50 mm Diameter of Filter Zone = 200 mm	Client EPA	Job Number 10-161
	Location 291446.8 E 222346.7 N		Ground Level (mOD) 83.72

Legend	Water	Instr (A)	Level (mOD)	Depth (m)	Description	Groundwater Strikes During Drilling										
						Date	Time	Depth Struck (m)	Casing Depth (m)	Inflow Rate	Readings				Depth Sealed (m)	
			83.37	0.35	Concrete			3.00		Slight Flow						
			82.82 82.72	0.90 1.00	Bentonite Seal Fine Gravel Filter											
Groundwater Observations During Drilling																
						Start of Shift					End of Shift					
						Date	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (mOD)	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (mOD)
						10/05/10							7.00			
Instrument Groundwater Observations																
Inst. [A] Type :																
					Slotted Standpipe	Instrument [A]			Remarks							
						Date	Time	Depth (m)								Level (mOD)
			76.72	7.00												

**Remarks**  
Two lockable flush covers fitted.  
Geosock fitted.  
Gas tap fitted.



Glover Site Investigations Ltd							Site	Borehole Number	
Boring Method		Casing Diameter		Ground Level (mOD)		Client	Kerdiffstown Landfill	W0047EMW05	
Cable Percussion		200mm cased to 6.00m		79.78		Job Number			
		Location		Dates		Engineer	Sheet		
		291461.5 E 222398.7 N		10/05/2010		EPA	1/1		
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.50	D1				79.38	(0.40) 0.40	TOPSOIL		
1.00	D2				78.78	(0.60) 1.00	Brown sandy CLAY with rootlets. Sand is fine to coarse		
1.60	D3					(1.00) 1.60	Brown mottled orange slightly gravelly sandy silty CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse (damp)		
2.00	D4				77.78	2.00	Orange brown clayey gravelly fine to coarse SAND. Gravel is subrounded to subangular fine to coarse		
3.00	D5			Slight Seepage(1) at 3.00m.		(1.50) 3.00			∇1
3.50	D6				76.28	3.50	Orange brown sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subrounded to angular fine to coarse. Cobbles are subrounded to angular		
4.00	D7					(2.50) 4.00			
5.00	D8								
6.00	D9			Water Strike(2) at 6.00m. 10/05/2010:	73.78	6.00	Complete at 6.00m		∇2

**Remarks**  
Standpipe installed.  
Double security lockable cover fitted with security tags.  
Water added from 2.00m to 3.00m.

Scale (approx)	Logged By
1:50	JC/HH
Figure No.	
10-161.W0047EMW05	

# Glover Site Investigations Ltd

Site  
Kerdiffstown Landfill  
Borehole Number  
W0047EMW05

Installation Type Gas and Water Monitoring	Dimensions Internal Diameter of Tube [A] = 50 mm Diameter of Filter Zone = 200 mm	Client	Job Number 10-161
	Location 291461.5 E 222398.7 N	Ground Level (mOD) 79.78	Engineer EPA
			Sheet 1/1

Legend	Water	Instr (A)	Level (mOD)	Depth (m)	Description	Groundwater Strikes During Drilling										
						Date	Time	Depth Struck (m)	Casing Depth (m)	Inflow Rate	Readings				Depth Sealed (m)	
			79.43	0.35	Concrete			3.00		Slight Seepage						
			78.88	0.90	Bentonite Seal			6.00		Water Strike						
			78.78	1.00	Fine Gravel Filter											
						Groundwater Observations During Drilling										
						Date	Start of Shift					End of Shift				
							Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (mOD)	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (mOD)
						10/05/10						6.00				
						Instrument Groundwater Observations										
						Inst. [A] Type :										
						Date	Instrument [A]			Remarks						
							Time	Depth (m)	Level (mOD)							
			73.78	6.00	Slotted Standpipe											

**Remarks**  
Two lockable flush covers fitted.  
Geosock fitted.  
Gas tap fitted.

Glover Site Investigations Ltd						Site Kerdiffstown Landfill		Borehole Number W0047EMW06	
Boring Method Cable Percussion		Casing Diameter 200mm cased to 7.30m		Ground Level (mOD) 87.20		Client EPA		Job Number 10-161	
		Location 291359.8 E 222419.7 N		Dates 11/05/2010		Engineer EPA		Sheet 1/1	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.50	D1				87.00	(0.20)	TOPSOIL		
					86.70	0.20 (0.30) 0.50	Brown silty gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to coarse		
1.00	D2					(1.40)	Orange brown slightly silty slightly gravelly medium to coarse SAND. Gravel is subrounded to subangular fine to coarse		
1.50	D3								
2.00	D4				85.30	1.90	Grey slightly clayey very gravelly fine to coarse SAND with low cobble and boulder content. Gravel is subangular to rounded fine to coarse. Cobbles and boulders are subangular to rounded		
2.50	D5				84.70	2.50	Grey sandy subrounded to angular fine to coarse GRAVEL with low to medium cobble and boulder content. Sand is fine to coarse. Cobbles and boulders are subrounded to angular		
3.00	D6								
4.00	D7					(3.40)			
5.00	D8								
6.00	D9				81.30	5.90	Grey sandy gravelly CLAY with low to medium cobble content. Sand is medium to coarse. Gravel is subrounded to subangular fine to coarse. Cobbles are subrounded to subangular		
						(1.40)			
7.00	D10			11/05/2010:	79.90	7.30	Complete at 7.30m		
<b>Remarks</b> Standpipe installed. Double security lockable cover fitted with security tags. Chiselling from 2.10m to 2.40m for 0.5 hours. Water added from 1.00m to 7.30m.								Scale (approx) 1:50	Logged By JC/HH
								Figure No. 10-161.W0047EMW06	

# Glover Site Investigations Ltd

<b>Site</b> Kerdiffstown Landfill	<b>Borehole Number</b> W0047EMW06
<b>Client</b>	<b>Job Number</b> 10-161
<b>Engineer</b> EPA	<b>Sheet</b> 1/1

<b>Installation Type</b> Gas and Water Monitoring	<b>Dimensions</b> Internal Diameter of Tube [A] = 50 mm Diameter of Filter Zone = 200 mm
<b>Location</b> 291359.8 E 222419.7 N	<b>Ground Level (mOD)</b> 87.20

Legend	Water	Instr (A)	Level (mOD)	Depth (m)	Description	Groundwater Strikes During Drilling											
						Date	Time	Depth Struck (m)	Casing Depth (m)	Inflow Rate	Readings				Depth Sealed (m)		
			86.85	0.35	Concrete												
			86.40	0.80	Bentonite Seal												
			86.20	1.00	Fine Gravel Filter												
						Groundwater Observations During Drilling											
						Date	Start of Shift					End of Shift					
							Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (mOD)	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (mOD)	
						11/05/10						7.30					
						Instrument Groundwater Observations											
						Inst. [A] Type :											
						Date	Instrument [A]			Remarks							
							Time	Depth (m)	Level (mOD)								
			79.90	7.30	Slotted Standpipe												

**Remarks**  
 Two lockable flush covers fitted.  
 Geosock fitted.  
 Gas tap fitted.

Glover Site Investigations Ltd						Site Kerdiffstown Landfill		Borehole Number W0047EMW07	
Boring Method Cable Percussion		Casing Diameter 200mm cased to 6.00m		Ground Level (mOD) 81.02		Client		Job Number 10-161	
		Location 291513.1 E 222208.2 N		Dates 11/05/2010		Engineer EPA		Sheet 1/1	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.50	D1				80.77	(0.25)	TOPSOIL		
						0.25	Brown slightly gravelly sandy CLAY with roots, rootlets and occasional decayed organic matter. Sand is fine to coarse. Gravel is subangular fine to medium (Possible Made Ground)		
					80.42	(0.35)			
						0.60	Brown sandy gravelly CLAY with roots. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse		
1.00	D2					(0.70)			
1.40	D3				79.72	1.30	Brown mottled grey sandy gravelly silty CLAY. Sand is fine to coarse. Gravel is subrounded to subangular fine to coarse (damp)		
						(1.70)			
2.50	D4						Brown grey slightly clayey slightly gravelly fine to coarse SAND. Gravel is subrounded fine to coarse		
3.00	D5				78.02	3.00			
						(1.00)	Grey slightly silty sandy subangular to rounded fine to coarse GRAVEL. Sand is fine to coarse (wet)		▽1
4.00	D6			Water Strike(1) at 3.80m.	77.02	4.00			
5.00	D7					(2.00)	Complete at 6.00m		
6.00	D8			11/05/2010:	75.02	6.00			

**Remarks**  
 Water strike at 3.80m rose to 3.0m after 1.0min.  
 Standpipe installed.  
 Double security lockable cover fitted with security tags.

Scale (approx)	Logged By
1:50	JC/HH
Figure No.	
10-161.W0047EMW07	

# Glover Site Investigations Ltd

Site  
Kerdiffstown Landfill

Borehole Number  
W0047EMW07

Installation Type Gas and Water Monitoring	Dimensions Internal Diameter of Tube [A] = 50 mm Diameter of Filter Zone = 200 mm	Client EPA	Job Number 10-161
	Location 291513.1 E 222208.2 N		Ground Level (mOD) 81.02

Legend	Water	Instr (A)	Level (mOD)	Depth (m)	Description	Groundwater Strikes During Drilling										
						Date	Time	Depth Struck (m)	Casing Depth (m)	Inflow Rate	Readings				Depth Sealed (m)	
			80.67	0.35	Concrete			3.80		Water Strike						
			80.12	0.90	Bentonite Seal											
			80.02	1.00	Fine Gravel Filter											
Groundwater Observations During Drilling																
						Start of Shift					End of Shift					
						Date	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (mOD)	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (mOD)
						11/05/10							6.00			
Instrument Groundwater Observations																
Inst. [A] Type :																
					Slotted Standpipe	Instrument [A]				Remarks						
						Date	Time	Depth (m)	Level (mOD)							
			75.02	6.00												

**Remarks**  
 Two lockable flush covers fitted.  
 Geosock fitted.  
 Gas tap fitted.

Glover Site Investigations Ltd							Site Kerdiffstown Landfill		Borehole Number W0047EMW08	
Boring Method Cable Percussion		Casing Diameter 200mm cased to 5.00m		Ground Level (mOD) 80.34		Client EPA		Job Number 10-161		
		Location 291539.3 E 222230.6 N		Dates 12/05/2010		Engineer EPA		Sheet 1/1		
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
0.50	D1				80.14	(0.20) 0.20	TOPSOIL			
						(0.80)	Grey brown slightly silty very gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to coarse			
1.00	D2				79.34	1.00	Brown slightly sandy slightly silty gravelly CLAY. Sand is fine to medium. Gravel is subangular to subrounded fine to coarse			
1.50	D3					(1.00)				
2.00	D4				78.34	2.00	Grey slightly silty slightly gravelly fine to medium SAND. Gravel is subangular to subrounded fine to coarse		▼1	
				Water Strike(1) at 2.50m, rose to 2.00m in 5 mins.		(1.10)			▽1	
3.00	D5				77.24	3.10	Grey very gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to coarse			
4.00	D6					(1.90)				
5.00	D7			12/05/2010:	75.34	5.00	Complete at 5.00m			

<b>Remarks</b> Standpipe installed. Double security lockable cover fitted with security tags.		<b>Scale (approx)</b> 1:50	<b>Logged By</b> JC/HH
		<b>Figure No.</b> 10-161.W0047EMW08	

# Glover Site Investigations Ltd

Site  
Kerdiffstown Landfill

Borehole Number  
W0047EMW08

Installation Type Gas and Water Monitoring	Dimensions Internal Diameter of Tube [A] = 50 mm Diameter of Filter Zone = 200 mm		Client EPA	Job Number 10-161
	Location 291539.3 E 222230.6 N	Ground Level (mOD) 80.34		

Legend	Water	Instr (A)	Level (mOD)	Depth (m)	Description	Groundwater Strikes During Drilling										
						Date	Time	Depth Struck (m)	Casing Depth (m)	Inflow Rate	Readings				Depth Sealed (m)	
			79.99	0.35	Concrete			2.50		Water Strike	2.00					
			79.54	0.80	Bentonite Seal											
			79.34	1.00	Fine Gravel Filter											
Groundwater Observations During Drilling																
						Start of Shift					End of Shift					
						Date	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (mOD)	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (mOD)
						12/05/10							5.00			
Instrument Groundwater Observations																
Inst. [A] Type :																
					Slotted Standpipe	Date	Instrument [A]			Remarks						
						Time	Depth (m)	Level (mOD)								
			75.34	5.00												

**Remarks**  
Two lockable flush covers fitted.  
Geosock fitted.  
Gas tap fitted.



# Glover Site Investigations Ltd

Site  
Kerdiffstown Landfill

Borehole Number  
W0047EMW09

Boring Method Symmetrix Drilling	Casing Diameter 150mm cased to 20.50m	Ground Level (mOD) 98.27	Client	Job Number 10-161
	Location 290988.2 E 222399.1 N	Dates 11/05/2010	Engineer EPA	Sheet 1/3

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-1.00	D1						Brown orange slightly clayey slightly gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to coarse		
1.00-2.50	D2					(2.50)			
2.50-4.00	D3				95.77	2.50	Brown slightly clayey gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to coarse		
4.00-5.50	D4				94.27	4.00	Grey brown gravelly clayey fine to coarse SAND. Gravel is subangular to subrounded fine to coarse		
5.50-7.00	D5								
7.00-8.50	D6					(6.00)			
8.50-10.00	D7								
					88.27	10.00			

<b>Remarks</b> Standpipe installed. Double security lockable cover fitted with security tags.	Scale (approx)	Logged By
	1:50	JC/HH
	Figure No. 10-161.W0047EMW09	

# Glover Site Investigations Ltd

Site  
Kerdiffstown Landfill

Borehole Number  
W0047EMW09

Boring Method Symmetrix Drilling	Casing Diameter 150mm cased to 20.50m	Ground Level (mOD) 98.27	Client	Job Number 10-161
	Location 290988.2 E 222399.1 N	Dates 11/05/2010	Engineer EPA	Sheet 2/3

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
10.00-11.50	D8					(1.50)	Grey brown gravelly clayey fine to coarse SAND. Gravel is subangular to subrounded fine to coarse		
11.50-13.00	D9				86.77	(1.50)	Grey brown slightly gravelly clayey fine to coarse SAND. Gravel is subangular to subrounded fine to coarse		
13.00-14.50	D10				85.27	(4.50)	Grey brown sandy subangular to subrounded fine to coarse GRAVEL. Sand is fine to coarse		
14.50-16.00	D11								
16.00-17.50	D12								
17.50-19.00	D13				80.77	(1.50)	Grey sandy subangular to subrounded fine to coarse GRAVEL. Sand is fine to coarse		
19.00-20.50	D14				79.27	(1.00)	Possible weathered BEDROCK or BOULDERS		
					78.27	20.00			

Remarks	Scale (approx)	Logged By
	1:50	JC/HH
Figure No. 10-161.W0047EMW09		

Glover Site Investigations Ltd							Site Kerdiffstown Landfill		Borehole Number W0047EMW09	
Boring Method Symmetrix Drilling		Casing Diameter 150mm cased to 20.50m		Ground Level (mOD) 98.27		Client		Job Number 10-161		
		Location 290988.2 E 222399.1 N		Dates 11/05/2010		Engineer EPA		Sheet 3/3		
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
				11/05/2010: DRY	77.77	(0.50) 20.50	Possible weathered BEDROCK or BOULDERS			
							Complete at 20.50m			
Remarks								Scale (approx) 1:50	Logged By JC/HH	
								Figure No. 10-161.W0047EMW09		

# Glover Site Investigations Ltd

Site  
Kerdiffstown Landfill

Borehole Number  
W0047EMW09

Installation Type Gas and Water Monitoring	Dimensions Internal Diameter of Tube [A] = 50 mm Diameter of Filter Zone = 150 mm	Client EPA	Job Number 10-161
	Location 290988.2 E 222399.1 N		Ground Level (mOD) 98.27

Legend	Water	Instr (A)	Level (mOD)	Depth (m)	Description	Groundwater Strikes During Drilling														
						Date	Time	Depth Struck (m)	Casing Depth (m)	Inflow Rate	Readings				Depth Sealed (m)					
			97.92	0.35	Concrete Bentonite Seal															
			96.97	1.30	Fine Gravel Filter															
			96.77	1.50																
Groundwater Observations During Drilling																				
						Start of Shift					End of Shift									
						Date	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (mOD)	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (mOD)				
						11/05/10							20.50			DRY				
Instrument Groundwater Observations																				
Inst. [A] Type :																				
						Date	Instrument [A]			Remarks										
						Time	Depth (m)	Level (mOD)												
			77.77	20.50	Slotted Standpipe															

**Remarks**  
Two lockable flush covers fitted.  
Geosock fitted.  
Gas tap fitted.

# Glover Site Investigations Ltd

Site  
Kerdiffstown Landfill

Borehole Number  
W0047EMW10

Boring Method Rotary Symmetrix	Casing Diameter 150mm cased to 20.50m	Ground Level (mOD) 99.17	Client	Job Number 10-161
	Location 291023.2 E 222348.6 N	Dates 11/05/2010	Engineer EPA	Sheet 1/3

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
1.00	D1					(2.30)	Brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse		
2.50	D2				96.87	2.30	Brown grey slightly silty slightly gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to medium		
4.00	D3								
5.50	D4								
7.00	D5					(7.70)			
8.50	D6								
					89.17	10.00			

Remarks Standpipe installed. Double security lockable cover fitted with security tags.	Scale (approx)	Logged By
	1:50	JC/HH
	Figure No. 10-161.W0047EMW10	

Glover Site Investigations Ltd							Site Kerdiffstown Landfill		Borehole Number W0047EMW10	
Boring Method Rotary Symmetrix		Casing Diameter 150mm cased to 20.50m		Ground Level (mOD) 99.17		Client EPA		Job Number 10-161		
		Location 291023.2 E 222348.6 N		Dates 11/05/2010		Engineer EPA		Sheet 2/3		
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
10.00	D7					(1.20)	Brown grey slightly silty slightly gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to medium			
11.50	D8				87.97	11.20	Grey brown silty sandy subangular to subrounded fine to medium GRAVEL. Sand is fine to coarse			
13.00	D9					(3.40)				
14.50	D10				84.57	14.60	Grey brown silty gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to coarse			
16.00	D11					(3.00)				
17.50	D12				81.57	17.60	Brown silty sandy subangular to subrounded fine to medium GRAVEL. Sand is fine to coarse			
19.00	D13					(2.40)				
					79.17	20.00				
Remarks								Scale (approx) 1:50	Logged By JC/HH	
								Figure No. 10-161.W0047EMW10		

# Glover Site Investigations Ltd

Site  
Kerdiffstown Landfill

Borehole Number  
W0047EMW10

Boring Method Rotary Symmetrix	Casing Diameter 150mm cased to 20.50m	Ground Level (mOD) 99.17	Client	Job Number 10-161
	Location 291023.2 E 222348.6 N	Dates 11/05/2010	Engineer EPA	Sheet 3/3

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
20.50	D14			11/05/2010:DRY	78.67	(0.50) 20.50	Brown silty sandy subangular to subrounded fine to medium GRAVEL. Sand is fine to coarse		
							Complete at 20.50m		

Remarks	Scale (approx) 1:50	Logged By JC/HH
	Figure No. 10-161.W0047EMW10	

# Glover Site Investigations Ltd

Site  
Kerdiffstown Landfill

Borehole Number  
W0047EMW10

Installation Type Gas and Water Monitoring	Dimensions Internal Diameter of Tube [A] = 50 mm Diameter of Filter Zone = 150 mm	Client	Job Number 10-161
	Location 291023.2 E 222348.6 N	Ground Level (mOD) 99.17	Engineer EPA
			Sheet 1/1

Legend	Water	Instr (A)	Level (mOD)	Depth (m)	Description	Groundwater Strikes During Drilling															
						Date	Time	Depth Struck (m)	Casing Depth (m)	Inflow Rate	Readings				Depth Sealed (m)						
			98.82	0.35	Concrete Bentonite Seal																
			97.37 97.17	1.80 2.00	Fine Gravel Filter																
						Groundwater Observations During Drilling															
						Start of Shift					End of Shift										
						Date	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (mOD)	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (mOD)					
						11/05/10							20.50			DRY					
						Instrument Groundwater Observations															
						Inst. [A] Type :															
						Date	Instrument [A]			Remarks											
							Time	Depth (m)	Level (mOD)												
			78.67	20.50	Slotted Standpipe																

Remarks  
Two lockable flush covers fitted.  
Geosock fitted.  
Gas tap fitted.



Method and Equipment:  
Rotary drilling 0.00-25.00m Symmetrix Drilling

Co-ords:  
-  
-  
Ground Level:  
-

Client:  
Engineer: Ford Consulting  
Dates: 08/06/2011

Sheet 1 of 1  
Scale: 1:400  
Driller: GT  
Logger: BA

Depth (m)	Sample / Test	Casing Depth (m)	Water Depth (m)	Field Records	Level Depth (Thickness)	Stratum Description	Legend & Water Strikes	Backfill/ Installs
					(8.00)	Hardfill, Sawdust and Plastic (Driller's description)		
					8.00	SAND and GRAVEL (Driller's description)		
					(11.00)			
					19.00	Coarse SAND and GRAVEL (Driller's description)		
					(6.00)			
					25.00	End of Borehole at 25.00 m		
	Type							

Remarks:  
Standpipe installed.

Water Strikes:  
Struck (m) rising to (m) time (min)  
No Groundwater Encountered

Last Revised:  
28/06/2011

Core Barrel:  
Flush type:

Casing:  
to (m) 25.00 dia. (mm) 200

**Installation Type:**  
SPEMW11 - Standpipe to 22.00m (50mm dia)

**Co-ords:**  
-  
-

**Client:**  
  
**Engineer:** Ford Consulting

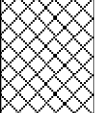
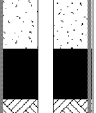
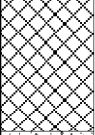
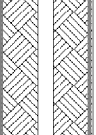
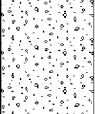
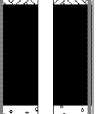
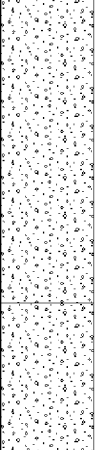
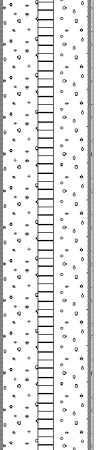
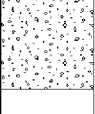

**Sheet 1 of 1**  
**Scale:** 1:150

**Cover Type:**  
Upright cover fitted.

**Ground Level:**  
-

**Date of installation:** 08/06/2011

**Driller:** GT  
**Logger:** BA

Legend & Water Strikes	Backfill/ Installs	Level (m)	Depth (m)	Description	Groundwater Strikes During Drilling														
					Date	Time	Strike Number	Depth Struck (m)	Rise Details	Further Details	Casing Depth (m)	Depth Sealed (m)							
		1.00	2.00	Concrete															
				Bentonite					No Groundwater Encountered										
				Arisings	Groundwater Observations During Drilling														
					Start of Shift					End of Shift									
					Date	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (m)	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level EMW11				
		9.50	11.50	Bentonite															
				Gravel filter	Groundwater Monitoring Results					Gas Monitoring Results									
					Install I.D.	Date	Time	Water Depth (m)	Water Level (m)	Install I.D.	Date	Time	Oxygen (%)	Carbon Dioxide (%)	Methane (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	Atmospheric Pressure (mBar)	Gas Flow (l/hour)
		22.00	25.00	Bentonite															

**Remarks:**
**Last Revised:**  
28/06/2011

Method and Equipment:  
Rotary drilling 0.00-20.50m Symmetrix Drilling

Co-ords:  
-  
-  
Ground Level:  
-

Client:  
Engineer: Ford Consulting  
Dates: 09/06/2011

Sheet 1 of 1  
Scale: 1:400  
Driller: GT  
Logger: BA

Depth (m)	Sample / Test	Casing Depth (m)	Water Depth (m)	Field Records	Level Depth (Thickness)	Stratum Description	Legend & Water Strikes	Backfill/ Installs
					(7.50)	Hardcore, Plastic and wood (Driller's description)		
					7.50 (5.50)	Fine SAND and GRAVEL (Driller's description)		
					13.00 (7.50)	ROCK (Driller's description)		
				-09/06/2011 — dry	20.50	End of Borehole at 20.50 m		
	Type							

Remarks:  
Standpipe installed.

Water Strikes:  
Struck (m) 19.30  
rising to (m) -  
time (min) 0

Last Revised:  
24/06/2011

Core Barrel:

Flush type:

Casing:  
to (m) 15.00  
dia. (mm) 200



Installation Type:  
SPEMW12 - Standpipe to 20.00m (50mm dia)

Co-ords:  
-  
-

Client:  
Engineer: Ford Consulting

Sheet 1 of 1

Scale: 1:150

Cover Type:  
Upright cover fitted.

Ground Level:  
-

Date of installation: 09/06/2011

Driller: GT

Logger: BA

Legend & Water Strikes	Backfill/Installs	Level (m)	Depth (m)	Description	Groundwater Strikes During Drilling																
					Date	Time	Strike Number	Depth Struck (m)	Rise Details	Further Details	Casing Depth (m)	Depth Sealed (m)									
		1.00	2.00	Concrete																	
				Bentonite	09/06/11	0000	1	19.30	-	Water Strike	-	-									
Arisings					Groundwater Observations During Drilling																
					Start of Shift					End of Shift											
					Date	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (m)	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level EMW12						
					09/06/11						1700	20.50	-	-	-						
		11.00	13.00	Bentonite																	
				Gravel filter																	
					Groundwater Monitoring Results					Gas Monitoring Results											
					Install I.D.	Date	Time	Water Depth (m)	Water Level (m)	Install I.D.	Date	Time	Oxygen (%)	Carbon Dioxide (%)	Methane (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	Atmospheric Pressure (mBar)	Gas Flow (l/hour)	PID - VOCs (ppm)	

Remarks:

Last Revised:  
24/06/2011



Method and Equipment:  
Rotary drilling 0.00-20.00m Symmetrix Drilling

Co-ords:  
-  
-  
Ground Level:  
-

Client:  
Engineer: Ford Consulting  
Dates: 10/06/2011

Sheet 1 of 1  
Scale: 1:400  
Driller: GT  
Logger: BA

Depth (m)	Sample / Test	Casing Depth (m)	Water Depth (m)	Field Records	Level Depth (Thickness)	Stratum Description	Legend & Water Strikes	Backfill/ Installs
					(4.50)	Hardcore FILL (Driller's description)		
					4.50	Tree stumps and timber (Driller's description)		
					(11.00)			
					15.50	Coarse GRAVEL, fine SAND and grey SILT (Driller's description)		
					(4.50)			
					20.00	End of Borehole at 20.00 m		
	Type							

Remarks:  
Standpipe installed.

Water Strikes:  
Struck (m) 16.00  
rising to (m) -  
time (min) 0

Core Barrel:  
Flush type:

Casing:  
to (m) 20.00  
dia. (mm) 200

Last Revised:  
28/06/2011

www.glover-si.com  
(c) Glover Site Investigation Ltd

**Project No.**  
11-182

**Project Name:** Kerdiffstown Landfill, near Naas, Co. Kildare

**Borehole No.**  
EMW13

**Installation Type:**  
SPEMW13 - Standpipe to 20.00m (50mm dia)

**Co-ords:**  
-  
-  
**Ground Level:**  
-

**Client:**  
**Engineer:** Ford Consulting  
**Date of installation:** 10/06/2011

 Sheet 1 of 1  
Scale: 1:150  
Driller: GT  
Logger: BA

**Cover Type:**  
Upright cover fitted.

Legend & Water Strikes	Backfill/Installs	Level (m)	Depth (m)	Description	Groundwater Strikes During Drilling																
					Date	Time	Strike Number	Depth Struck (m)	Rise Details	Further Details	Casing Depth (m)	Depth Sealed (m)									
		1.00		Concrete																	
		2.00		Bentonite	10/06/11	0000	1	16.00	-		Water Strike	-	-								
<b>Groundwater Observations During Drilling</b>																					
<b>Arisings</b>																					
<b>Start of Shift</b>																					
<b>End of Shift</b>																					
					Date	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (m)	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level EMW13						
<b>Groundwater Monitoring Results</b>																					
<b>Gas Monitoring Results</b>																					
					Install I.D.	Date	Time	Water Depth (m)	Water Level (m)	Install I.D.	Date	Time	Oxygen (%)	Carbon Dioxide (%)	Methane (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	Atmospheric Pressure (mBar)	Gas Flow (l/hour)	PID - VOCs (ppm)	
		13.50		Bentonite																	
		15.50																			
		20.00		Gravel filter																	

**Remarks:**
**Last Revised:**  
28/06/2011

Method and Equipment:  
Rotary drilling 0.00-24.00m Symmetrix Drilling

Co-ords:  
-  
-  
Ground Level:  
-

Client:  
Engineer: Ford Consulting  
Dates: 19/06/2011

Sheet 1 of 1  
Scale: 1:400  
Driller: GT  
Logger: BA

Depth (m)	Sample / Test	Casing Depth (m)	Water Depth (m)	Field Records	Level Depth (Thickness)	Stratum Description	Legend & Water Strikes	Backfill/Installs
					(19.50)	Hardcore, waste, timber, tree stumps (Driller's description)		
				19/06/2011 dry	19.50 (4.50) 24.00	Layers of black CLAY, grey sandy SILT and coarse GRAVEL (Driller's description)		
						End of Borehole at 24.00 m		
Type								

Remarks:  
Standpipe installed.

Water Strikes:  
Struck (m) rising to (m) time (min)  
No Groundwater Encountered

Last Revised:  
28/06/2011

Core Barrel:  
Flush type:

Casing:  
to (m) dia. (mm)  
24.00 200

**Project No.**  
11-182

**Project Name:** Kerdiffstown Landfill, near Naas, Co. Kildare

**Borehole No.**  
**EMW14**
**Installation Type:**  
SPEMW17 - Standpipe to 24.00m (50mm dia)

**Co-ords:**  
-  
-  
**Ground Level:**  
-

**Client:**  
**Engineer:** Ford Consulting  
**Date of installation:** 19/06/2011

 Sheet 1 of 1  
Scale: 1:150  
Driller: GT  
Logger: BA

**Cover Type:**  
Upright cover fitted.

Legend & Water Strikes	Backfill/ Installs	Level (m)	Depth (m)	Description	Groundwater Strikes During Drilling																
					Date	Time	Strike Number	Depth Struck (m)	Rise Details	Further Details	Casing Depth (m)	Depth Sealed (m)									
		1.00		Concrete																	
		2.00		Bentonite					No Groundwater Encountered												
					Groundwater Observations During Drilling																
					Start of Shift					End of Shift											
					Date	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (m)	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level EMW14						
				Arisings	19/06/11						1700	24.00	-	-	-						
					Groundwater Monitoring Results					Gas Monitoring Results											
					Install I.D.	Date	Time	Water Depth (m)	Water Level (m)	Install I.D.	Date	Time	Oxygen (%)	Carbon Dioxide (%)	Methane (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	Atmospheric Pressure (mB)	Gas Flow (l/hour)	PID - VOCs (ppm)	
		18.50		Bentonite																	
		20.50																			
				Gravel filter																	
		24.00																			

**Remarks:**
**Last Revised:**  
28/06/2011



**Project No.**  
11-182

**Project Name:** Kerdiffstown Landfill, near Naas, Co. Kildare



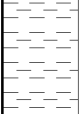

**Borehole No.**  
EMW15

**Method and Equipment:**  
Rotary drilling 0.00-18.00m Symmetrix Drilling

**Co-ords:**  
-  
-  
  
**Ground Level:**  
-

**Client:**  
  
**Engineer:** Ford Consulting  
  
**Dates:** 15/06/2011

**Sheet 1 of 1**  
**Scale:** 1:400  
**Driller:** GT  
**Logger:** BA

Depth (m)	Sample / Test	Casing Depth (m)	Water Depth (m)	Field Records	Level Depth (Thickness)	Stratum Description	Legend & Water Strikes	Backfill/ Installs
					(11.70)	Hardcore, Plastic and Timber (Driller's description)		
					11.70 (6.30)	Layer of grey CLAY and silty sandy coarse GRAVEL (Driller's description)		
				-15/06/2011 14.90m	18.00	End of Borehole at 18.00 m		
	Type							

**Remarks:**  
Standpipe installed

**Water Strikes:**  
Struck (m) rising to (m) time (min)  
No Groundwater Encountered

**Last Revised:**  
23/06/2011

**Core Barrel:**  
  
**Flush type:**
**Casing:**  
to (m) dia. (mm)  
18.00 200

**Project No.**  
11-182

**Project Name:** Kerdiffstown Landfill, near Naas, Co. Kildare

**Borehole No.**  
EMW15

**Installation Type:**  
SPEMW16 - Standpipe to 18.00m (50mm dia)

**Co-ords:**  
-  
-

**Client:**  
**Engineer:** Ford Consulting

Sheet 1 of 1

Scale: 1:150

**Cover Type:**  
Upright cover fitted.

**Ground Level:**  
-

**Date of installation:** 15/06/2011

Driller: GT

Logger: BA

Legend & Water Strikes	Backfill/ Installs	Level (m)	Depth (m)	Description	Groundwater Strikes During Drilling																
					Date	Time	Strike Number	Depth Struck (m)	Rise Details	Further Details	Casing Depth (m)	Depth Sealed (m)									
			1.00	Concrete																	
			2.00	Bentonite					No Groundwater Encountered												
				Arisings	Groundwater Observations During Drilling																
					Start of Shift					End of Shift											
					Date	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (m)	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (m)	Water Level EMW15					
					15/06/11						1700	18.00	18.00	14.90	-						
			11.00	Bentonite																	
			13.00	Gravel filter	Groundwater Monitoring Results					Gas Monitoring Results											
					Install I.D.	Date	Time	Water Depth (m)	Water Level (m)	Install I.D.	Date	Time	Oxygen (%)	Carbon Dioxide (%)	Methane (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	Atmospheric Pressure (mBar)	Gas Flow (l/hour)	PID - VOCs (ppm)	
			18.00																		

Remarks:



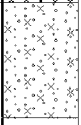

 Last Revised:  
23/06/2011


**Method and Equipment:**  
Rotary drilling 0.00-17.60m Symmetrix Drilling

**Co-ords:**  
-  
-  
  
**Ground Level:**  
-

**Client:**  
  
**Engineer:** Ford Consulting  
  
**Dates:** 14/06/2011

**Sheet 1 of 1**  
**Scale:** 1:400  
**Driller:** GT  
**Logger:** BA

Depth (m)	Sample / Test	Casing Depth (m)	Water Depth (m)	Field Records	Level Depth (Thickness)	Stratum Description	Legend & Water Strikes	Backfill/ Installs
					(11.50)	Hardcore Fill, plastic and timber (Driller's description)		
					11.50 (6.10)	GRAVEL and grey silt and layers of black clay (Driller's description)		
				14/06/2011 dry	17.60	End of Borehole at 17.60 m		
	Type							

**Remarks:**  
Standpipe installed

**Water Strikes:**  
Struck rising to time  
(m) (m) (min)  
No Groundwater Encountered

**Last Revised:**  
24/06/2011

**Core Barrel:**  
  
**Flush type:**
**Casing:**  
to (m) dia. (mm)  
17.60 200

**Project No.**  
11-182

**Project Name:** Kerdiffstown Landfill, near Naas, Co. Kildare

**Borehole No.**  
EMW16

**Installation Type:**  
SPEMW15 - Standpipe to 17.60m (50mm dia)

**Co-ords:**  
-  
-

**Client:**  
  
**Engineer:** Ford Consulting

**Sheet 1 of 1**  
**Scale:** 1:150

**Cover Type:**  
Upright cover fitted.

**Ground Level:**  
-

**Date of installation:** 14/06/2011

**Driller:** GT  
**Logger:** BA

Legend & Water Strikes	Backfill/ Installs	Level (m)	Depth (m)	Description	Groundwater Strikes During Drilling																
					Date	Time	Strike Number	Depth Struck (m)	Rise Details	Further Details	Casing Depth (m)	Depth Sealed (m)									
		1.00		Concrete																	
		2.00		Bentonite					No Groundwater Encountered												
				Arisings	Groundwater Observations During Drilling																
					Start of Shift					End of Shift											
					Date	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (m)	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (m)	Water Level EMW16					
					14/06/11						1700	17.60	-	-	-	-					
		11.20		Bentonite																	
		13.20		Gravel filter	Groundwater Monitoring Results					Gas Monitoring Results											
					Install I.D.	Date	Time	Water Depth (m)	Water Level (m)	Install I.D.	Date	Time	Oxygen (%)	Carbon Dioxide (%)	Methane (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	Atmospheric Pressure (mB)	Gas Flow (l/hour)	PID - VOCs (ppm)	
		17.60																			



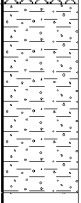
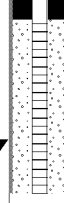
**Remarks:**
**Last Revised:**  
24/06/2011

Method and Equipment:  
Rotary drilling 0.00-21.00m Symmetrix Drilling

Co-ords:  
-  
-  
Ground Level:  
-

Client:  
Engineer: Ford Consulting  
Dates: 13/06/2011

Sheet 1 of 1  
Scale: 1:400  
Driller: GT  
Logger: BA

Depth (m)	Sample / Test	Casing Depth (m)	Water Depth (m)	Field Records	Level Depth (Thickness)	Stratum Description	Legend & Water Strikes	Backfill/ Installs
					(11.00)	Hardcore Fill, Gravel and Wood (Driller's description)		
					11.00	Grey sandy silty layers of CLAY and GRAVEL (Driller's description)		
				13/06/2011	(10.00)			
				19.00m	21.00	End of Borehole at 21.00 m		
	Type							

Remarks:  
Standpipe installed.

Water Strikes:  
Struck (m) 19.00  
rising to (m) -  
time (min) 0

Last Revised:  
23/06/2011

Core Barrel:  
Flush type:

Casing:  
to (m) 21.00  
dia. (mm) 200

**Project No.**  
11-182

**Project Name:** Kerdiffstown Landfill, near Naas, Co. Kildare

**Borehole No.**  
EMW17

**Installation Type:**  
SPEMW14 - Standpipe to 21.00m (50mm dia)

**Co-ords:**  
-  
-

**Client:**

Sheet 1 of 1

**Cover Type:**  
Upright cover fitted.

**Ground Level:**  
-

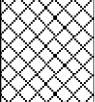
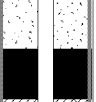
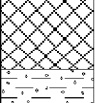
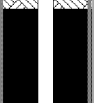
**Engineer:** Ford Consulting

Scale: 1:150

**Date of installation:** 13/06/2011

Driller: GT

Logger: BA

Legend & Water Strikes	Backfill/Installs	Level (m)	Depth (m)	Description	Groundwater Strikes During Drilling																
					Date	Time	Strike Number	Depth Struck (m)	Rise Details	Further Details	Casing Depth (m)	Depth Sealed (m)									
		1.00	2.00	Concrete																	
				Bentonite	13/06/11	0000	1	19.00	-	Water Strike	-	-									
<b>Arisings</b>					<b>Groundwater Observations During Drilling</b>																
					<b>Start of Shift</b>					<b>End of Shift</b>											
					Date	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (m)	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level EMW17						
					13/06/11						1700	21.00	-	19.00	-						
		9.80	11.80	Bentonite																	
				Gravel filter																	
					<b>Groundwater Monitoring Results</b>					<b>Gas Monitoring Results</b>											
					Install I.D.	Date	Time	Water Depth (m)	Water Level (m)	Install I.D.	Date	Time	Oxygen (%)	Carbon Dioxide (%)	Methane (%)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	Atmospheric Pressure (mB)	Gas Flow (l/hour)	PID - VOCs (ppm)	

**Remarks:**
**Last Revised:**  
23/06/2011




# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

16412

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> <b>EMW18</b>	
<b>CO-ORDINATES</b> 291,642.73 E 222,110.47 N		<b>RIG TYPE</b> Dando 2000		<b>SHEET</b> Sheet 1 of 1	
<b>GROUND LEVEL (m AOD)</b> 81.01		<b>BOREHOLE DIAMETER (mm)</b> 200		<b>DATE COMMENCED</b> 31/08/2012	
		<b>BOREHOLE DEPTH (m)</b> 6.20		<b>DATE COMPLETED</b> 31/08/2012	
<b>CLIENT</b> EPA		<b>SPT HAMMER REF. NO.</b>		<b>BORED BY</b> W.Cahill	
<b>ENGINEER</b> SKM		<b>ENERGY RATIO (%)</b>		<b>PROCESSED BY</b> I.Reeder	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	TOPSOIL Light brown, sandy gravelly CLAY with some angular sandstone cobbles		80.91	0.10						
1	Brown, sandy slightly gravelly CLAY with some subangular sandstone cobbles and occasional boulders		79.81	1.20						
3	Light brown, sandy fine to coarse GRAVEL		77.81	3.20						
4	Brown, fine to coarse SAND with occasional fine gravel		76.51	4.50						
5	Brown, sandy fine to coarse GRAVEL with occasional subangular cobbles		75.41	5.60						
6	Obstruction - possible big cobble End of Borehole at 6.20 m		74.81	6.20						

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
6.2	6.2	0.5	Chiselling	3.20	3.20	NO	1.70	20	Rapid
INSTALLATION DETAILS				GROUNDWATER PROGRESS					
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments
31-08-12	6.20	3.00	6.00	50mm SP					

<b>REMARKS</b> Obstruction at 6.2m due to possible boulder.	<b>Sample Legend</b> D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) U - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample
---	---

IGSL BH LOG CHISEL SEPARATED 16412.GPJ IGSL GDT 6/11/12



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

**16412**

<b>CONTRACT</b> Kerdiffstown Landfill	<b>DRILLHOLE NO</b> <b>EMW19</b>
<b>CO-ORDINATES</b> 291,547.74 E 222,164.60 N	<b>SHEET</b> Sheet 1 of 2
<b>GROUND LEVEL (mOD)</b> 80.45	<b>DATE DRILLED</b> 31/08/2012 <b>DATE LOGGED</b> 06/09/2012
<b>CLIENT ENGINEER</b> SKM	<b>RIG TYPE</b> Casagrande <b>FLUSH</b> Water <b>INCLINATION (deg)</b> -90 <b>CORE DIAMETER (mm)</b>
	<b>DRILLED BY</b> IGSL <b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0					0 250 500			SYMMETRIX DRILLING: No recovery, observed by driller as returns of clay				
1												
2								SYMMETRIX DRILLING: No recovery, observed by driller as returns of gravelly clay	2.00	78.45		
3								SYMMETRIX DRILLING: No recovery, observed by driller as returns of sandy gravel	3.00	77.45		
4								SYMMETRIX DRILLING: No recovery, observed by driller as returns of sand	3.90	76.55		
5								SYMMETRIX DRILLING: No recovery, observed by driller as returns of blowing sand	4.50	75.95		
6												
7												
8								SYMMETRIX DRILLING: No recovery, observed by driller as returns of gravelly clay	8.00	72.45		
9								SYMMETRIX DRILLING: No recovery, observed by driller as returns of boulder	8.70	71.75		
								SYMMETRIX DRILLING: No recovery, observed by driller as returns of sandy gravel	9.30	71.15		
									10.00	70.45		

<b>REMARKS</b> Hole Cased 0.00-10.00m. Driller standing 2.5hrs waiting for new location.					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					2.00					Seepage Slow
					3.20					
					<b>GROUNDWATER DETAILS</b>					
<b>INSTALLATION DETAILS</b>					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type						
06-09-12	15.40	11.20	15.40	50mm SP						

IGSL RC Fl 10M 16412 RC.GPJ IGSL.GDT 6/11/12





# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

**16412**

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>EMW19</b>
<b>CO-ORDINATES</b> 291,547.74 E 222,164.60 N		<b>SHEET</b> Sheet 2 of 2
<b>GROUND LEVEL (mOD)</b> 80.45	<b>RIG TYPE</b> Casagrande	<b>DATE DRILLED</b> 31/08/2012
	<b>FLUSH</b> Water	<b>DATE LOGGED</b> 06/09/2012
<b>CLIENT ENGINEER</b> SKM	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> IGSL
	<b>CORE DIAMETER (mm)</b>	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10					0 250 500		[Brick Pattern]	SYMMETRIX DRILLING: No recovery, observed by driller as returns of rock			[Standpipe Diagram]	
11							[Brick Pattern]				[Standpipe Diagram]	
12							[Brick Pattern]				[Standpipe Diagram]	
13							[Brick Pattern]				[Standpipe Diagram]	
14							[Brick Pattern]				[Standpipe Diagram]	
15							[Brick Pattern]		15.40	65.05	[Standpipe Diagram]	
16							[Brick Pattern]	End of Borehole at 15.40 m			[Standpipe Diagram]	
17							[Brick Pattern]				[Standpipe Diagram]	
18							[Brick Pattern]				[Standpipe Diagram]	
19							[Brick Pattern]				[Standpipe Diagram]	

<b>REMARKS</b> Hole Cased 0.00-10.00m. Driller standing 2.5hrs waiting for new location.					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments	
06-09-12	15.40	11.20	15.40	50mm SP	06-09-12	15.40	10.00	2.00	Water level recorded 10mins after end of drilling	

IGSL RC Fl 10M 16412 RC.GPJ IGSL.GDT 6/11/12



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

**16412**

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> <b>EMW20</b>	
<b>CO-ORDINATES</b> 291,529.06 E 222,282.61 N		<b>RIG TYPE</b> Dando 2000		<b>SHEET</b> Sheet 1 of 1	
<b>GROUND LEVEL (m AOD)</b> 80.22		<b>BOREHOLE DIAMETER (mm)</b> 200		<b>DATE COMMENCED</b> 04/09/2012	
		<b>BOREHOLE DEPTH (m)</b> 6.10		<b>DATE COMPLETED</b> 04/09/2012	
<b>CLIENT</b> EPA		<b>SPT HAMMER REF. NO.</b>		<b>BORED BY</b> W.Cahill	
<b>ENGINEER</b> SKM		<b>ENERGY RATIO (%)</b>		<b>PROCESSED BY</b> I.Reeder	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	TOPSOIL		79.52	0.70						
1	Dark brown, sandy CLAY with some fine to coarse gravel				AN3732	B	1.00-1.00			
2	Brown, slightly sandy silty CLAY with some fine to coarse gravel		78.52	1.70	AN3733	B	2.00-2.00			
3	Brown, sandy fine to coarse subrounded GRAVEL with occasional subrounded fine cobbles		77.82	2.40	AN3734	B	3.00-3.00			
4					AN3735	B	4.00-4.00			
5					AN3736	B	5.00-5.00			
6	Obstruction - possible big cobble End of Borehole at 6.10 m		74.12	6.10	AN3737	B	6.00-6.00			
7										
8										
9										

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
6.1	6.1	0.25	Chiselling	4.20	4.20	NO	NO	20	Slow
INSTALLATION DETAILS				GROUNDWATER PROGRESS					
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments
04-09-12	6.10	4.10	6.10	50mm SP					

<b>REMARKS</b> Obstruction at 6.1m due to possible boulder; 2.5 hrs removing spoil and made reinstatement at EMW19,20,21 locations.	<b>Sample Legend</b> D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) U - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample
---	---

IGSL BH LOG CHISEL SEPARATED 16412.GPJ IGSL.GDT 6/11/12



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

16412

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> <b>EMW21</b>	
<b>CO-ORDINATES</b> 291,411.16 E 222,509.26 N		<b>RIG TYPE</b> Dando 2000		<b>SHEET</b> Sheet 1 of 1	
<b>GROUND LEVEL (m AOD)</b> 82.06		<b>BOREHOLE DIAMETER (mm)</b> 200		<b>DATE COMMENCED</b> 03/09/2012	
		<b>BOREHOLE DEPTH (m)</b> 6.70		<b>DATE COMPLETED</b> 03/08/2012	
<b>CLIENT</b> EPA		<b>SPT HAMMER REF. NO.</b>		<b>BORED BY</b> W.Cahill	
<b>ENGINEER</b> SKM		<b>ENERGY RATIO (%)</b>		<b>PROCESSED BY</b> I.Reeder	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	TOPSOIL		81.86	0.20						
1	MADE GROUND (comprised of dark brown sandy gravelly clay, concrete pieces, red brick pieces, boulders)									
2	MADE GROUND (comprised of dark brown silty sandy clay with gravel and cobbles, boulders, red brick)		80.76	1.30						
3	Light brown, sandy silty slightly gravelly CLAY with some subrounded to subangular cobbles		79.66	2.40						
4					AN3729	B	4.00-4.00			
5	Brown, fine to coarse subrounded to rounded GRAVEL with some subrounded cobbles		77.16	4.90	AN3730	B	5.00-5.00			
6					AN3731	B	6.00-6.00			
7	Obstruction - possible big cobble End of Borehole at 6.70 m		75.36	6.70						
8										
9										

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
				5.00	5.00	NO	4.00	20	Moderate
INSTALLATION DETAILS				GROUNDWATER PROGRESS					
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments
03-09-12	6.70	5.40	6.40	50mm SP					

<b>REMARKS</b> Obstruction at 6.7m - instructed to stop drilling	<b>Sample Legend</b> D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) U - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample
--	---

IGSL BH LOG CHISEL SEPARATED 16412.GPJ IGSL.GDT 6/11/12



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

**16412**

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>EMW22</b>
<b>CO-ORDINATES</b> 291,194.41 E 222,563.12 N		<b>SHEET</b> Sheet 1 of 3
<b>GROUND LEVEL (mOD)</b> 87.89	<b>RIG TYPE</b> Casagrande	<b>DATE DRILLED</b> 07/09/2012
	<b>FLUSH</b> Water	<b>DATE LOGGED</b> 11/09/2012
<b>CLIENT</b>	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> IGSL
<b>ENGINEER</b> SKM	<b>CORE DIAMETER (mm)</b>	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0					0 250 500			Hole opened by Shell & Auger				
1												
2												
3												
4												
5												
6												
7												
8									8.30	79.59		
9								SYMMETRIX DRILLING: No recovery, observed by driller as returns of gravel				
									10.00	77.89		

<b>REMARKS</b> Hole Cased 0.00-24.60m. Driller 40mins pulling casing, Driller 1hr fitting install, driller 35mins moving rig & setting up on new location.					<b>WATER STRIKE DETAILS</b>				
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>				
					Date	Hole Depth	Casing Depth	Depth to Water	Comments
11-09-12	24.60	20.40	24.60	50mm SP					

IGSL RC Fl 10M 16412 RC.GPJ IGSL.GDT 6/11/12



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER****16412****CONTRACT** Kerdiffstown Landfill**DRILLHOLE NO** **EMW22**  
**SHEET** Sheet 2 of 3**CO-ORDINATES** 291,194.41 E  
222,563.12 N**GROUND LEVEL (mOD)** 87.89**RIG TYPE** Casagrande  
**FLUSH** Water**DATE DRILLED** 07/09/2012  
**DATE LOGGED** 11/09/2012**CLIENT**  
**ENGINEER** SKM**INCLINATION (deg)** -90  
**CORE DIAMETER (mm)****DRILLED BY** IGSL  
**LOGGED BY** D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10					0 250 500			SYMMETRIX DRILLING: No recovery, observed by driller as returns of sandy gravel				
11												
12												
13								SYMMETRIX DRILLING: No recovery, observed by driller as returns of sandy gravelly clay	13.00	74.89		
14												
15									15.50	72.39		
16								SYMMETRIX DRILLING: No recovery, observed by driller as returns of boulder	16.00	71.89		
17								SYMMETRIX DRILLING: No recovery, observed by driller as returns of sandy gravelly clay				
18												
19												
								SYMMETRIX DRILLING: No recovery, observed by driller as returns of rock	19.50	68.39		

**REMARKS**  
Hole Cased 0.00-24.60m. Driller 40mins pulling casing, Driller 1hr fitting install, driller 35mins moving rig & setting up on new location.

<b>WATER STRIKE DETAILS</b>					
Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
12.50					Slow

<b>INSTALLATION DETAILS</b>				
Date	Tip Depth	RZ Top	RZ Base	Type
11-09-12	24.60	20.40	24.60	50mm SP

<b>GROUNDWATER DETAILS</b>				
Date	Hole Depth	Casing Depth	Depth to Water	Comments

IGSL RC Fl 10M 16412 RC.GPJ IGSL.GDT 6/11/12



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

16412

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> EMW22
<b>CO-ORDINATES</b> 291,194.41 E 222,563.12 N		<b>SHEET</b> Sheet 3 of 3
<b>GROUND LEVEL (mOD)</b> 87.89	<b>RIG TYPE</b> Casagrande	<b>DATE DRILLED</b> 07/09/2012
	<b>FLUSH</b> Water	<b>DATE LOGGED</b> 11/09/2012
<b>CLIENT ENGINEER</b> SKM	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> IGSL
	<b>CORE DIAMETER (mm)</b>	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
20					0 250 500		[Brick Pattern]	SYMMETRIX DRILLING: No recovery, observed by driller as returns of rock ( <i>continued</i> )			[Standpipe Diagram]	
21												
22												
23								SYMMETRIX DRILLING: No recovery, observed by driller as returns of clay band within rock	22.50	65.39		
23								SYMMETRIX DRILLING: No recovery, observed by driller as returns of rock	22.70	65.19		
24												
25								End of Borehole at 24.60 m	24.60	63.29		
26												
27												
28												
29												

<b>REMARKS</b> Hole Cased 0.00-24.60m. Driller 40mins pulling casing, Driller 1hr fitting install, driller 35mins moving rig & setting up on new location.					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments	
11-09-12	24.60	20.40	24.60	50mm SP	11-09-12	24.60	24.60	9.00	Water level recorded 10mins after end of drilling	

IGSL RC FI 10M 16412 RC.GPJ IGSL.GDT 6/11/12



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

16412

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>EMW23</b>
<b>CO-ORDINATES</b> 291,194.12 E 222,559.00 N		<b>SHEET</b> Sheet 1 of 2
<b>GROUND LEVEL (mOD)</b> 88.21	<b>RIG TYPE</b> Casagrande	<b>DATE DRILLED</b> 12/09/2012
	<b>FLUSH</b> Water	<b>DATE LOGGED</b> 12/09/2012
<b>CLIENT ENGINEER</b> SKM	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> IGSL
	<b>CORE DIAMETER (mm)</b>	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0					0 250 500		[Symbol]	SYMMETRIX DRILLING: No recovery, observed by driller as returns of clay			[Symbol]	
1							[Symbol]				[Symbol]	
2							[Symbol]	SYMMETRIX DRILLING: No recovery, observed by driller as returns of sandy gravel	1.80	86.41	[Symbol]	
3							[Symbol]				[Symbol]	
4							[Symbol]				[Symbol]	
5							[Symbol]				[Symbol]	
6							[Symbol]				[Symbol]	
7							[Symbol]				[Symbol]	
8							[Symbol]				[Symbol]	
9							[Symbol]				[Symbol]	

<b>REMARKS</b> Hole Cased 0.00-14.80m. Driller 1hrs pulling casing.					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					10.00					Slow
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type						
12-09-12	14.80	10.80	14.80	50mm SP						

IGSL RC Fl 10M 16412 RC.GPJ IGSL.GDT 6/11/12



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

**16412**

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>EMW23</b>
<b>CO-ORDINATES</b> 291,194.12 E 222,559.00 N		<b>SHEET</b> Sheet 2 of 2
<b>GROUND LEVEL (mOD)</b> 88.21	<b>RIG TYPE</b> Casagrande	<b>DATE DRILLED</b> 12/09/2012
	<b>FLUSH</b> Water	<b>DATE LOGGED</b> 12/09/2012
<b>CLIENT ENGINEER</b> SKM	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> IGSL
	<b>CORE DIAMETER (mm)</b>	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10								SYMMETRIX DRILLING: No recovery, observed by driller as returns of sandy gravel ( <i>continued</i> )	10.50	77.71		
11								SYMMETRIX DRILLING: No recovery, observed by driller as returns of sand	11.20	77.01		
12								SYMMETRIX DRILLING: No recovery, observed by driller as returns of sandy gravel				
13												
14												
15								End of Borehole at 14.80 m	14.80	73.41		
16												
17												
18												
19												

<b>REMARKS</b> Hole Cased 0.00-14.80m. Driller 1hrs pulling casing.					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type	12-09-12	14.80	14.80	9.00	Water level recorded 10mins after end of drilling	
12-09-12	14.80	10.80	14.80	50mm SP						

IGSL RC Fl 10M 16412 RC.GPJ IGSL.GDT 6/11/12





# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

**16412**

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>EMW24</b>
<b>CO-ORDINATES</b> 290,936.59 E 222,546.13 N		<b>SHEET</b> Sheet 1 of 3
<b>GROUND LEVEL (mOD)</b> 92.94	<b>RIG TYPE</b> Knebel	<b>DATE DRILLED</b> 24/09/2012
<b>CLIENT ENGINEER</b> SKM	<b>FLUSH</b> Air/Mist	<b>DATE LOGGED</b> 25/09/2012
	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> Petersen
	<b>CORE DIAMETER (mm)</b>	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0					0 250 500			SYMMETRIX DRILLING: No recovery, observed by driller as returns of madeground consisting of topsoil	0.30	92.64		
								SYMMETRIX DRILLING: No recovery, observed by driller as returns of madeground consisting of sandy gravel	0.50	92.44		
1								SYMMETRIX DRILLING: No recovery, observed by driller as returns of brown sandy gravelly clay with occasional cobbles				
2												
3								SYMMETRIX DRILLING: No recovery, observed by driller as returns of brown sandy gravel	2.80	90.14		
4												
5												
6												
7												
8												
9												

<b>REMARKS</b> Hole Cased 0.00-17.00m.					<b>WATER STRIKE DETAILS</b>				
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)
					No water strike recorded				
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>				
					Date	Hole Depth	Casing Depth	Depth to Water	Comments
25-09-12	26.00	19.00	26.00	50mm SP					

IGSL RC Fl 10M 16412 RC.GPJ IGSL.GDT 6/11/12



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

**16412**

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>EMW24</b>
<b>CO-ORDINATES</b> 290,936.59 E 222,546.13 N		<b>SHEET</b> Sheet 2 of 3
<b>GROUND LEVEL (mOD)</b> 92.94	<b>RIG TYPE</b> Knebel	<b>DATE DRILLED</b> 24/09/2012
<b>CLIENT ENGINEER</b> SKM	<b>FLUSH</b> Air/Mist	<b>DATE LOGGED</b> 25/09/2012
	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> Petersen
	<b>CORE DIAMETER (mm)</b>	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10					0 250 500			SYMMETRIX DRILLING: No recovery, observed by driller as returns of brown sandy gravelly clay with occasional cobbles	10.20	82.74		
11												
12												
13												
14												
15												
16												
16.60								SYMMETRIX DRILLING: No recovery, observed by driller as returns of grey weathered rock	16.60	76.34		
17												
18												
19								SYMMETRIX DRILLING: No recovery, observed by driller as returns of grey rock	19.50	73.44		

<b>REMARKS</b> Hole Cased 0.00-17.00m.					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
										No water strike recorded
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type						
25-09-12	26.00	19.00	26.00	50mm SP						

IGSL RC Fl 10M 16412 RC.GPJ IGSL\_GDT 6/11/12



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

16412

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>EMW24</b>
<b>CO-ORDINATES</b> 290,936.59 E 222,546.13 N		<b>SHEET</b> Sheet 3 of 3
<b>GROUND LEVEL (mOD)</b> 92.94	<b>RIG TYPE</b> Knebel	<b>DATE DRILLED</b> 24/09/2012
	<b>FLUSH</b> Air/Mist	<b>DATE LOGGED</b> 25/09/2012
<b>CLIENT ENGINEER</b> SKM	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> Petersen
	<b>CORE DIAMETER (mm)</b>	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
20					0 250 500			SYMMETRIX DRILLING: No recovery, observed by driller as returns of grey rock ( <i>continued</i> )			0	
21											10	
22											20	
23											30	
24											40	
25											50	
26								End of Borehole at 26.00 m	26.00	66.94	60	
27											70	
28											80	
29											90	

<b>REMARKS</b> Hole Cased 0.00-17.00m.					<b>WATER STRIKE DETAILS</b>				
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)
					No water strike recorded				
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>				
					Date	Hole Depth	Casing Depth	Depth to Water	Comments
25-09-12	26.00	19.00	26.00	50mm SP					

IGSL RC F1 10M 16412 RC.GPJ IGSL.GDT 6/11/12



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

16412

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>EMW25</b>
<b>CO-ORDINATES</b>		<b>SHEET</b> Sheet 1 of 1
<b>GROUND LEVEL (mOD)</b>		<b>DATE DRILLED</b> 26/09/2012
<b>CLIENT ENGINEER</b> SKM		<b>DATE LOGGED</b> 27/09/2012
<b>RIG TYPE</b> Knebel		<b>DRILLED BY</b> Petersen
<b>FLUSH</b> Air/Mist		<b>LOGGED BY</b> D.O'Shea
<b>INCLINATION (deg)</b> -90		
<b>CORE DIAMETER (mm)</b>		

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0 1 2 3 4 5 6 7 8 9									0.00			

<b>REMARKS</b> Driller standing 5hrs waiting for instruction on 26/9/12. Driller standing 2.5hrs reviewing ground conditions on 27/9/12. EMW25 eventually cancelled & driller de-mobilised from site.					<b>WATER STRIKE DETAILS</b>							
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments		
										No water strike recorded		
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>							
					Date	Hole Depth	Casing Depth	Depth to Water	Comments			
Date	Tip Depth	RZ Top	RZ Base	Type								

IGSL RC FI 10M 16412 RC.GPJ IGSL.GDT 6/11/12



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

**16412**

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>EMW27D</b>
<b>CO-ORDINATES</b> 291,086.43 E 221,781.09 N		<b>SHEET</b> Sheet 1 of 2
<b>GROUND LEVEL (mOD)</b> 81.91	<b>RIG TYPE</b> Casagrande	<b>DATE DRILLED</b> 25/09/2012
	<b>FLUSH</b> Water	<b>DATE LOGGED</b> 25/09/2012
<b>CLIENT ENGINEER</b> SKM	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> IGSL
	<b>CORE DIAMETER (mm)</b>	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0					0 250 500			SYMMETRIX DRILLING: No recovery, observed by driller as returns of sandy gravel				
1												
2												
3												
4									4.50	77.41		
5								SYMMETRIX DRILLING: No recovery, observed by driller as returns of boulders	5.20	76.71		
6								SYMMETRIX DRILLING: No recovery, observed by driller as returns of sandy gravel				
7												
8								SYMMETRIX DRILLING: No recovery, observed by driller as returns of sandy gravelly clay	8.30	73.61		
9								SYMMETRIX DRILLING: No recovery, observed by driller as returns of boulders	9.40	72.51		

<b>REMARKS</b> Hole Cased 0.00-4.50m. Driller standing 2.5hrs waiting for new location.					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					2.00					Slow
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type						
25-06-12	15.30	11.00	15.30	50mm SP						

IGSL RC Fl 10M 16412 RC.GPJ IGSL.GDT 6/11/12



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

**16412**

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>EMW27D</b>
<b>CO-ORDINATES</b> 291,086.43 E 221,781.09 N		<b>SHEET</b> Sheet 2 of 2
<b>GROUND LEVEL (mOD)</b> 81.91		<b>DATE DRILLED</b> 25/09/2012 <b>DATE LOGGED</b> 25/09/2012
<b>CLIENT ENGINEER</b> SKM		<b>RIG TYPE</b> Casagrande <b>FLUSH</b> Water <b>INCLINATION (deg)</b> -90 <b>CORE DIAMETER (mm)</b>
		<b>DRILLED BY</b> IGSL <b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10					0 250 500		○	SYMMETRIX DRILLING: No recovery, observed by driller as returns of sandy gravelly clay	10.20	71.71	○	
11							○				○	
12							○				○	
13							○				○	
14							○				○	
15							○	End of Borehole at 15.30 m	15.30	66.61	○	
16							○				○	
17							○				○	
18							○				○	
19							○				○	

<b>REMARKS</b> Hole Cased 0.00-4.50m. Driller standing 2.5hrs waiting for new location.					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type	25-09-12	15.30	4.50	0.50	Water level recorded 5mins after end of drilling, rising.	
25-06-12	15.30	11.00	15.30	50mm SP						

IGSL RC Fl 10M 16412 RC.GPJ IGSL.GDT 6/11/12



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

**16412**

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>EMW28</b>
<b>CO-ORDINATES</b> 291,086.78 E 221,779.56 N		<b>SHEET</b> Sheet 1 of 1
<b>GROUND LEVEL (mOD)</b> 82.02	<b>RIG TYPE</b> Casagrande	<b>DATE DRILLED</b> 26/09/2012
	<b>FLUSH</b> Water	<b>DATE LOGGED</b> 26/09/2012
<b>CLIENT ENGINEER</b> SKM	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> IGSL
	<b>CORE DIAMETER (mm)</b>	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0					0 250 500			SYMMETRIX DRILLING: No recovery, observed by driller as returns of sandy gravel				
1												
2												
3												
4									4.50	77.52		
5								SYMMETRIX DRILLING: No recovery, observed by driller as returns of boulders	5.10	76.92		
6								SYMMETRIX DRILLING: No recovery, observed by driller as returns of sandy gravel				
7												
8								End of Borehole at 8.00 m	8.00	74.02		
9												

<b>REMARKS</b> Hole Cased 0.00-8.00m.					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					2.00					Slow
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type	26-09-12	8.00	8.00	0.50	Water level recorded 5mins after end of drilling, rising.	
26-09-12	8.00	3.00	8.00	50mm SP						

IGSL RC F1 10M 16412 RC.GPJ IGSL.GDT 6/11/12



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

**16412**

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>EMW29</b>
<b>CO-ORDINATES</b> 291,515.01 E 221,705.57 N		<b>SHEET</b> Sheet 1 of 1
<b>GROUND LEVEL (mOD)</b> 81.84	<b>RIG TYPE</b> Knebel	<b>DATE DRILLED</b> 26/09/2012
	<b>FLUSH</b> Air/Mist	<b>DATE LOGGED</b> 26/09/2012
<b>CLIENT ENGINEER</b> SKM	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> Petersen
	<b>CORE DIAMETER (mm)</b>	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0					0 250 500			SYMMETRIX DRILLING: No recovery, observed by driller as returns of brown topsoil	0.40	81.44		
								SYMMETRIX DRILLING: No recovery, observed by driller as returns of soft grey silty clay	0.80	81.04		
1								SYMMETRIX DRILLING: No recovery, observed by driller as returns of brown sandy gravel				
2												
3												
4									4.50	77.34		
5								SYMMETRIX DRILLING: No recovery, observed by driller as returns of grey sandy gravelly clay with occasional cobbles				
6												
7									7.60	74.24		
8								SYMMETRIX DRILLING: No recovery, observed by driller as returns of brown sandy gravelly clay with occasional cobbles	8.00	73.84		
								End of Borehole at 8.00 m				
9												

<b>REMARKS</b> Hole Cased 0.00-8.00m.					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
										No water strike recorded
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments	
26-09-12	8.00	1.50	8.00	50mm SP	26-09-12	8.00	8.00	0.00	Water level recorded 5mins after end of drilling, rising.	

IGSL RC Fl 10M 16412 RC.GPJ IGSL\_GDT 6/11/12





# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

16412

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>EMW30</b>
<b>CO-ORDINATES</b> 291,748.62 E 221,822.74 N		<b>SHEET</b> Sheet 1 of 2
<b>GROUND LEVEL (mOD)</b> 90.95	<b>RIG TYPE</b> Knebel	<b>DATE DRILLED</b> 25/09/2012
	<b>FLUSH</b> Air/Mist	<b>DATE LOGGED</b> 25/09/2012
<b>CLIENT ENGINEER</b> SKM	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> Petersen
	<b>CORE DIAMETER (mm)</b>	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0					0 250 500			SYMMETRIX DRILLING: No recovery, observed by driller as returns of brown topsoil SYMMETRIX DRILLING: No recovery, observed by driller as returns of brown sandy gravelly clay with occasional cobbles	0.30	90.65		
1												
2								SYMMETRIX DRILLING: No recovery, observed by driller as returns of brown gravelly sand	1.80	89.15		
3												
4												
5												
6												
7												
8												
9												
									10.00	80.95		

<b>REMARKS</b> Hole Cased 0.00-14.00m.					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type						
25-09-12	13.20	9.00	13.20	50mm SP						

IGSL RC Fl 10M 16412 RC.GPJ IGSL\_GDT 6/11/12



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

16412

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>EMW30</b>
<b>CO-ORDINATES</b> 291,748.62 E 221,822.74 N		<b>SHEET</b> Sheet 2 of 2
<b>GROUND LEVEL (mOD)</b> 90.95	<b>RIG TYPE</b> Knebel	<b>DATE DRILLED</b> 25/09/2012
	<b>FLUSH</b> Air/Mist	<b>DATE LOGGED</b> 25/09/2012
<b>CLIENT ENGINEER</b> SKM	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> Petersen
	<b>CORE DIAMETER (mm)</b>	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10					0 250 500		○	SYMMETRIX DRILLING: No recovery, observed by driller as returns of brown sandy gravel			○	
11							○				○	
12							○				○	
13							○				○	
13.20							○	13.20m - Blowing sand & gravel back into hole			○	
14							○	End of Borehole at 14.00 m	14.00	76.95	○	
15							○				○	
16							○				○	
17							○				○	
18							○				○	
19							○				○	

<b>REMARKS</b> Hole Cased 0.00-14.00m.					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					10.50					Slow
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type						
25-09-12	13.20	9.00	13.20	50mm SP						

IGSL RC FI 10M 16412 RC.GPJ IGSL.GDT 6/11/12



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

16412

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> EMW31	
<b>CO-ORDINATES</b> 291,545.08 E 222,361.90 N		<b>RIG TYPE</b> Dando 150		<b>SHEET</b> Sheet 1 of 1	
<b>GROUND LEVEL (m AOD)</b> 80.00		<b>BOREHOLE DIAMETER (mm)</b> 200		<b>DATE COMMENCED</b> 10/09/2012	
		<b>BOREHOLE DEPTH (m)</b> 5.90		<b>DATE COMPLETED</b> 11/09/2012	
<b>CLIENT</b> EPA		<b>SPT HAMMER REF. NO.</b>		<b>BORED BY</b> P.Thomas	
<b>ENGINEER</b> SKM		<b>ENERGY RATIO (%)</b>		<b>PROCESSED BY</b> I.Reeder	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	TOPSOIL Grey/brown, silty CLAY with some organic pieces		79.80	0.20						
1	Grey silty fine to coarse GRAVEL		78.90	1.10						
2	Grey, coarse GRAVEL with frequent bands of fine to medium blowing gravel and occasional cobbles and boulders		77.70	2.30						
6	End of Borehole at 5.90 m		74.10	5.90						

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
2	2.2	0.5	Blowing gravel	2.30	2.30	NO	NO	20	Slow
5.8	5.9	0.5	Chiselling	2.70	2.70	NO	0.70	20	Rapid

INSTALLATION DETAILS					GROUNDWATER PROGRESS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments
11-09-17	5.90	3.00	5.90	50mm SP	11-09-12	5.90	5.90	0.70	Depth to water at end of the day

<p><b>REMARKS</b> Arrived on site at 12.30pm. Attempted to move rig to 1st location, but jeep and rig sank, waiting for mini digger and balloon tyres, set up rig at 4.45pm. 1hr hand dug inspection pit for services to 1.2m.</p>	<p><b>Sample Legend</b>          D - Small Disturbed (tub)          B - Bulk Disturbed          LB - Large Bulk Disturbed          Env - Environmental Sample (Jar + Vial + Tub)          U - Undisturbed 100mm Diameter Sample          P - Undisturbed Piston Sample          W - Water Sample</p>
--	--

IGSL BH LOG CHISEL SEPARATED 16412.GPJ IGSL.GDT 6/11/12



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

**16412**

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>EMW32</b>
<b>CO-ORDINATES</b> 291,695.02 E 222,476.19 N		<b>SHEET</b> Sheet 1 of 2
<b>GROUND LEVEL (mOD)</b> 81.08	<b>RIG TYPE</b> Knebel	<b>DATE DRILLED</b> 21/09/2012
<b>CLIENT ENGINEER</b> SKM	<b>FLUSH</b> Air/Mist	<b>DATE LOGGED</b> 21/09/2012
	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> Petersen
	<b>CORE DIAMETER (mm)</b>	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0					0 250 500			Hole opened by Shell & Auger				
1												
2												
3												
4												
5									5.00	76.08		
6								SYMMETRIX DRILLING: No recovery, observed by driller as returns of stiff grey sandy gravelly clay with occasional cobbles				
7												
8									8.20	72.88		
9								SYMMETRIX DRILLING: No recovery, observed by driller as returns of brown sandy gravelly clay with occasional cobbles with some sand and gravel layers				

<b>REMARKS</b> Hole Cased 0.00-11.00m.					<b>WATER STRIKE DETAILS</b>				
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)
					No water strike recorded				
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>				
					Date	Hole Depth	Casing Depth	Depth to Water	Comments
21-09-12	11.00	5.50	11.00	50mm SP					

IGSL RC Fl 10M 16412 RC.GPJ IGSL\_GDT 6/11/12



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

16412

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>EMW32</b>
<b>CO-ORDINATES</b> 291,695.02 E 222,476.19 N		<b>SHEET</b> Sheet 2 of 2
<b>GROUND LEVEL (mOD)</b> 81.08	<b>RIG TYPE</b> Knebel	<b>DATE DRILLED</b> 21/09/2012
<b>CLIENT ENGINEER</b> SKM	<b>FLUSH</b> Air/Mist	<b>DATE LOGGED</b> 21/09/2012
	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> Petersen
	<b>CORE DIAMETER (mm)</b>	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10					0 250 500			SYMMETRIX DRILLING: No recovery, observed by driller as returns of brown sandy gravelly clay with occasional cobbles with some sand and gravel layers ( <i>continued</i> )				
11								End of Borehole at 11.00 m	11.00	70.08		
12												
13												
14												
15												
16												
17												
18												
19												

<b>REMARKS</b> Hole Cased 0.00-11.00m.					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
										No water strike recorded
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments	
21-09-12	11.00	5.50	11.00	50mm SP	21-09-12	11.00	11.00	9.40	Water level recorded 5mins after end of drilling, rising.	

IGSL RC Fl 10M 16412 RC.GPJ IGSL.GDT 6/11/12



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

16412

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> EMW33	
<b>CO-ORDINATES</b> 291,492.33 E 222,494.09 N		<b>RIG TYPE</b> Dando 150		<b>SHEET</b> Sheet 1 of 1	
<b>GROUND LEVEL (m AOD)</b> 81.23		<b>BOREHOLE DIAMETER (mm)</b> 200		<b>DATE COMMENCED</b> 12/09/2012	
		<b>BOREHOLE DEPTH (m)</b> 6.00		<b>DATE COMPLETED</b> 12/09/2012	
<b>CLIENT</b> EPA		<b>SPT HAMMER REF. NO.</b>		<b>BORED BY</b> P.Thomas	
<b>ENGINEER</b> SKM		<b>ENERGY RATIO (%)</b>		<b>PROCESSED BY</b> I.Reeder	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	TOPSOIL		81.03	0.20						
	Brown, sandy slightly gravelly CLAY		80.63	0.60						
	Grey/brown, slightly fibrous silty CLAY		80.13	1.10						
1	Grey, silty fine to coarse GRAVEL		79.83	1.40						
	Dark brown, PEAT		79.63	1.60						
	Grey, slightly sandy very gravelly silty CLAY		79.23	2.00						
2	Grey, coarse GRAVEL with frequent bands of blowing fine to medium gravel									
3										
4										
5										
6	End of Borehole at 6.00 m		75.23	6.00						
7										
8										
9										

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
3.3	4	2	Blowing gravel	2.10 2.40	2.10 2.40	NO NO	NO 1.20	20 20	Slow Rapid
INSTALLATION DETAILS				GROUNDWATER PROGRESS					
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments
12-09-12	5.50	2.50	5.50	50mm SP					
<b>REMARKS</b> 2hrs moving rig and equipment to position with assistance of mini digger; 1hr hand dug inspection pit for services to 1.2m					<b>Sample Legend</b>				
					D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) U - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample				

IGSL BH LOG CHISEL SEPARATED 16412.GPJ IGSL GDT 6/11/12



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

**16412**

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> BH26	
<b>CO-ORDINATES</b> 291,136.50 E 222,406.82 N		<b>RIG TYPE</b> Dando 2000		<b>SHEET</b> Sheet 1 of 3	
<b>GROUND LEVEL (m AOD)</b> 106.15		<b>BOREHOLE DIAMETER (mm)</b> 200		<b>DATE COMMENCED</b> 15/08/2012	
		<b>BOREHOLE DEPTH (m)</b> 27.00		<b>DATE COMPLETED</b> 20/08/2012	
<b>CLIENT</b> EPA		<b>SPT HAMMER REF. NO.</b>		<b>BORED BY</b> W.Cahill	
<b>ENGINEER</b> SKM		<b>ENERGY RATIO (%)</b>		<b>PROCESSED BY</b> I.Reeder	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	MADE GROUND (comprised of dry MSW: ash 80%, ceramic 4%, wood 6%, plastic 4%, brick 6%)									
1	Very strong rotten eggs gas odour at 1.0m; Gas Readings at 1.0m: O2 - 21.1%, CH4 - 0.4%, CO2 - 0.2%		104.75	1.40	AN3134	B	1.00-1.50			
2	MADE GROUND (comprised of dry to dump MSW: cloth 65%, plastic bags 15%, wood 15%, till, glass and wire 5%) Very strong rotten eggs gas odour at 2.0m; Gas Readings at 2.0m: O2 - 19.5%, CH4 - 7.5%, CO2 - 2.3%, H2S - 30ppm				AN3135	D	2.00-2.00			
3	Strong rotten eggs gas odour at 3.0m; Gas Readings at 3.0m: O2 - 21.2%, CH4 - 0.4%, CO2 - 0.2%				AN3136	B	3.00-3.50			
4	Strong rotten eggs gas odour at 4.0m; Gas Readings at 4.0m: O2 - 18.8%, CH4 - 16.1%, CO2 - 5.8%, H2S - 138ppm				AN3137	D	4.00-4.00			
5	MADE GROUND (comprised of damp MSW: ash 40%, cloth 30%, paper 25%, wood 3%, plastic 2%) Slightly rotten eggs gas odour at 5.0m; Gas Readings at 5.0m: O2 - 21.1%, CH4 - 0.6%, CO2 - 0.5%		101.25	4.90	AN3138	B	5.00-5.50			
6	MADE GROUND (comprised of damp black clay 15%, ash 15%, paper 15%, cloth 20%, wood 20%, plastic 10%, glass, rubber, brick and concrete 5%) Strong rotten eggs gas odour at 6.0m; Gas Readings at 6.0m: O2 - 18.9%, CH4 - 8.2%, CO2 - 4.9%, H2S - 2ppm		100.15	6.00	AN3139	D	6.00-6.00			
7	Medium rotten eggs gas odour at 7.0m; Gas Readings at 7.0m: O2 - 20.4%, CH4 - 1.2%, CO2 - 1.1%				AN3140	B	7.00-7.50			
8	Strong rotten eggs gas odour at 8.0m; Gas Readings at 8.0m: O2 - 17%, CH4 - 8.6%, CO2 - 7.5%		97.95	8.20	AN3141	D	8.00-8.00			
9	MADE GROUND (comprised of damp MSW: brick/concrete 35%, cloth 30%, paper 25%, wood 9%, plastic 1%) Strong rotten eggs gas odour at 9.0m; Gas Readings at 9.0m: O2 - 19.4%, CH4 - 8.8%, CO2 - 15.9%		96.75	9.40	AN3142	B	9.00-9.50			
	MADE GROUND (comprised of damp black clay with brick and concrete 75%, paper 10%, cloth 10%, glass									

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
9.8	10	0.75	Hard boring strata						No water strike

INSTALLATION DETAILS					GROUNDWATER PROGRESS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments

<b>REMARKS</b> At 10m cutter stuck in casing due to rebar, pull up all casing to moved cutter, BH collapsed up to 5m, redrill BH from 5.0m to 10.0m; From 10.0m reduced casing from 8 inch up to 6 inch; Major obstruction at 27.0m	<b>Sample Legend</b> D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub)  U - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample
---	---

IGSL BH LOG CHISEL SEPARATED 16412.GPJ IGSL GDT 6/11/12



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

**16412**

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> BH26	
<b>CO-ORDINATES</b> 291,136.50 E 222,406.82 N		<b>RIG TYPE</b> Dando 2000		<b>SHEET</b> Sheet 2 of 3	
<b>GROUND LEVEL (m AOD)</b> 106.15		<b>BOREHOLE DIAMETER (mm)</b> 200		<b>DATE COMMENCED</b> 15/08/2012	
		<b>BOREHOLE DEPTH (m)</b> 27.00		<b>DATE COMPLETED</b> 20/08/2012	
<b>CLIENT</b> EPA		<b>SPT HAMMER REF. NO.</b>		<b>BORED BY</b> W.Cahill	
<b>ENGINEER</b> SKM		<b>ENERGY RATIO (%)</b>		<b>PROCESSED BY</b> I.Reeder	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
10	and plastic 5%) MADE GROUND (comprised of damp black clay with brick and concrete 75%, paper 10%, cloth 10%, glass and plastic 5%) (continued) Strong rotten eggs gas odour at 10.0m; Gas Readings at 10.0m: O2 - 14%, CH4 - 5.2%, CO2 - 7.8%		93.75	12.40	AN3143	D	10.00-10.00			
11	Very strong rotten eggs gas odour at 11.0m; Gas Readings at 11.0m: O2 - 20.8%, CH4 - 0.4%, CO2 - 0.4%				AN3144	B	11.00-11.50			
12	Strong rotten eggs gas odour at 12.0m; Gas Readings at 12.0m: O2 - 14.5%, CH4 - 7.9%, CO2 - 9.3%				AN3145	D	12.00-12.00			
13	MADE GROUND (comprised of damp black clay 50%, brick and concrete 15%, wood 20%, paper 5%, cloth 5%, metal and ceramic 5%) Very strong rotten eggs gas odour at 13.0m; Gas Readings at 13.0m: O2 - 15.6%, CH4 - 5.2%, CO2 - 5.7%				AN3146	B	13.00-13.50			
14	Very strong rotten eggs gas odour at 14.0m; Gas Readings at 14.0m: O2 - 17.9%, CH4 - 4.2%, CO2 - 3.3%				AN3147	D	14.00-14.00			
15	Strong rotten eggs gas odour at 15.0m; Gas Readings at 15.0m: O2 - 11.4%, CH4 - 16.3%, CO2 - 12.1%, H2S - 2ppm				AN3148	B	15.00-15.50			
16	Strong rotten eggs gas odour at 16.0m; Gas Readings at 16.0m: O2 - 7.9%, CH4 - 21.8%, CO2 - 17.1%				AN3149	D	16.00-16.00			
17	Medium rotten eggs gas odour at 17.0m; Gas Readings at 17.0m: O2 - 4.4%, CH4 - 30.3%, CO2 - 23.8%, H2S - 12ppm				AN3150	B	17.00-17.50			
18	Strong rotten eggs gas odour at 18.0m; Gas Readings at 18.0m: O2 - 10%, CH4 - 19.2%, CO2 - 14%, H2S - 12ppm				AN3151	D	18.00-18.00			
19	MADE GROUND (comprised of damp to semi wet black clay 15%, wood 80%, cloth, paper and metal 5%) Strong rotten eggs gas odour at 19.0m; Gas Readings at 19.0m: O2 - 20.9%, CH4 - 0.1%, CO2 - 0.1%					87.15	19.00	AN3152	B	19.00-19.50

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
19	19.1	0.5	Hard boring strata						No water strike

INSTALLATION DETAILS					GROUNDWATER PROGRESS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments

<b>REMARKS</b> At 10m cutter stuck in casing due to rebar, pull up all casing to moved cutter, BH collapsed up to 5m, redrill BH from 5.0m to 10.0m; From 10.0m reduced casing from 8 inch up to 6 inch; Major obstruction at 27.0m	<b>Sample Legend</b> D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub)  U - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample
---	---

IGSL BH LOG CHISEL SEPARATED 16412.GPJ IGSL GDT 6/11/12





# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

**16412**

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> BH26	
<b>CO-ORDINATES</b> 291,136.50 E 222,406.82 N		<b>RIG TYPE</b> Dando 2000		<b>SHEET</b> Sheet 3 of 3	
<b>GROUND LEVEL (m AOD)</b> 106.15		<b>BOREHOLE DIAMETER (mm)</b> 200		<b>DATE COMMENCED</b> 15/08/2012	
		<b>BOREHOLE DEPTH (m)</b> 27.00		<b>DATE COMPLETED</b> 20/08/2012	
<b>CLIENT</b> EPA		<b>SPT HAMMER REF. NO.</b>		<b>BORED BY</b> W.Cahill	
<b>ENGINEER</b> SKM		<b>ENERGY RATIO (%)</b>		<b>PROCESSED BY</b> I.Reeder	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
20	MADE GROUND (comprised of damp to semi wet black clay 15%, wood 80%, cloth, paper and metal 5%) <i>(continued)</i> Very strong rotten eggs gas odour at 20.0m; Gas Readings at 20.0m: O2 - 5.0%, CH4 - 28.4%, CO2 - 21.4% Slightly rotten eggs gas odour at 21.0m; Gas Readings at 21.0m: O2 - 2.8%, CH4 - 30.6%, CO2 - 24.1%  Strong rotten eggs gas odour at 22.0m; Gas Readings at 22.0m: O2 - 5.7%, CH4 - 28.4%, CO2 - 21.9%, H2S - 12ppm  Strong rotten eggs gas odour at 23.0m; Gas Readings at 23.0m: O2 - 15.8%, CH4 - 9.0%, CO2 - 6.6%				AN3153	D	20.00-20.00			
21					AN3154	B	21.00-21.50			
22					AN3155	D	22.00-22.00			
23					AN3156	B	23.00-23.50			
			82.45	23.70						
	MADE GROUND (comprised of semi wet grey sandy gravelly clay 100%)		82.35	23.80						
24	MADE GROUND (comprised of semi wet black clay 15%, wood 65%, cloth 7.5%, paper 7.5%, plastic, rubber and metal 5%) Strong rotten eggs gas odour at 24.0m; Gas Readings at 24.0m: O2 - 2.2%, CH4 - 36.9%, CO2 - 27.8%, H2S - 7ppm, CO - 11ppm Strong rotten eggs gas odour at 25.0m; Gas Readings at 25.0m: O2 - 21.0%, CH4 - 0.1%, CO2 - 0.1%  Strong rotten eggs gas odour at 26.0m; Gas Readings at 26.0m: O2 - 3.1%, CH4 - 37.1%, CO2 - 19.9%, CO - 235ppm				AN3517	D	24.00-24.00			
25					AN3518	B	25.00-25.50			
26					AN3519	D	26.00-26.00			
27				79.15	27.00	AN3520	B	27.00-27.00		
27	Obstruction - possible big piece of timber Strong rotten eggs gas odour at 27.0m; Gas Readings at 27.0m: O2 - 10.2%, CH4 - 26.4%, CO2 - 14.5%, CO - 20ppm End of Borehole at 27.00 m									
28										
29										

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
24.3	24.5	0.75	Hard boring strata Chiselling						No water strike
26.9	27	1							

INSTALLATION DETAILS					GROUNDWATER PROGRESS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments

<b>REMARKS</b> At 10m cutter stuck in casing due to rebar, pull up all casing to moved cutter, BH collapsed up to 5m, redrill BH from 5.0m to 10.0m; From 10.0m reduced casing from 8 inch up to 6 inch; Major obstruction at 27.0m	<b>Sample Legend</b> D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub)  U - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample
---	---

IGSL BH LOG CHISEL SEPARATED 16412.GPJ IGSL GDT 6/11/12



# GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

16412

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>RC26</b>
		<b>SHEET</b> Sheet 1 of 4
<b>CO-ORDINATES</b> 291,136.50 E 222,406.82 N	<b>RIG TYPE</b> Casagrande	<b>DATE DRILLED</b> 29/08/2012
<b>GROUND LEVEL (mOD)</b> 106.15	<b>FLUSH</b> Water	<b>DATE LOGGED</b> 30/08/2012
<b>CLIENT</b>	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> IGSL
<b>ENGINEER</b> SKM	<b>CORE DIAMETER (mm)</b>	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0					0 250 500			Hole opened by Shell & Auger				
1												
2												
3												
4												
5												
6												
7												
8												
9												

<b>REMARKS</b> BRC done at BH26 location. Hole Cased 0.00-35.70m. Driller 3hrs putting casing in hole, Driller 3.5hrs pulling casing & fitting installation.					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type						
30-08-12	35.70	27.50	35.70	50mm SP						

IGSL RC F1:10M 16412 RC.GPJ IGSL.GDT 6/11/12



# GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

16412

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>RC26</b>
		<b>SHEET</b> Sheet 2 of 4
<b>CO-ORDINATES</b> 291,136.50 E 222,406.82 N	<b>RIG TYPE</b> Casagrande	<b>DATE DRILLED</b> 29/08/2012
<b>GROUND LEVEL (mOD)</b> 106.15	<b>FLUSH</b> Water	<b>DATE LOGGED</b> 30/08/2012
<b>CLIENT</b>	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> IGSL
<b>ENGINEER</b> SKM	<b>CORE DIAMETER (mm)</b>	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10					0 250 500			Hole opened by Shell & Auger (continued)				
11												
12												
13												
14												
15												
16												
17												
18												
19												

<b>REMARKS</b> BRC done at BH26 location. Hole Cased 0.00-35.70m. Driller 3hrs putting casing in hole, Driller 3.5hrs pulling casing & fitting installation.					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type						
30-08-12	35.70	27.50	35.70	50mm SP						

IGSL RC F1:10M 16412 RC.GPJ IGSL.GDT 6/11/12



# GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

16412

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>RC26</b>
		<b>SHEET</b> Sheet 3 of 4
<b>CO-ORDINATES</b> 291,136.50 E 222,406.82 N	<b>RIG TYPE</b> Casagrande	<b>DATE DRILLED</b> 29/08/2012
<b>GROUND LEVEL (mOD)</b> 106.15	<b>FLUSH</b> Water	<b>DATE LOGGED</b> 30/08/2012
<b>CLIENT</b>	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> IGSL
<b>ENGINEER</b> SKM	<b>CORE DIAMETER (mm)</b>	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
20								Hole opened by Shell & Auger <i>(continued)</i>				
21												
22								SYMMETRIX DRILLING: No recovery, observed by driller as returns of MADE GROUND consisting of municipal waste with timber	21.50	84.65		
23												
24												
25												
26												
27												
28								SYMMETRIX DRILLING: No recovery, observed by driller as returns of gravel	27.50	78.65		
29								SYMMETRIX DRILLING: No recovery, observed by driller as returns of sandy gravel	29.50	76.65		

<b>REMARKS</b> BRC done at BH26 location. Hole Cased 0.00-35.70m. Driller 3hrs putting casing in hole, Driller 3.5hrs pulling casing & fitting installation.					<b>WATER STRIKE DETAILS</b>						
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments	
										No water strike recorded	
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>						
					Date	Hole Depth	Casing Depth	Depth to Water	Comments		
Date	Tip Depth	RZ Top	RZ Base	Type							
30-08-12	35.70	27.50	35.70	50mm SP							

IGSL RC F1:10M 16412 RC.GPJ IGSL.GDT 6/11/12



# GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

16412

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>RC26</b>
<b>CO-ORDINATES</b> 291,136.50 E 222,406.82 N		<b>SHEET</b> Sheet 4 of 4
<b>GROUND LEVEL (MOD)</b> 106.15	<b>RIG TYPE</b> Casagrande	<b>DATE DRILLED</b> 29/08/2012
<b>CLIENT</b>	<b>FLUSH</b> Water	<b>DATE LOGGED</b> 30/08/2012
<b>ENGINEER</b> SKM	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> IGSL
	<b>CORE DIAMETER (mm)</b>	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
30								SYMMETRIX DRILLING: No recovery, observed by driller as returns of sandy gravel ( <i>continued</i> )				
31												
32								SYMMETRIX DRILLING: No recovery, observed by driller as returns of sandy gravelly clay	32.00	74.15		
33												
34												
35												
36								End of Borehole at 35.70 m	35.70	70.45		
37												
38												
39												

<b>REMARKS</b> BRC done at BH26 location. Hole Cased 0.00-35.70m. Driller 3hrs putting casing in hole, Driller 3.5hrs pulling casing & fitting installation.					<b>WATER STRIKE DETAILS</b>						
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments	
										No water strike recorded	
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>						
					Date	Hole Depth	Casing Depth	Depth to Water	Comments		
Date	Tip Depth	RZ Top	RZ Base	Type							
30-08-12	35.70	27.50	35.70	50mm SP							

IGSL RC F1:10M 16412 RC.GPJ IGSL.GDT 6/11/12



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

**16412**

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> <b>BH36B</b>	
<b>CO-ORDINATES</b> 291,286.00 E 222,308.35 N		<b>RIG TYPE</b> Dando 3000		<b>SHEET</b> Sheet 1 of 3	
<b>GROUND LEVEL (m AOD)</b> 112.74		<b>BOREHOLE DIAMETER (mm)</b> 250		<b>DATE COMMENCED</b> 23/08/2012	
		<b>BOREHOLE DEPTH (m)</b> 26.00		<b>DATE COMPLETED</b> 31/08/2012	
<b>CLIENT</b> EPA		<b>SPT HAMMER REF. NO.</b>		<b>BORED BY</b> M.Connolly	
<b>ENGINEER</b> SKM		<b>ENERGY RATIO (%)</b>		<b>PROCESSED BY</b> I.Reeder	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	MADE GROUND (comprised of dry dark brown gravelly clay 100%)		112.24	0.50						
1	MADE GROUND (comprised of damp black silty clay with gravel 70%, plastic 10%, wood 20%) Medium rotten eggs gas odour at 1.0m; Gas Readings at 1.0m: O2 - 21%, CH4 - 0.0%, CO2 - 0.0%					AN3455	B	1.00-1.50		
2	Medium rotten eggs gas odour at 2.0m; Gas Readings at 2.0m: O2 - 20.9%, CH4 - 0.3%, CO2 - 0.1%					AN3456	D	2.00-2.00		
3	Medium rotten eggs gas odour at 3.0m; Gas Readings at 3.0m: O2 - 20.9%, CH4 - 0.5%, CO2 - 0.3%					AN3457	B	3.00-3.50		
4	Medium rotten eggs gas odour at 4.0m; Gas Readings at 4.0m: O2 - 20.5%, CH4 - 1%, CO2 - 0.7%			108.44	4.30	AN3458	D	4.00-4.00		
5	MADE GROUND (comprised of damp black silty clay with gravel 20%, metal 10%, wood 35%, old cables 10%, plastic 25%) Strong rotten eggs gas odour at 5.0m; Gas Readings at 5.0m: O2 - 18.9%, CH4 - 7%, CO2 - 4.2%, H2S - 35ppm					AN3459	B	5.00-5.50		
6	Strong rotten eggs gas odour at 6.0m; Gas Readings at 6.0m: O2 - 14%, CH4 - 19.1%, CO2 - 11.1%, H2S - 175ppm			106.44	6.30	AN3460	D	6.00-6.00		
7	MADE GROUND (comprised of damp MSW: plastic 30%, paper 20%, metal 5%, textile 25%, old cables 10%, wood 10%) Strong rotten eggs gas odour at 7.0m; Gas Readings at 7.0m: O2 - 13.5%, CH4 - 19.3%, CO2 - 11.5%, H2S - >220ppm					AN3461	B	7.00-7.50		
8	Strong rotten eggs gas odour at 8.0m; Gas Readings at 8.0m: O2 - 13.2%, CH4 - 19.5%, CO2 - 11.8%, H2S - >220ppm			104.04	8.70	AN3462	D	8.00-8.00		
9	MADE GROUND (comprised of dry MSW: wood 40%, textile 15%, plastic 25%, paper 10%, cables 10%) Strong rotten eggs gas odour at 9.0m; Gas Readings at 9.0m: O2 - 18%, CH4 - 9%, CO2 - 5.1%, H2S - >220ppm				AN3463	B	9.00-9.50			

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
4.7	5	0.25	Hard boring strata						No water strike
6.2	6.4	0.25	Hard boring strata						
9.3	9.4	0.5	Hard boring strata						

INSTALLATION DETAILS					GROUNDWATER PROGRESS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments

<b>REMARKS</b> Obstruction at 13.2m due to stuck rebar between cutter and lead casing, pull up all casing to moved cutter. Reduced casing up to 8 inch from 13.2m	<b>Sample Legend</b> D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub)  U - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample
---	---

IGSL BH LOG CHISEL SEPARATED 16412.GPJ IGSL GDT 6/11/12



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

**16412**

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> <b>BH36B</b>	
<b>CO-ORDINATES</b> 291,286.00 E 222,308.35 N		<b>RIG TYPE</b> Dando 3000		<b>SHEET</b> Sheet 2 of 3	
<b>GROUND LEVEL (m AOD)</b> 112.74		<b>BOREHOLE DIAMETER (mm)</b> 250		<b>DATE COMMENCED</b> 23/08/2012	
		<b>BOREHOLE DEPTH (m)</b> 26.00		<b>DATE COMPLETED</b> 31/08/2012	
<b>CLIENT</b> EPA		<b>SPT HAMMER REF. NO.</b>		<b>BORED BY</b> M.Connolly	
<b>ENGINEER</b> SKM		<b>ENERGY RATIO (%)</b>		<b>PROCESSED BY</b> I.Reeder	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
10	MADE GROUND (comprised of dry MSW: wood 40%, textile 15%, plastic 25%, paper 10%, cables 10%) <i>(continued)</i> Strong rotten eggs gas odour at 10.0m; Gas Readings at 10.0m: O2 - 17.5%, CH4 - 10.1%, CO2 - 5.5%, H2S - >220ppm				AN3464	D	10.00-10.00			
11	Strong rotten eggs gas odour at 11.0m; Gas Readings at 11.0m: O2 - 4.5%, CH4 - 38.4%, CO2 - 24.2%, H2S - >220ppm				AN3465	B	11.00-11.50			
12	Strong rotten eggs gas odour at 12.0m; Gas Readings at 12.0m: O2 - 16.5%, CH4 - 8.1%, CO2 - 5.1%, H2S - 20ppm		100.54	12.20	AN3466	D	12.00-12.00			
13	MADE GROUND (comprised of dry MSW: wood 40%, textile 20%, plastic 30%, paper 5%, steel 5%) Strong rotten eggs gas odour at 13.0m; Gas Readings at 13.0m: O2 - 17%, CH4 - 7.5%, CO2 - 4.6%, H2S - 25ppm		99.54	13.20	AN3467	B	13.00-13.50			
14	MADE GROUND (comprised of dry MSW: wood 40%, textile 20%, plastic 20%, paper 10%, cobbles 10%) Strong rotten eggs gas odour at 14.0m; Gas Readings at 14.0m: O2 - 20.2%, CH4 - 1.2%, CO2 - 0.7%, H2S - 34ppm		98.64	14.10	AN3468	D	14.00-14.00			
15	MADE GROUND (comprised of dry MSW: wood 60%, textile 5%, plastic 10%, steel 5%, concrete pieces 20%) Very strong rotten eggs gas odour at 15.0m; Gas Readings at 15.0m: O2 - 20.3%, CH4 - 0.8%, CO2 - 0.5%, H2S - 10ppm				AN3469	B	15.00-15.50			
16	Very strong rotten eggs gas odour at 16.0m; Gas Readings at 16.0m: O2 - 20.5%, CH4 - 0.6%, CO2 - 0.4%, H2S - 2ppm				AN3470	D	16.00-16.00			
17	Very strong rotten eggs gas odour at 17.0m; Gas Readings at 17.0m: O2 - 18.9%, CH4 - 3.1%, CO2 - 2.1%, H2S - 4ppm		95.14	17.60	AN3471	B	17.00-17.50			
18	MADE GROUND (comprised of dry MSW: wood 80%, textile 10%, plastic 10%) Very strong rotten eggs gas odour at 18.0m; Gas Readings at 18.0m: O2 - 17.7%, CH4 - 4.2%, CO2 - 3.7%, H2S - 4ppm				AN3472	D	18.00-18.00			
19	MADE GROUND (comprised of dry MSW: wood 100%) Very strong rotten eggs gas odour at 19.0m; Gas Readings at 19.0m: O2 - 18.6%, CH4 - 3.3%, CO2 - 3.1%		93.84	18.90	AN3473	B	19.00-19.50			

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
10.7	10.9	0.5	Hard boring strata						No water strike
11.3	11.6	0.75	Hard boring strata						
12.9	13.2	0.5	Hard boring strata						
15.1	15.4	0.75	Hard boring strata						
18.3	18.5	1	Hard boring strata						
19	19.3	0.75	Hard boring strata						

INSTALLATION DETAILS					GROUNDWATER PROGRESS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments

<b>REMARKS</b> Obstruction at 13.2m due to stuck rebar between cutter and lead casing, pull up all casing to moved cutter. Reduced casing up to 8 inch from 13.2m	<b>Sample Legend</b> D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub)  U - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample
---	---

IGSL BH LOG CHISEL SEPARATED 16412.GPJ IGSL GDT 6/11/12



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

**16412**

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> <b>BH36B</b>	
<b>CO-ORDINATES</b> 291,286.00 E 222,308.35 N		<b>RIG TYPE</b> Dando 3000		<b>SHEET</b> Sheet 3 of 3	
<b>GROUND LEVEL (m AOD)</b> 112.74		<b>BOREHOLE DIAMETER (mm)</b> 250		<b>DATE COMMENCED</b> 23/08/2012	
		<b>BOREHOLE DEPTH (m)</b> 26.00		<b>DATE COMPLETED</b> 31/08/2012	
<b>CLIENT</b> EPA		<b>SPT HAMMER REF. NO.</b>		<b>BORED BY</b> M.Connolly	
<b>ENGINEER</b> SKM		<b>ENERGY RATIO (%)</b>		<b>PROCESSED BY</b> I.Reeder	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
20	MADE GROUND (comprised of dry MSW: wood 100%) <i>(continued)</i> Very strong rotten eggs gas odour at 20.0m; Gas Readings at 20.0m: O2 - 6.4%, CH4 - 18.9%, CO2 - 16.8%, CO - 14ppm		91.14	21.60	AN3474	D	20.00-20.00			
21	Very strong rotten eggs gas odour at 21.0m; Gas Readings at 21.0m: O2 - 19.3%, CH4 - 1.7%, CO2 - 1.4%				AN3475	B	21.00-21.50			
22	MADE GROUND (comprised of dry MSW: wood 70%, steel 10%, paper 10%, textile 10%) Very strong rotten eggs gas odour at 22.0m; Gas Readings at 22.0m: O2 - 19.1%, CH4 - 2.7%, CO2 - 2.0%, H2S - 85ppm				AN3476	D	22.00-22.00			
23	Very strong rotten eggs gas odour at 23.0m; Gas Readings at 23.0m: O2 - 18.1%, CH4 - 6.0%, CO2 - 4.2%, H2S - 37ppm				AN3477	B	23.00-23.50			
24	MADE GROUND (comprised of dry MSW: wood 100%) Very strong rotten eggs gas odour at 24.0m; Gas Readings at 24.0m: O2 - 19.1%, CH4 - 2.4%, CO2 - 1.7%, H2S - 25ppm				AN3478	D	24.00-24.00			
25	MADE GROUND (comprised of dry MSW: wood 20%, textile 20%, plastic 20%, steel 10%, concrete 5%, gravel 5%, paper 20%) Strong rotten eggs gas odour at 25.0m; Gas Readings at 25.0m: O2 - 19.9%, CH4 - 1.9%, CO2 - 1.4%				AN3479	B	25.00-25.50			
26	End of Borehole at 26.00 m		86.74	26.00	AN3480	D	26.00-26.00			
27										
28										
29										

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
22.7	22.9	0.5	Hard boring strata						No water strike
23.6	23.8	0.75	Hard boring strata						
23.8	23.9	0.25	Hard boring strata						
24.4	25	1.5	Hard boring strata						
25.3	25.5	0.5	Hard boring strata						
26	26	2	Hard boring strata						

INSTALLATION DETAILS					GROUNDWATER PROGRESS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments

<b>REMARKS</b> Obstruction at 13.2m due to stuck rebar between cutter and lead casing, pull up all casing to moved cutter. Reduced casing up to 8 inch from 13.2m	<b>Sample Legend</b> D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub)  U - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample
---	---

IGSL BH LOG CHISEL SEPARATED 16412.GPJ IGSL GDT 6/11/12





# GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

16412

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>RC36B</b>
		<b>SHEET</b> Sheet 1 of 4
<b>CO-ORDINATES</b> 291,286.00 E 222,308.35 N	<b>RIG TYPE</b> Casagrande	<b>DATE DRILLED</b> 13/09/2012
<b>GROUND LEVEL (mOD)</b> 112.74	<b>FLUSH</b> Water	<b>DATE LOGGED</b> 14/09/2012
<b>CLIENT</b>	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> IGSL
<b>ENGINEER</b> SKM	<b>CORE DIAMETER (mm)</b>	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0					0 250 500			Hole opened by Shell & Auger				
1												
2												
3												
4												
5												
6												
7												
8												
9												

<b>REMARKS</b> RC done at BH36B location. Hole Cased 0.00-38.50m. Driller standing 1.8hrs waiting for water to enter hole. Driller 3.25hrs pulling casing					<b>WATER STRIKE DETAILS</b>						
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments	
										No water strike recorded	
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>						
					Date	Hole Depth	Casing Depth	Depth to Water	Comments		
Date	Tip Depth	RZ Top	RZ Base	Type							
14-09-12	38.50	33.00	38.50	50mm SP							

IGSL RC F1.10M 16412 RC.GPJ IGSL.GDT 6/11/12



# GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

16412

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>RC36B</b>
		<b>SHEET</b> Sheet 2 of 4
<b>CO-ORDINATES</b> 291,286.00 E 222,308.35 N	<b>RIG TYPE</b> Casagrande <b>FLUSH</b> Water	<b>DATE DRILLED</b> 13/09/2012
<b>GROUND LEVEL (mOD)</b> 112.74		<b>DATE LOGGED</b> 14/09/2012
<b>CLIENT</b>	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> IGSL
<b>ENGINEER</b> SKM	<b>CORE DIAMETER (mm)</b>	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10					0 250 500			Hole opened by Shell & Auger (continued)				
11												
12												
13												
14												
15												
16												
17												
18												
19												

<b>REMARKS</b> RC done at BH36B location. Hole Cased 0.00-38.50m. Driller standing 1.8hrs waiting for water to enter hole. Driller 3.25hrs pulling casing					<b>WATER STRIKE DETAILS</b>						
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments	
										No water strike recorded	
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>						
					Date	Hole Depth	Casing Depth	Depth to Water	Comments		
Date	Tip Depth	RZ Top	RZ Base	Type							
14-09-12	38.50	33.00	38.50	50mm SP							

IGSL RC F1:10M 16412 RC.GPJ IGSL.GDT 6/11/12



# GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

16412

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>RC36B</b>
<b>CO-ORDINATES</b> 291,286.00 E 222,308.35 N		<b>SHEET</b> Sheet 3 of 4
<b>GROUND LEVEL (MOD)</b> 112.74		<b>DATE DRILLED</b> 13/09/2012
<b>CLIENT</b>		<b>DATE LOGGED</b> 14/09/2012
<b>ENGINEER</b> SKM		<b>DRILLED BY</b> IGSL
<b>RIG TYPE</b> Casagrande		<b>LOGGED BY</b> D.O'Shea
<b>FLUSH</b> Water		
<b>INCLINATION (deg)</b> -90		
<b>CORE DIAMETER (mm)</b>		

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
20								Hole opened by Shell & Auger <i>(continued)</i>				
21								SYMMETRIX DRILLING: No recovery, observed by driller as returns of MADE GROUND consisting of municipal waste	21.00	91.74		
22								SYMMETRIX DRILLING: No recovery, observed by driller as returns of MADE GROUND consisting of municipal waste & metal	22.00	90.74		
23								SYMMETRIX DRILLING: No recovery, observed by driller as returns of MADE GROUND consisting of municipal waste with timber	23.20	89.54		
24												
25								SYMMETRIX DRILLING: No recovery, observed by driller as returns of MADE GROUND consisting of municipal waste	25.00	87.74		
26												
27								SYMMETRIX DRILLING: No recovery, observed by driller as returns of sandy gravel	26.90	85.84		
28												
29												

<b>REMARKS</b> RC done at BH36B location. Hole Cased 0.00-38.50m. Driller standing 1.8hrs waiting for water to enter hole. Driller 3.25hrs pulling casing					<b>WATER STRIKE DETAILS</b>						
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments	
										No water strike recorded	
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>						
					Date	Hole Depth	Casing Depth	Depth to Water	Comments		
Date	Tip Depth	RZ Top	RZ Base	Type							
14-09-12	38.50	33.00	38.50	50mm SP							

IGSL RC F1:10M 16412 RC.GPJ IGSL.GDT 6/11/12



# GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER

16412

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> RC36B
		<b>SHEET</b> Sheet 4 of 4
<b>CO-ORDINATES</b> 291,286.00 E 222,308.35 N	<b>RIG TYPE</b> Casagrande <b>FLUSH</b> Water	<b>DATE DRILLED</b> 13/09/2012
<b>GROUND LEVEL (mOD)</b> 112.74		<b>DATE LOGGED</b> 14/09/2012
<b>CLIENT</b>	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> IGSL
<b>ENGINEER</b> SKM	<b>CORE DIAMETER (mm)</b>	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
30					0 250 500		Legend	SYMMETRIX DRILLING: No recovery, observed by driller as returns of sandy gravel ( <i>continued</i> )			Standpipe Details	
31												
32												
33												
34												
35												
36												
37												
38									38.50	74.24		
39								End of Borehole at 38.50 m				

<b>REMARKS</b> RC done at BH36B location. Hole Cased 0.00-38.50m. Driller standing 1.8hrs waiting for water to enter hole. Driller 3.25hrs pulling casing					<b>WATER STRIKE DETAILS</b>						
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments	
										No water strike recorded	
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>						
					Date	Hole Depth	Casing Depth	Depth to Water	Comments		
Date	Tip Depth	RZ Top	RZ Base	Type	14-09-12	38.50	38.50	37.00	Water level recorded 10mins after end of drilling		
14-09-12	38.50	33.00	38.50	50mm SP							

IGSL RC F1:10M 16412 RC.GPJ IGSL.GDT 6/11/12



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

16412

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> <b>BH40A</b>	
<b>CO-ORDINATES</b> 291,393.49 E 222,108.72 N		<b>RIG TYPE</b> Dando 2000		<b>SHEET</b> Sheet 1 of 1	
<b>GROUND LEVEL (m AOD)</b> 94.40		<b>BOREHOLE DIAMETER (mm)</b> 250		<b>DATE COMMENCED</b> 02/10/2012	
		<b>BOREHOLE DEPTH (m)</b> 1.70		<b>DATE COMPLETED</b> 02/10/2012	
<b>CLIENT</b> EPA		<b>SPT HAMMER REF. NO.</b>		<b>BORED BY</b> W.Cahill	
<b>ENGINEER</b> SKM		<b>ENERGY RATIO (%)</b>		<b>PROCESSED BY</b> I.Reeder	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	MADE GROUND (comprised of dry MSW: clay 20%, gravel cobbles and boulders 45%, concrete and brick 30%, timber 5%)									
1	Medium musky smell at 1.0m; No gas readings taken at 1.0m		92.70	1.70						
2	Obstruction - possible concrete or boulder End of Borehole at 1.70 m									
3										
4										
5										
6										
7										
8										
9										

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
1.7	1.7	0.5	Chiselling						No water strike

INSTALLATION DETAILS					GROUNDWATER PROGRESS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments

<b>REMARKS</b> Obstruction at 1.7m due to possible concrete or boulder, instructed to move few meters and repeat - see BH40C log	<b>Sample Legend</b> D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) U - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample
--	---

IGSL BH LOG CHISEL SEPARATED 16412.GPJ IGSL.GDT 6/11/12



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

**16412**

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> <b>BH40B</b>	
<b>CO-ORDINATES</b> 291,392.81 E 222,105.84 N		<b>RIG TYPE</b> Dando 2000		<b>SHEET</b> Sheet 1 of 2	
<b>GROUND LEVEL (m AOD)</b> 94.46		<b>BOREHOLE DIAMETER (mm)</b> 250		<b>DATE COMMENCED</b> 02/10/2012	
		<b>BOREHOLE DEPTH (m)</b> 16.30		<b>DATE COMPLETED</b> 04/10/2012	
<b>CLIENT</b> EPA		<b>SPT HAMMER REF. NO.</b>		<b>BORED BY</b> W.Cahill	
<b>ENGINEER</b> SKM		<b>ENERGY RATIO (%)</b>		<b>PROCESSED BY</b> I.Reeder	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	MADE GROUND (comprised of dry brown clay 20%, gravel cobbles and boulders 45%, concrete and brick 30%, wood 5%)		91.76	2.70						
1	Medium musk gas odour at 1.0m; Gas Readings at 1.0m: O2 - 19.6%, CH4 - 0.0%, CO2 - 1.1%				AN3821	D	1.00-1.00			
2	Medium musk gas odour at 2.0m; Gas Readings at 2.0m: O2 - 19.7%, CH4 - 0.0%, CO2 - 0.7%				AN3822	B	2.00-2.00			
3	MADE GROUND (comprised of light brown sandy silty clay with some gravel and refuse content) Medium musk gas odour at 3.0m; Gas Readings at 3.0m: O2 - 19.6%, CH4 - 0.0%, CO2 - 0.9%				AN3823	D	3.00-3.00			
4	Medium musk gas odour at 4.0m; Gas Readings at 4.0m: O2 - 19.8%, CH4 - 0.0%, CO2 - 0.7%				AN3824	B	4.00-4.00			
5	Medium musk gas odour at 5.0m; Gas Readings at 5.0m: O2 - 19.6%, CH4 - 0.0%, CO2 - 0.8%				AN3825	D	5.00-5.00			
6	NO gas odour at 6.0m; No Gas Readings taken at 6.0m				AN3826	B	6.00-6.00			
7	NO gas odour at 7.0m; No Gas Readings taken at 7.0m				AN3827	D	7.00-7.00			
8	NO gas odour at 8.0m; No Gas Readings taken at 8.0m				AN3828	B	8.00-8.00			
9	NO gas odour at 9.0m; No Gas Readings taken at 9.0m	AN3829	D	9.00-9.00						
			84.66	9.80						

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
9.8	10.3	1.75	Chiselling						
INSTALLATION DETAILS				GROUNDWATER PROGRESS					
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments
04-10-12	16.30	13.30	16.30	50mm SP					
<b>REMARKS</b> Hit concrete at 9.8m - instructed to continue chiselling to break through; Reduced casing from 10inch to 8inch at 13.0m					<b>Sample Legend</b> D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) U - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample				

IGSL BH LOG CHISEL SEPARATED 16412.GPJ IGSL GDT 6/11/12



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

**16412**

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> <b>BH40B</b>	
<b>CO-ORDINATES</b> 291,392.81 E 222,105.84 N		<b>RIG TYPE</b> Dando 2000		<b>SHEET</b> Sheet 2 of 2	
<b>GROUND LEVEL (m AOD)</b> 94.46		<b>BOREHOLE DIAMETER (mm)</b> 250		<b>DATE COMMENCED</b> 02/10/2012	
		<b>BOREHOLE DEPTH (m)</b> 16.30		<b>DATE COMPLETED</b> 04/10/2012	
<b>CLIENT</b> EPA		<b>SPT HAMMER REF. NO.</b>		<b>BORED BY</b> W.Cahill	
<b>ENGINEER</b> SKM		<b>ENERGY RATIO (%)</b>		<b>PROCESSED BY</b> I.Reeder	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
10	MADE GROUND (comprised of large concrete fragments with sparse very sandy clay) ( <i>continued</i> ) NO gas odour at 10.0m; No Gas Readings taken at 10.0m		84.16	10.30	AN3830	B	10.00-10.00			
11	MADE GROUND (comprised dark brown sandy clay 90%, concrete 10%) NO gas odour at 11.0m; No Gas Readings taken at 11.0m		82.76	11.70	AN3831	D	11.00-11.00			
12	MADE GROUND (comprised of light brown silty sand 90%, wood 5%, concrete 5%) NO gas odour at 12.0m; No Gas Readings taken at 12.0m				AN3832	B	12.00-12.00			
13	Dense, light brown, silty SAND (natural ground) NO gas odour at 13.0m; No Gas Readings taken at 13.0m		81.46	13.00	AN3833	D	13.00-13.00			
14	NO gas odour at 14.0m; No Gas Readings taken at 14.0m				AN3834	B	14.00-14.00			
15	NO gas odour at 15.0m; No Gas Readings taken at 15.0m		78.86	15.60	AN3835	D	15.00-15.00			
16	Dense, brown, sandy fine to coarse GRAVEL NO gas odour at 16.0m; No Gas Readings taken at 16.0m End of Borehole at 16.30 m		78.16	16.30	AN3836	B	16.00-16.00			

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
				15.60	15.60	NO	14.20	20	Rapid

INSTALLATION DETAILS					GROUNDWATER PROGRESS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments
04-10-12	16.30	13.30	16.30	50mm SP					

<p><b>REMARKS</b> Hit concrete at 9.8m - instructed to continue chiselling to break through; Reduced casing from 10inch to 8inch at 13.0m</p>	<p><b>Sample Legend</b>            D - Small Disturbed (tub)            B - Bulk Disturbed            LB - Large Bulk Disturbed            Env - Environmental Sample (Jar + Vial + Tub)            U - Undisturbed 100mm Diameter Sample            P - Undisturbed Piston Sample            W - Water Sample</p>
---	--

IGSL BH LOG CHISEL SEPARATED 16412.GPJ IGSL.GDT 6/11/12



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

**16412**

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>BH42</b>
<b>CO-ORDINATES</b> 291,542.94 E 221,929.36 N		<b>SHEET</b> Sheet 1 of 2
<b>GROUND LEVEL (mOD)</b> 82.27	<b>RIG TYPE</b> Casagrande <b>FLUSH</b> Water	<b>DATE DRILLED</b> 20/08/2012 <b>DATE LOGGED</b> 20/08/2012
<b>CLIENT ENGINEER</b> SKM	<b>INCLINATION (deg)</b> -90 <b>CORE DIAMETER (mm)</b>	<b>DRILLED BY</b> IGSL <b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0					0 250 500			SYMMETRIX DRILLING: No recovery, observed by driller as returns of MADE GROUND consisting of sand with timber	1.00	81.27		
1								SYMMETRIX DRILLING: No recovery, observed by driller as returns of silty sandy clay				
2								SYMMETRIX DRILLING: No recovery, observed by driller as returns of sandy clay	2.50	79.77		
3								SYMMETRIX DRILLING: No recovery, observed by driller as returns of sandy gravelly clay	4.00	78.27		
4								SYMMETRIX DRILLING: No recovery, observed by driller as returns of clay	6.00	76.27		
5								SYMMETRIX DRILLING: No recovery, observed by driller as returns of sandy gravel	7.00	75.27		
6												
7												
8												
9												

<b>REMARKS</b> Hole Cased 0.00-10.10m.					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					7.00					Slow
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type						

IGSL RC Fl 10M 16412 RC.GPJ IGSL.GDT 6/11/12





# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

16412

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>BH42</b>
<b>CO-ORDINATES</b> 291,542.94 E 221,929.36 N		<b>SHEET</b> Sheet 2 of 2
<b>GROUND LEVEL (mOD)</b> 82.27	<b>RIG TYPE</b> Casagrande	<b>DATE DRILLED</b> 20/08/2012
	<b>FLUSH</b> Water	<b>DATE LOGGED</b> 20/08/2012
<b>CLIENT</b>	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> IGSL
<b>ENGINEER</b> SKM	<b>CORE DIAMETER (mm)</b>	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10					0 250 500			End of Borehole at 10.10 m	10.10	72.17		
11												
12												
13												
14												
15												
16												
17												
18												
19												

<b>REMARKS</b> Hole Cased 0.00-10.10m.					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type	20-08-12	10.10	10.10	2.50	Water level recorded 10mins after end of drilling	

IGSL RC FI 10M 16412 RC.GPJ IGSL\_GDT 6/11/12

<b>Project Name:</b> Kerdiffstown Landfill	<b>Project No.:</b> P11114	<b>Co-ords:</b> 291358E - 221881N	<b>Hole Type:</b> Cable
<b>Client:</b> Environmental Protection Agency	<b>Dates:</b> 10/01/2012-12/01/2012	<b>Level:</b> 92.67 m AOD	<b>Scale:</b> 1:50

Well / Backfill	Water Strikes	Samples & In Situ Testing			Casing / Flush	Level (m AOD)	Depth (m)	Stratum Description	Legend
		Depth (m)	Type	Results					
					92.63	0.04	Topsoil with cobbles. Slightly sandy slightly gravelly CLAY with black boulders - odourless.		
					91.23	1.44	Stiff, gravelly CLAY with black boulders - odourless.		
					89.87	2.80	Stiff, gravelly CLAY with angular, black boulders - odourless.		
					88.47	4.20	Stiff, sandy CLAY with boulders - odourless. 4.2m - 5.5m: Water added to aid drilling.		
					87.17	5.50	Hard, boulder CLAY - odourless.		
					86.41	6.26	GRAVEL.		
					86.17	6.50	SAND with cobbles.		
		6.76	CPT	N=14 (2,2/3,3,4,4)	6.76	85.91	6.76	Medium dense GRAVEL.	
						85.47	7.20	7.0m: O2 - 20.1%. GRAVEL with boulders - odourless.	
					8.60	84.07	8.60	End of Borehole at 8.60 m	

Water	Depth (m)	Type	Results	Casing	Level	Depth

<b>Groundwater:</b>					<b>Hole Information:</b>			<b>Chiselling:</b>		
Struck	Rose to	After	Sealed	Comment	Hole Depth	Hole Diameter	Casing Diameter	Depths (m)	Time (hhmm)	Tool
7.26m	7.10m	20min	-		8.60m	200mm	200mm	2.00 to 2.20	0030	Chisel
								3.20 to 3.25	0030	Chisel
								5.20 to 5.30	0030	Chisel
								8.00 to 8.00	0030	Chisel

<b>Remarks:</b> Borehole terminated by Engineer (SKM). Standpipe installed, response zone from 8.0m to 5.0m.	<b>Shift Data:</b>	Groundwater	Shift (dd/mm/yyyy)	Casing depth	Remarks
		-	10/01/2012	0.00m	Start of Borehole
		-	10/01/2012	4.20m	End of shift
		-	11/01/2012	4.20m	Start of shift
		7.10m	11/01/2012	7.36m	End of shift
		6.96m	12/01/2012	7.36m	Start of shift
		8.50m	12/01/2012	8.60m	End of Borehole

<b>Equipment &amp; Methods:</b> Dando 2000
--



**PRIORITY  
GEOTECHNICAL**

Priority Geotechnical Ltd.  
Tel: 021 4631600  
Fax: 021 4638690  
www.prioritygeotechnical.ie

**Drilled By**  
RN  
**Logged By**

Borehole No  
**SI 1 BH06**  
Sheet 1 of 1

<b>Project Name:</b> Kerdiffstown Landfill	<b>Project No.:</b> P11114	<b>Co-ords:</b> 291700E - 221906N	<b>Hole Type:</b> Cable
<b>Client:</b> Environmental Protection Agency	<b>Dates:</b> 13/01/2012-16/01/2012	<b>Level:</b> 80.84 m AOD	<b>Scale:</b> 1:50

Well / Backfill	Water Strikes	Samples & In Situ Testing			Casing / Flush	Level (m AOD)	Depth (m)	Stratum Description	Legend
		Depth (m)	Type	Results					
		0.00-1.00	D			79.84	1.00	Slightly sandy GRAVEL with bricks and MSW (Approx. 2%). Gravel is medium to coarse, subangular to subrounded.	
		1.00-1.65	D					Very sandy GRAVEL with black cobbles. Sand is fine to coarse. Gravel is fine to medium, subangular to subrounded.	
		1.65-3.00	D						
					3.00	77.84	3.00	End of Borehole at 3.00 m	

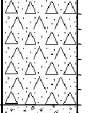
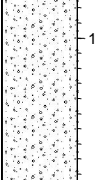
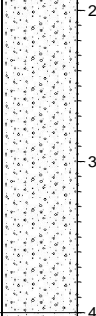
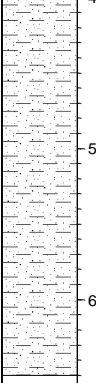
Water	Depth (m)	Type	Results	Casing	Level	Depth
-------	-----------	------	---------	--------	-------	-------

<b>Groundwater:</b>					<b>Hole Information:</b>			<b>Chiselling:</b>		
Struck	Rose to	After	Sealed	Comment	Hole Depth	Hole Diameter	Casing Diameter	Depths (m)	Time (hhmm)	Tool
1.00m	0.98m	5min	-		3.00m	200mm	200mm	1.45 to 1.45	0100	Chisel
1.00m	0.90m	10min	-					2.50 to 2.65	0030	Chisel
1.00m	0.85m	15min	-							
1.00m	0.85m	20min	-							
1.65m	1.60m	5min	-							

<b>Remarks:</b> Borehole terminated on Engineer's (SKM) request. 50mm dia standpipe installed, response zone from 2.0m to 1.0m.	<b>Shift Data:</b>	Groundwater	Shift (dd/mm/yyyy)	Casing depth	Remarks
		-	13/01/2012	0.00m	Start of Borehole
		-	13/01/2012	1.80m	End of shift
		1.40m	16/01/2012	3.00m	Start of shift
		1.50m	16/01/2012	3.00m	End of Borehole

**Equipment & Methods:** Dando 2000

<b>Project Name:</b> Kerdiffstown Landfill	<b>Project No.:</b> P11114	<b>Co-ords:</b> 291681E - 221982N	<b>Hole Type:</b> Cable
<b>Client:</b> Environmental Protection Agency	<b>Dates:</b> 23/01/2012	<b>Level:</b> 80.93 m AOD	<b>Scale:</b> 1:50

Well / Backfill	Water Strikes	Samples & In Situ Testing			Casing / Flush	Level (m AOD)	Depth (m)	Stratum Description	Legend
		Depth (m)	Type	Results					
							Reinforced concrete.		
		1.00	D		80.23	0.70	Grey, slightly sandy gravelly SILT with cobbles. Sand is fine to coarse. Gravel is fine to coarse, subrounded. 1.0m: CH4 - 0.1%, CO2 - 0.0%, O2 - 20.6%.		
		2.00	D						
		3.00	D				3.0m: CH4 - 0.1%, CO2 - 0.0%, O2 - 20.8%.		
		4.00	D		76.93	4.00	Stiff, grey, brown, slightly sandy gravelly SILT with cobbles. Sand is fine to coarse. Gravel is fine to coarse, subrounded. Cobbles are subrounded, limestone, 60-80mm dia.		
		5.00 5.00	CPT D	N=24 (2,3/5,6,6,7)	5.00				
		6.00	D						
		6.50	D		6.50	74.43	6.50		
							End of Borehole at 6.50 m		

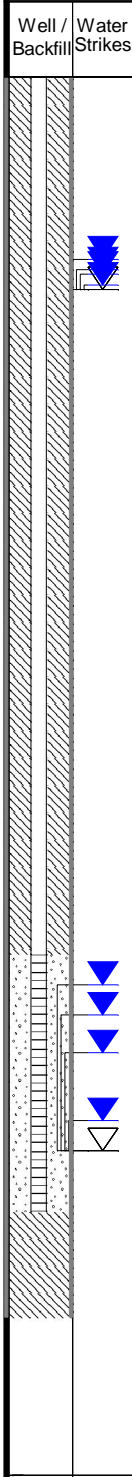
Water	Depth (m)	Type	Results	Casing	Level	Depth
-------	-----------	------	---------	--------	-------	-------

<b>Groundwater:</b>				<b>Hole Information:</b>			<b>Chiselling:</b>		
Struck	Rose to	After	Sealed	Hole Depth	Hole Diameter	Casing Diameter	Depths (m)	Time (hhmm)	Tool
-	-	-	-None encountered.	6.50m	200mm	200mm	3.30 to 3.40	0030	Chisel
							4.20 to 4.40	0030	Chisel
							5.60 to 5.70	0030	Chisel

<b>Remarks:</b> Breaking out: 4hrs. Borehole terminated on Engineer's (SKM) request. 50mm dia standpipe installed, response zone from 6.5m to 3.5m.	<b>Shift Data:</b>	Groundwater	Shift (dd/mm/yyyy)	Casing depth	Remarks
		-	23/01/2012	0.00m	Start of Borehole
		-	23/01/2012	4.00m	End of shift
		-	24/01/2012	4.00m	Start of shift
		-	24/01/2012	6.50m	End of Borehole

<b>Equipment &amp; Methods:</b> Dando 2000
--

<b>Project Name:</b> Kerdiffstown Landfill	<b>Project No.</b> P11114	<b>Co-ords:</b> 291447E - 222033N	<b>Hole Type</b> Cable
<b>Client:</b> Environmental Protection Agency	<b>Dates:</b> 24/01/2012-25/01/2012	<b>Level:</b> 83.84 m AOD	<b>Scale</b> 1:50

Well / Backfill	Water Strikes	Samples & In Situ Testing			Casing / Flush	Level (m AOD)	Depth (m)	Stratum Description	Legend
		Depth (m)	Type	Results					
		0.00-1.00	B			82.84	1.00	Fill: Black, gravelly CLAY with cobbles. 0.0m - 1.0m: No water or odour noted.	1
		1.00-2.00	B			82.24	1.60	Fill: Black, gravelly CLAY.	
		2.00-3.00	B			81.84	2.00	MSW (Approx. 80% timber; logs and pallets, 10% rubber, 10% soft plastic, 10% hard plastic).	2
		3.40-4.40	B			80.44	3.40	CLAY with angular cobbles and MSW (Approx. 50% timber, 20% wooden pallets, 10% strong rubber, 10% plastic).	3
		3.40-4.40	B			79.44	4.40	Sandy GRAVEL with cobbles. 3.4m - 4.4m: No odour, no water.	4
		5.00-6.00	B					Sandy GRAVEL. 4.4m - 5.0m: No water or odour noted.	5
		6.00-7.00	B			76.84	7.00	Angular GRAVEL with black cobbles. 7.1m - 8.1m: No odour noted.	7
		7.00-8.00	B			8.20	75.64	8.20	8
								End of Borehole at 8.20 m	

Water	Depth (m)	Type	Results	Casing	Level	Depth

<b>Groundwater:</b>					<b>Hole Information:</b>			<b>Chiselling:</b>		
Struck	Rose to	After	Sealed	Comment	Hole Depth	Hole Diameter	Casing Diameter	Depths (m)	Time (hhmm)	Tool
1.40m	1.37m	5min	-		8.20m	200mm	200mm	to		
1.40m	1.30m	10min	-							
1.40m	1.27m	15min	-							
1.40m	1.20m	20min	-							
7.10m	6.90m	5min	-							

<b>Remarks:</b> Borehole terminated on Engineer's (SKM) request. Backfilled with arisings. 50mm dia standpipe installed, response zone from 7.5m to 5.8m.	<b>Shift Data:</b>	Groundwater	Shift (dd/mm/yyyy)	Casing depth	Remarks
		-	24/01/2012	0.00m	Start of Borehole
		1.20m	24/01/2012	1.60m	End of shift
		-	25/01/2012	1.60m	Start of shift
		-	25/01/2012	8.20m	End of Borehole

<b>Equipment &amp; Methods:</b> Dando 2000
--



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>RCBB01</b>
<b>CO-ORDINATES</b> 291,516.12 E 222,207.16 N		<b>SHEET</b> Sheet 1 of 3
<b>GROUND LEVEL (mOD)</b> 80.87		<b>DATE DRILLED</b> 02/11/2016
<b>CLIENT</b> Kildare Co.Co.		<b>DATE LOGGED</b> 04/11/2016
<b>ENGINEER</b> Jacobs		<b>DRILLED BY</b> IGSL
<b>RIG TYPE</b> Knebel		<b>LOGGED BY</b> D.O'Shea
<b>FLUSH</b> Air/Mist		
<b>INCLINATION (deg)</b> -90		
<b>CORE DIAMETER (mm)</b> 78		

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0					0 250 500			Robit Drilling - No recovery - Driller reports brown sandy gravelly CLAY				
1												
2												
3												
4												
5												
6												
7												
8	8.00							Robit Drilling - No recovery - Driller reports light grey sandy GRAVEL with occasional boulders	7.80	73.07		
		20	0	0								
9	9.00							Robit Drilling - No recovery - Driller reports light brown clayey COBBLES and BOULDERS	8.50	72.37		

N = 50/150 mm  
(8, 12, 16, 24, 10)

<b>REMARKS</b> Hole cased from 0.00-10.50m. Falling head test carried out from 12.5m to 16.3m. Gas tap fitted on standpipe. (SPT Hammer Ref. No. IGSL3. Energy Ratio 60.30%)					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					4.30					Slow
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type						
04-11-16	20.00	15.00	20.00	50mm SP						

IGSL RC Fl 10M 19600.GPJ IGSL.GDT 10/5/17



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill	<b>DRILLHOLE NO</b> <b>RCBB01</b>
<b>CO-ORDINATES</b> 291,516.12 E 222,207.16 N	<b>SHEET</b> Sheet 2 of 3
<b>GROUND LEVEL (mOD)</b> 80.87	<b>DATE DRILLED</b> 02/11/2016
<b>CLIENT</b> Kildare Co.Co.	<b>DATE LOGGED</b> 04/11/2016
<b>ENGINEER</b> Jacobs	<b>DRILLED BY</b> IGSL
<b>RIG TYPE</b> Knebel	<b>LOGGED BY</b> D.O'Shea
<b>FLUSH</b> Air/Mist	
<b>INCLINATION (deg)</b> -90	
<b>CORE DIAMETER (mm)</b> 78	

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)	
10								Robit Drilling - No recovery - Driller reports light brown clayey COBBLES and BOULDERS (continued)				N = 50/75 mm (18, 7, 39, 11)	
11													
12								Robit Drilling - No recovery - Driller reports probable weathered rock recovered as brown clayey BOULDERS	12.00	68.87		N = 50/0 mm (25, 50)	
12.50									12.50	68.37			
12.85	100	86	66					Strong to medium strong, thickly to thinly bedded, grey/dark grey, fine-grained, LIMESTONE (locally fossiliferous, some slight honeycomb solution weathering, local chert), fresh to locally moderately weathered with clay infill (at 13.58-14.35m, 14.58-14.68m, 14.80-15.04m, 15.42-15.45m, 16.12-16.18m, 17.73-17.77m & 20.11-20.50m).					
13	100	89	80										
13.30	100	100	0										
13.50													
14	46	35	8					Discontinuities are widely to closely spaced, smooth, planar. Apertures are tight to moderately open, locally clay-smearred, moderately penetrative iron-oxide stained, locally calcite-veined (1-15mm). Dips are subhorizontal & 60°.					
14.80													
15	100	85	69										
16													
16.30													
17	100	99	84										
17.70													
18	100	94	90										
19													
19.15													
	100	84	71										

<b>REMARKS</b> Hole cased from 0.00-10.50m. Falling head test carried out from 12.5m to 16.3m. Gas tap fitted on standpipe. (SPT Hammer Ref. No. IGSL3. Energy Ratio 60.30%)					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					4.30					Slow
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type						
04-11-16	20.00	15.00	20.00	50mm SP						

IGSL RC FI 10M 19600.GPJ IGSL\_GDT 10/5/17



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill	<b>DRILLHOLE NO</b> <b>RCBB01</b>
<b>CO-ORDINATES</b> 291,516.12 E 222,207.16 N	<b>SHEET</b> Sheet 3 of 3
<b>GROUND LEVEL (mOD)</b> 80.87	<b>DATE DRILLED</b> 02/11/2016 <b>DATE LOGGED</b> 04/11/2016
<b>CLIENT</b> Kildare Co.Co. <b>ENGINEER</b> Jacobs	<b>RIG TYPE</b> Knebel <b>FLUSH</b> Air/Mist <b>INCLINATION (deg)</b> -90 <b>CORE DIAMETER (mm)</b> 78
	<b>DRILLED BY</b> IGSL <b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
20	20.50				0 250 500			End of Borehole at 20.50 m	20.50	60.37		
21												
22												
23												
24												
25												
26												
27												
28												
29												

<b>REMARKS</b> Hole cased from 0.00-10.50m. Falling head test carried out from 12.5m to 16.3m. Gas tap fitted on standpipe. (SPT Hammer Ref. No. IGSL3. Energy Ratio 60.30%)					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					4.30					Slow
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type	04-11-16	20.50	10.50	2.30	Water level recorded 10mins after end of drilling	
04-11-16	20.00	15.00	20.00	50mm SP						

IGSL RC Fl 10M 19600.GPJ IGSL\_GDT 10/5/17





# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> RCBB02
<b>CO-ORDINATES</b> 291,361.66 E 222,420.22 N		<b>SHEET</b> Sheet 1 of 3
<b>GROUND LEVEL (mOD)</b> 87.12	<b>RIG TYPE</b> Knebel	<b>DATE DRILLED</b> 07/11/2016
<b>CLIENT</b> Kildare Co.Co.	<b>FLUSH</b> Air/Mist	<b>DATE LOGGED</b> 09/11/2016
<b>ENGINEER</b> Jacobs	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> IGSL
	<b>CORE DIAMETER (mm)</b> 78	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0					0 250 500		[Symbol]	Robit Drilling - No recovery - Driller reports brown sandy cobbly GRAVEL with boulders			[Symbol]	
1							[Symbol]				[Symbol]	
2							[Symbol]				[Symbol]	
3							[Symbol]				[Symbol]	
4							[Symbol]				[Symbol]	
4.50							[Symbol]	Robit Drilling - No recovery - Driller reports grey gravelly CLAY	4.50	82.62	[Symbol]	N = 50/10 mm (15, 10, 50)
5							[Symbol]				[Symbol]	
6							[Symbol]	Robit Drilling - No recovery - Driller reports sandy gravelly CLAY with occasional cobbles	6.00	81.12	[Symbol]	N = 50/75 mm (12, 13, 40, 10)
7							[Symbol]				[Symbol]	
8							[Symbol]				[Symbol]	N = 50/65 mm (20, 5, 50)
9							[Symbol]				[Symbol]	N = 50/15 mm (25, 50)

<b>REMARKS</b> Hole cased from 0.0-18.0m. Falling head test carried out from 18.0m to 27.3m. Gas tap fitted on standpipe. (SPT Hammer Ref. No. IGSL3. Energy Ratio 60.30%)					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					12.00					Rapid
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type						
09-11-16	27.30	25.00	27.30	50mm SP						

IGSL RC Fl 10M 19600.GPJ IGSL.GDT 10/5/17



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>RCBB02</b>
<b>CO-ORDINATES</b> 291,361.66 E 222,420.22 N		<b>SHEET</b> Sheet 2 of 3
<b>GROUND LEVEL (mOD)</b> 87.12	<b>RIG TYPE</b> Knebel	<b>DATE DRILLED</b> 07/11/2016
<b>CLIENT</b> Kildare Co.Co.	<b>FLUSH</b> Air/Mist	<b>DATE LOGGED</b> 09/11/2016
<b>ENGINEER</b> Jacobs	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> IGSL
	<b>CORE DIAMETER (mm)</b> 78	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10					0 250 500		[Symbol]	Robit Drilling - No recovery - Driller reports sandy gravelly CLAY with occasional cobbles ( <i>continued</i> )			[Symbol]	N = 50/40 mm (25, 50)
11							[Symbol]				[Symbol]	
12							[Symbol]		12.50	74.62	[Symbol]	N = 50/35 mm (20, 5, 50)
13							[Symbol]	Robit Drilling - No recovery - Driller reports silty sandy GRAVEL	13.50	73.62	[Symbol]	
14							[Symbol]	Robit Drilling - No recovery - Driller reports sandy GRAVEL			[Symbol]	N = 50/90 mm (5, 9, 19, 31)
15							[Symbol]	Robit Drilling - No recovery - Driller reports fine sandy GRAVEL	15.00	72.12	[Symbol]	
16							[Symbol]				[Symbol]	
17							[Symbol]	Robit Drilling - No recovery - Driller reports clayey GRAVEL	16.80	70.32	[Symbol]	
18							[Symbol]	Robit Drilling - No recovery - Driller reports sandy gravelly CLAY with occasional cobbles	18.00	69.12	[Symbol]	N = 50/5 mm (23, 2, 50)
19							[Symbol]				[Symbol]	

<b>REMARKS</b> Hole cased from 0.0-18.0m. Falling head test carried out from 18.0m to 27.3m. Gas tap fitted on standpipe. (SPT Hammer Ref. No. IGSL3. Energy Ratio 60.30%)					<b>WATER STRIKE DETAILS</b>						
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments	
					12.00					Rapid	
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>						
					Date	Hole Depth	Casing Depth	Depth to Water	Comments		
Date	Tip Depth	RZ Top	RZ Base	Type							
09-11-16	27.30	25.00	27.30	50mm SP		07-11-16	15.00	15.00	6.25	End of Shift	
						08-11-16	15.00	15.00	5.00	Start of Shift	

IGSL RC Fl 10M 19600.GPJ IGSL.GDT 10/5/17



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>RCBB02</b>
<b>CO-ORDINATES</b> 291,361.66 E 222,420.22 N		<b>SHEET</b> Sheet 3 of 3
<b>GROUND LEVEL (mOD)</b> 87.12	<b>RIG TYPE</b> Knebel	<b>DATE DRILLED</b> 07/11/2016
<b>CLIENT</b> Kildare Co.Co.	<b>FLUSH</b> Air/Mist	<b>DATE LOGGED</b> 09/11/2016
<b>ENGINEER</b> Jacobs	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> IGSL
	<b>CORE DIAMETER (mm)</b> 78	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
20								Robit Drilling - No recovery - Driller reports sandy gravelly CLAY with occasional cobbles ( <i>continued</i> )				
21												
22												
23												
24												
25.00									25.00	62.12		
25.80	62	60	15					Probable weathered rock - recovered as clayey angular gravel and cobbles. Gravel is angular, coarse of limestone with penetrative iron-oxide staining. Cobbles are angular of limestone with penetrative iron-oxide staining.	25.80	61.32		
26								Returns of stiff, dark brown, slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded, fine to coarse of limestone.				
27	27	0	0									
27.30								End of Borehole at 27.30 m	27.30	59.82		
28												
29												

<b>REMARKS</b> Hole cased from 0.0-18.0m. Falling head test carried out from 18.0m to 27.3m. Gas tap fitted on standpipe. (SPT Hammer Ref. No. IGSL3. Energy Ratio 60.30%)					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					12.00					Rapid
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type	08-11-16	27.30	18.00	10.20	End of Drillhole	
09-11-16	27.30	25.00	27.30	50mm SP						

IGSL RC Fl 10M 19600.GPJ IGSL.GDT 10/5/17



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>RCBB03</b>
<b>CO-ORDINATES</b> 291,155.18 E 221,983.54 N		<b>SHEET</b> Sheet 1 of 3
<b>GROUND LEVEL (mOD)</b> 92.75		<b>DATE DRILLED</b> 15/11/2016
<b>CLIENT</b> Kildare Co.Co.		<b>DATE LOGGED</b> 18/11/2016
<b>ENGINEER</b> Jacobs		<b>DRILLED BY</b> IGSL
<b>RIG TYPE</b> Knebel		<b>LOGGED BY</b> D.O'Shea
<b>FLUSH</b> Air/Mist		
<b>INCLINATION (deg)</b> -90		
<b>CORE DIAMETER (mm)</b> 78		

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0					0 250 500			Robit Drilling - No recovery - Driller reports brown sandy GRAVEL with cobbles				
1												
2								Robit Drilling - No recovery - Driller reports brown sandy gravelly CLAY	2.00	90.75		
3												
4								Robit Drilling - No recovery - Driller reports brown SAND	3.60	89.15		N = 50/15 mm (25, 50)
5												N = 50 (10, 8, 11, 15, 13, 11)
6								Robit Drilling - No recovery - Driller reports brown SILT	5.50	87.25		N = 47 (8, 8, 11, 11, 13, 12)
7												N = 46 (8, 7, 10, 11, 13, 12)
8												N = 48 (8, 9, 9, 12, 13, 14)
9								Robit Drilling - No recovery - Driller reports brown sandy GRAVEL	9.50	83.25		

<b>REMARKS</b> Hole cased from 0.0-18.65m. Driller notes odour from drillhole from 13.50m. Falling head test carried out from 18.0m to 29.3m. (SPT Hammer Ref. No. IGSL3. Energy Ratio 60.30%)					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					11.00					Rapid
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type						
17-11-16	29.00	19.00	29.00	50mm SP						

IGSL RC Fl 10M 19600.GPJ IGSL.GDT 10/5/17



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>RCBB03</b>
<b>CO-ORDINATES</b> 291,155.18 E 221,983.54 N		<b>SHEET</b> Sheet 2 of 3
<b>GROUND LEVEL (mOD)</b> 92.75		<b>DATE DRILLED</b> 15/11/2016
<b>CLIENT</b> Kildare Co.Co.		<b>DATE LOGGED</b> 18/11/2016
<b>ENGINEER</b> Jacobs		<b>DRILLED BY</b> IGSL
<b>RIG TYPE</b> Knebel		<b>LOGGED BY</b> D.O'Shea
<b>FLUSH</b> Air/Mist		
<b>INCLINATION (deg)</b> -90		
<b>CORE DIAMETER (mm)</b> 78		

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10								Robit Drilling - No recovery - Driller reports brown sandy GRAVEL ( <i>continued</i> )				N = 50/45 mm (24, 1, 50)
11								Robit Drilling - No recovery - Driller reports cobbles, boulders with CLAY	11.40	81.35		
12	12.00							Probable boulder clay - recovered as cobbles and boulders of limestone with stiff, orangey brown slightly sandy CLAY	12.00	80.75		N = 50/0 mm (25, 50)
		75	0	0								
	12.80							Robit Drilling - No recovery - Driller reports sandy gravelly CLAY with cobbles	12.80	79.95		N = 50/10 mm (25, 50)
13												N = 50/10 mm (25, 50)
14												N = 50/55 mm (25, 50)
15												N = 50/0 mm (25, 50)
16		0	0	0								N = 50/0 mm (25, 50)
17												N = 50/10 mm (25, 50)
18												N = 50/10 mm (25, 50)
	18.65							Probable weathered rock - recovered as clayey angular GRAVEL, COBBLES and BOULDERS. Gravel is angular, coarse of limestone with penetrative iron-oxide staining. Cobbles are angular of limestone with penetrative iron-oxide staining.	18.65	74.10		
19		107	8	0								
									19.95	72.80		

<b>REMARKS</b> Hole cased from 0.0-18.65m. Driller notes odour from drillhole from 13.50m. Falling head test carried out from 18.0m to 29.3m. (SPT Hammer Ref. No. IGSL3. Energy Ratio 60.30%)					<b>WATER STRIKE DETAILS</b>						
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments	
					11.00					Rapid	
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>						
					Date	Hole Depth	Casing Depth	Depth to Water	Comments		
Date	Tip Depth	RZ Top	RZ Base	Type							
17-11-16	29.00	19.00	29.00	50mm SP		15-11-16	12.00	12.00	9.85	End of Shift	
						16-11-16	12.00	12.00	7.60	Start of Shift	

IGSL RC Fl 10M 19600.GPJ IGSL\_GDT 10/5/17



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>RCBB03</b>
<b>CO-ORDINATES</b> 291,155.18 E 221,983.54 N		<b>SHEET</b> Sheet 3 of 3
<b>GROUND LEVEL (mOD)</b> 92.75		<b>DATE DRILLED</b> 15/11/2016
<b>CLIENT</b> Kildare Co.Co.		<b>DATE LOGGED</b> 18/11/2016
<b>ENGINEER</b> Jacobs		<b>DRILLED BY</b> IGSL
<b>RIG TYPE</b> Knebel		<b>LOGGED BY</b> D.O'Shea
<b>FLUSH</b> Air/Mist		
<b>INCLINATION (deg)</b> -90		
<b>CORE DIAMETER (mm)</b> 78		

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
20	20.10	100	97	60				<p>Strong to medium strong, thickly to thinly bedded, grey/dark grey, fine-grained, LIMESTONE (locally fossiliferous, predominantly sandy limestone), fresh to locally moderately weathered with clay/gravel infill (at 20.57-21.04m, 21.69-22.12m, 22.85-22.99m, 23.58-25.11m, 25.26-25.40m, 25.65-26.11m, 26.40-26.46m, 27.41-27.47m, 27.75-27.81m, 28.65-28.74m &amp; 28.92-29.11m).</p> <p>Discontinuities are widely to closely spaced, smooth, planar. Apertures are tight to moderately open, locally clay-smearred, moderately penetrative iron-oxide stained, locally calcite-veined (1-15mm). Dips are subhorizontal &amp; subvertical. <i>(continued)</i></p>				
	20.85											
21		100	59	59								
22	22.00											
23		82	38	36								
	23.90											
24		27	12	12								
25	25.40											
26		90	61	31								
27	26.40											
28		100	94	78								
	27.70											
28	28.20											
		100	82	66								
		100	68	46								
29	29.30							End of Borehole at 29.30 m	29.30	63.45		

<b>REMARKS</b> Hole cased from 0.0-18.65m. Driller notes odour from drillhole from 13.50m. Falling head test carried out from 18.0m to 29.3m. (SPT Hammer Ref. No. IGSL3. Energy Ratio 60.30%)					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					11.00					Rapid
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type	16-11-16	23.90	18.00	10.20	End of Shift	
17-11-16	29.00	19.00	29.00	50mm SP	17-11-16	23.90	18.00	10.20	Start of Shift	
					17-11-16	29.30	18.00	5.60	End of Drillhole	

IGSL RC Fl 10M 19600.GPJ IGSL\_GDT 10/5/17



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>RCBB04</b>
<b>CO-ORDINATES</b> 291,711.90 E 222,076.74 N		<b>SHEET</b> Sheet 1 of 2
<b>GROUND LEVEL (mOD)</b> 81.58		<b>DATE DRILLED</b> 10/11/2016
<b>CLIENT</b> Kildare Co.Co.		<b>DATE LOGGED</b> 11/11/2016
<b>ENGINEER</b> Jacobs		<b>DRILLED BY</b> IGSL
<b>RIG TYPE</b> Knebel		<b>LOGGED BY</b> D.O'Shea
<b>FLUSH</b> Air/Mist		
<b>INCLINATION (deg)</b> -90		
<b>CORE DIAMETER (mm)</b> 78		

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0					0 250 500			Hole opened by Shell & Auger (See log BB04 - Appendix 4)				
1												
2												
3												
4												
5								Robit Drilling - No recovery - Driller reports sandy gravelly CLAY. Gravel is medium to coarse.	5.00	76.58		
6												
7	7.10							Robit Drilling - No recovery - Driller reports rock	6.70	74.88		
8	8.25	100	99	76				Medium strong, thickly to thinly bedded, grey to brownish grey, fine-grained, LIMESTONE (possible dolomitised, slight honeycomb solution weathering throughout), fresh to locally slightly weathered.	7.10	74.48		
9	9.75	100	99	55				Discontinuities are medium to closely spaced, smooth to rough, planar to undulose. Apertures are tight to moderately open, locally clay-smeared, moderately penetrative iron-oxide stained. Dips are subhorizontal.				

N = 50/10 mm (25, 50)

<b>REMARKS</b> Hole cased from 0.0-7.10m. Falling head test carried out at from 7.0m to 17.5m. Gas tap fitted on standpipe. (SPT Hammer Ref. No. IGSL3. Energy Ratio 60.30%)					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					4.00					Rapid
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type						
11-11-16	17.00	8.00	17.00	50mm SP						

IGSL RC Fl 10M 19600.GPJ IGSL.GDT 10/5/17



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>RCBB04</b>
<b>CO-ORDINATES</b> 291,711.90 E 222,076.74 N		<b>SHEET</b> Sheet 2 of 2
<b>GROUND LEVEL (mOD)</b> 81.58	<b>RIG TYPE</b> Knebel	<b>DATE DRILLED</b> 10/11/2016
<b>CLIENT</b> Kildare Co.Co.	<b>FLUSH</b> Air/Mist	<b>DATE LOGGED</b> 11/11/2016
<b>ENGINEER</b> Jacobs	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> IGSL
	<b>CORE DIAMETER (mm)</b> 78	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10		100	81	37								
11	11.25 11.45	100	85	55					11.80	69.78		
12		100	95	73				Strong, thickly to thinly bedded, grey/dark grey, fine-grained, LIMESTONE (locally fossiliferous, some slight honeycomb solution weathering, local chert), fresh to locally slightly weathered (shale layer at 15.47-15.50m).				
13		100	98	87				Discontinuities are widely to closely spaced, smooth, planar. Apertures are tight to moderately open, locally clay-smearred, moderately penetrative iron-oxide stained, locally calcite-veined (1-15mm). Dips are subhorizontal & 60°.				
14	14.20	100	96	51								
15	15.00	100	100	95								
16	16.05	100	100	100								
17	17.50							End of Borehole at 17.50 m	17.50	64.08		
18												
19												

<b>REMARKS</b> Hole cased from 0.0-7.10m. Falling head test carried out at from 7.0m to 17.5m. Gas tap fitted on standpipe. (SPT Hammer Ref. No. IGSL3. Energy Ratio 60.30%)					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					4.00					Rapid
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type	10-11-16	17.50	7.10	4.00	End of Shift	
11-11-16	17.00	8.00	17.00	50mm SP	11-11-16	17.50	7.10	1.80	Start of Shift	

IGSL RC Fl 10M 19600.GPJ IGSL.GDT 10/5/17





# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill	<b>DRILLHOLE NO</b> RCBH60
<b>CO-ORDINATES</b> 290,922.60 E 222,528.60 N	<b>SHEET</b> Sheet 1 of 2
<b>GROUND LEVEL (mOD)</b> 96.28	<b>DATE DRILLED</b> 01/12/2016
<b>CLIENT</b> Kildare Co.Co.	<b>DATE LOGGED</b> 05/12/2016
<b>ENGINEER</b> Jacobs	<b>DRILLED BY</b> IGSL
<b>RIG TYPE</b> Knebel	<b>LOGGED BY</b> D.O'Shea
<b>FLUSH</b> Air/Mist	
<b>INCLINATION (deg)</b> -90	
<b>CORE DIAMETER (mm)</b>	

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0					0 250 500			Hand-dug Inspection Pit - No recovery - observed by driller as made ground consisting of sandy silty gravel FILL				
1								Symmetrix Drilling - No recovery - Driller reports sandy gravelly CLAY with occasional cobbles	1.20	95.08		
2								Symmetrix Drilling - No recovery - Driller reports clayey silty COBBLES and BOULDERS	2.00	94.28		
3												
4												
5								Symmetrix Drilling - No recovery - Driller reports clayey silty GRAVEL	5.00	91.28		
6												
7								Symmetrix Drilling - No recovery - Driller reports clayey GRAVEL	7.00	89.28		
8								Symmetrix Drilling - No recovery - Driller reports COBBLE	7.80	88.48		
8								Symmetrix Drilling - No recovery - Driller reports SAND	8.00	88.28		
9												

<b>REMARKS</b> Hole cased from 0.0-19.0m. Falling head test carried out from 15.0m to 19.0m.					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
										No water strike recorded
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type						
05-12-16	15.00	5.00	15.00	50mm SP						

IGSL RC Fl 10M 19600.GPJ IGSL.GDT 10/5/17



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> RCBH60
<b>CO-ORDINATES</b> 290,922.60 E 222,528.60 N		<b>SHEET</b> Sheet 2 of 2
<b>GROUND LEVEL (mOD)</b> 96.28		<b>DATE DRILLED</b> 01/12/2016
<b>CLIENT</b> Kildare Co.Co.		<b>DATE LOGGED</b> 05/12/2016
<b>ENGINEER</b> Jacobs		<b>DRILLED BY</b> IGSL
<b>RIG TYPE</b> Knebel		<b>LOGGED BY</b> D.O'Shea
<b>FLUSH</b> Air/Mist		
<b>INCLINATION (deg)</b> -90		
<b>CORE DIAMETER (mm)</b>		

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10					0 250 500			Symmetrix Drilling - No recovery - Driller reports SAND (continued)				
11												
12									12.50	83.78		
13								Symmetrix Drilling - No recovery - Driller reports sandy GRAVEL				
14								Symmetrix Drilling - No recovery - Driller reports GRAVEL	14.00	82.28		
15								Symmetrix Drilling - No recovery - Driller reports sandy gravelly CLAY with occasional cobbles	15.00	81.28		
16									16.80	79.48		
17								Symmetrix Drilling - No recovery - Driller reports rock				
18									19.00	77.28		
19								End of Borehole at 19.00 m				

<b>REMARKS</b> Hole cased from 0.0-19.0m. Falling head test carried out from 15.0m to 19.0m.					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
										No water strike recorded
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type						
05-12-16	15.00	5.00	15.00	50mm SP						

IGSL RC Fl 10M 19600.GPJ IGSL\_GDT 10/5/17



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> RCBH65
<b>CO-ORDINATES</b> 291,312.28 E 222,200.14 N		<b>SHEET</b> Sheet 1 of 2
<b>GROUND LEVEL (mOD)</b> 95.89	<b>RIG TYPE</b> Knebel	<b>DATE DRILLED</b> 23/11/2016
<b>CLIENT</b> Kildare Co.Co.	<b>FLUSH</b> Air/Mist	<b>DATE LOGGED</b> 28/11/2016
<b>ENGINEER</b> Jacobs	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> IGSL
	<b>CORE DIAMETER (mm)</b>	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0					0 250 500			Hand-dug Inspection Pit - No recovery - observed by driller as MADE GROUND consisting of sandy gravel				
1								Hand-dug Inspection Pit - No recovery - observed by driller as MADE GROUND consisting of construction & demolition waste consisting of black plastic and paper	1.00	94.89		
								Robit Drilling - No recovery - Driller reports MADE GROUND consisting of construction & demolition waste consisting of black plastic and wood	1.20	94.69		
								Robit Drilling - No recovery - Driller reports MADE GROUND consisting of construction & demolition waste consisting of steel and wood	1.50	94.39		
								Robit Drilling - No recovery - Driller reports MADE GROUND consisting of construction & demolition waste consisting of black plastic and wood	1.70	94.19		
7								Robit Drilling - No recovery - Driller reports MADE GROUND consisting of construction & demolition waste consisting of black sand and gravel	7.00	88.89		
8								Robit Drilling - No recovery - Driller reports MADE GROUND consisting of construction & demolition waste consisting of black sandy gravelly clay	7.50	88.39		

<b>REMARKS</b> Hole cased from 0.0-18.0m.					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					16.50					Seepage
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type						
24-11-16	14.00	1.00	14.00	50mm SP						

IGSL RC Fl 10M 19600.GPJ IGSL.GDT 10/5/17



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> RCBH65
<b>CO-ORDINATES</b> 291,312.28 E 222,200.14 N		<b>SHEET</b> Sheet 2 of 2
<b>GROUND LEVEL (mOD)</b> 95.89	<b>RIG TYPE</b> Knebel	<b>DATE DRILLED</b> 23/11/2016
<b>CLIENT</b> Kildare Co.Co.	<b>FLUSH</b> Air/Mist	<b>DATE LOGGED</b> 28/11/2016
<b>ENGINEER</b> Jacobs	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> IGSL
	<b>CORE DIAMETER (mm)</b>	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10					0 250 500			Robit Drilling - No recovery - Driller reports MADE GROUND consisting of construction & demolition waste consisting of black plastic, wood and paper	10.20	85.69		
11												
12									12.60	83.29		
13								Robit Drilling - No recovery - Driller reports MADE GROUND consisting of construction & demolition waste consisting of light brown sandy gravelly clay				
14								Robit Drilling - No recovery - Driller reports MADE GROUND consisting of construction & demolition waste consisting of black plastic, wood and gravel				
15								Robit Drilling - No recovery - Driller reports brown sandy GRAVEL	15.00	80.89		
16												
17												
18								End of Borehole at 15.00 m	18.00	77.89		
19												

<b>REMARKS</b> Hole cased from 0.0-18.0m.					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					16.50					Seepage
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type	28-11-16	18.00	18.00	Dry	Water level recorded 10mins after end of drilling	
24-11-16	14.00	1.00	14.00	50mm SP						

IGSL RC Fl 10M 19600.GPJ IGSL.GDT 10/5/17



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> RCBH67
<b>CO-ORDINATES</b> 291,363.88 E 222,304.86 N		<b>SHEET</b> Sheet 1 of 2
<b>GROUND LEVEL (mOD)</b> 109.54	<b>RIG TYPE</b> Knebel	<b>DATE DRILLED</b> 28/11/2016
<b>CLIENT</b> Kildare Co.Co.	<b>FLUSH</b> Air/Mist	<b>DATE LOGGED</b> 30/11/2016
<b>ENGINEER</b> Jacobs	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> IGSL
	<b>CORE DIAMETER (mm)</b>	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0					0 250 500			Hand-dug Inspection Pit - No recovery - observed by driller as MADE GORUND consisting of clay	0.20	109.34		
1								Hand-dug Inspection Pit - No recovery - observed by driller as MADE GROUND consisting of construction & demolition waste consisting of plastic and wood	1.20	108.34		
2								Robit Drilling - No recovery - Driller reports MADE GROUND consisting of construction & demolition waste consisting of black plastic and wood				
3												
4												
5												
6												
7												
8												
9								Robit Drilling - No recovery - Driller reports MADE GROUND consisting of construction & demolition waste consisting of black plastic, wood, tar and paper. Driller reports strong odour.	9.00	100.54		

<b>REMARKS</b> Hole cased from 0.0-15.0m.					<b>WATER STRIKE DETAILS</b>				
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)
					No water strike recorded				
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>				
					Date	Hole Depth	Casing Depth	Depth to Water	Comments
Date	Tip Depth	RZ Top	RZ Base	Type					
30-11-16	18.00	1.00	15.00	50mm SP					

IGSL RC FI 10M 19600.GPJ IGSL.GDT 10/5/17



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> RCBH67
<b>CO-ORDINATES</b> 291,363.88 E 222,304.86 N		<b>SHEET</b> Sheet 2 of 2
<b>GROUND LEVEL (mOD)</b> 109.54	<b>RIG TYPE</b> Knebel	<b>DATE DRILLED</b> 28/11/2016
<b>CLIENT</b> Kildare Co.Co.	<b>FLUSH</b> Air/Mist	<b>DATE LOGGED</b> 30/11/2016
<b>ENGINEER</b> Jacobs	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> IGSL
	<b>CORE DIAMETER (mm)</b>	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10					0 250 500			Robit Drilling - No recovery - Driller reports MADE GROUND consisting of construction & demolition waste consisting of black plastic, wood, tar and paper. Driller reports strong odour. <i>(continued)</i>			0	
11											10	
12								Robit Drilling - No recovery - Driller reports MADE GROUND consisting of construction & demolition waste consisting of plastic and wood. Driller reports strong odour.	12.00	97.54	20	
13											30	
14											40	
15								Robit Drilling - No recovery - Driller reports MADE GROUND consisting of construction & demolition waste consisting of plastic, wood and metal	15.50	94.04	50	
16											60	
17											70	
18								End of Borehole at 15.00 m	18.00	91.54	80	
19											90	

<b>REMARKS</b> Hole cased from 0.0-15.0m.					<b>WATER STRIKE DETAILS</b>				
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)
					No water strike recorded				
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>				
					Date	Hole Depth	Casing Depth	Depth to Water	Comments
Date	Tip Depth	RZ Top	RZ Base	Type					
30-11-16	18.00	1.00	15.00	50mm SP					

IGSL RC Fl 10M 19600.GPJ IGSL.GDT 10/5/17



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill	<b>DRILLHOLE NO</b> RCBH68
<b>CO-ORDINATES</b> 291,358.09 E 222,039.55 N	<b>SHEET</b> Sheet 1 of 4
<b>GROUND LEVEL (mOD)</b> 94.56	<b>DATE DRILLED</b> 21/11/2016
<b>CLIENT</b> Kildare Co.Co.	<b>DATE LOGGED</b> 23/11/2016
<b>ENGINEER</b> Jacobs	<b>DRILLED BY</b> IGSL
<b>RIG TYPE</b> Knebel	<b>LOGGED BY</b> D.O'Shea
<b>FLUSH</b> Air/Mist	
<b>INCLINATION (deg)</b> -90	
<b>CORE DIAMETER (mm)</b> 78	

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0					0 250 500			Hand-dug Inspection Pit - No recovery - observed by driller as made ground consisting of GRAVEL / stone FILL	0.20	94.36		
								Hand-dug Inspection Pit - No recovery - observed by driller as fine SAND				
1								Robit Drilling - No recovery - Driller reports fine SAND	1.20	93.36		
2												
3												
4												
5												
6												
7												
8												
9												

<b>REMARKS</b> Hand dug inspection pit carried out. Falling head test carried out from 25.30m to 33.0m. Hole cased from 0.00-25.30m. Gas tap fitted on standpipe.					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					19.00					Rapid
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type						
23-11-16	32.50	27.00	33.00	50mm SP						

IGSL RC Fl 10M 19600.GPJ IGSL.GDT 10/5/17



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> RCBH68
<b>CO-ORDINATES</b> 291,358.09 E 222,039.55 N		<b>SHEET</b> Sheet 2 of 4
<b>GROUND LEVEL (mOD)</b> 94.56	<b>RIG TYPE</b> Knebel	<b>DATE DRILLED</b> 21/11/2016
<b>CLIENT</b> Kildare Co.Co.	<b>FLUSH</b> Air/Mist	<b>DATE LOGGED</b> 23/11/2016
<b>ENGINEER</b> Jacobs	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> IGSL
	<b>CORE DIAMETER (mm)</b> 78	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10					0 250 500			Robit Drilling - No recovery - Driller reports fine SAND (continued)	10.50	84.06		
11								Robit Drilling - No recovery - Driller reports grey SAND				
12												
13												
14												
15												
16												
17								Robit Drilling - No recovery - Driller reports grey sandy GRAVEL	16.70	77.86		
18												
19												

<b>REMARKS</b> Hand dug inspection pit carried out. Falling head test carried out from 25.30m to 33.0m. Hole cased from 0.00-25.30m. Gas tap fitted on standpipe.					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					19.00					Rapid
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type						
23-11-16	32.50	27.00	33.00	50mm SP						

IGSL RC Fl 10M 19600.GPJ IGSL.GDT 10/5/17





# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> RCBH68
<b>CO-ORDINATES</b> 291,358.09 E 222,039.55 N		<b>SHEET</b> Sheet 3 of 4
<b>GROUND LEVEL (mOD)</b> 94.56	<b>RIG TYPE</b> Knebel	<b>DATE DRILLED</b> 21/11/2016
<b>CLIENT</b> Kildare Co.Co.	<b>FLUSH</b> Air/Mist	<b>DATE LOGGED</b> 23/11/2016
<b>ENGINEER</b> Jacobs	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> IGSL
	<b>CORE DIAMETER (mm)</b> 78	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
20								Robit Drilling - No recovery - Driller reports grey sandy GRAVEL ( <i>continued</i> )				
21								Robit Drilling - No recovery - Driller reports GRAVEL	21.00	73.56		
22								Robit Drilling - No recovery - Driller reports grey clayey GRAVEL	22.00	72.56		
23												
24												
25								Robit Drilling - No recovery - Driller reports sandy gravelly CLAY with occasional cobbles	24.70	69.86		
26												
27								Robit Drilling - No recovery - Driller reports rock with clay infill	26.80	67.76		
27.40									27.40	67.16		
28		100	88	60				Strong, thickly to thinly bedded, grey/dark grey, fine-grained, LIMESTONE (locally fossiliferous, predominantly sandy limestone), fresh to locally slightly weathered with clay infill (at 28.11-28.23m, 28.42-28.54m, 30.10-30.21m, 30.92-31.00m, 31.28-31.40m, 31.55-31.70m & 32.87-32.94m).				
28.80												
29		100	87	66				Discontinuities are widely to closely spaced, smooth, planar. Apertures are tight to moderately open, locally clay-smearred, moderately penetrative iron-oxide stained, locally calcite-veined (1-15mm). Dips are subhorizontal & locally 80°.				
29.90												

<b>REMARKS</b> Hand dug inspection pit carried out. Falling head test carried out from 25.30m to 33.0m. Hole cased from 0.00-25.30m. Gas tap fitted on standpipe.					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					19.00					Rapid
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type						
23-11-16	32.50	27.00	33.00	50mm SP						

IGSL RC Fl 10M 19600.GPJ IGSL\_GDT 10/5/17



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> RCBH68
<b>CO-ORDINATES</b> 291,358.09 E 222,039.55 N		<b>SHEET</b> Sheet 4 of 4
<b>GROUND LEVEL (mOD)</b> 94.56	<b>RIG TYPE</b> Knebel	<b>DATE DRILLED</b> 21/11/2016
<b>CLIENT</b> Kildare Co.Co.	<b>FLUSH</b> Air/Mist	<b>DATE LOGGED</b> 23/11/2016
<b>ENGINEER</b> Jacobs	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> IGSL
	<b>CORE DIAMETER (mm)</b> 78	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
30	100	82	40					<p>Strong, thickly to thinly bedded, grey/dark grey, fine-grained, LIMESTONE (locally fossiliferous, predominantly sandy limestone), fresh to locally slightly weathered with clay infill (at 28.11-28.23m, 28.42-28.54m, 30.10-30.21m, 30.92-31.00m, 31.28-31.40m, 31.55-31.70m &amp; 32.87-32.94m).</p> <p>Discontinuities are widely to closely spaced, smooth, planar. Apertures are tight to moderately open, locally clay-smearred, moderately penetrative iron-oxide stained, locally calcite-veined (1-15mm). Dips are subhorizontal &amp; locally 80°. <i>(continued)</i></p>				
30.45	100	76	31									
30.90	100	64	38									
31.70	100	82	62									
33.00								End of Borehole at 33.00 m	33.00	61.56		
34												
35												
36												
37												
38												
39												

<b>REMARKS</b> Hand dug inspection pit carried out. Falling head test carried out from 25.30m to 33.0m. Hole cased from 0.00-25.30m. Gas tap fitted on standpipe.					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					19.00					Rapid
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type	22-11-16	33.00	25.30	16.00	Water level recorded 10mins after end of drilling	
23-11-16	32.50	27.00	33.00	50mm SP						

IGSL RC Fl 10M 19600.GPJ IGSL\_GDT 10/5/17



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill	<b>DRILLHOLE NO</b> RCBH69
<b>CO-ORDINATES</b> 291,733.30 E 222,033.50 N	<b>SHEET</b> Sheet 1 of 2
<b>GROUND LEVEL (mOD)</b> 93.36	<b>DATE DRILLED</b> 08/12/2016
<b>CLIENT</b> Kildare Co.Co.	<b>DATE LOGGED</b> 09/12/2016
<b>ENGINEER</b> Jacobs	<b>DRILLED BY</b> IGSL
<b>RIG TYPE</b> Knebel	<b>LOGGED BY</b> D.O'Shea
<b>FLUSH</b> Air/Mist	
<b>INCLINATION (deg)</b> -90	
<b>CORE DIAMETER (mm)</b>	

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0					0 250 500			Symmetrix Drilling - No recovery - Driller reports MADE GROUND consisting of clay and cobbles				
1												
2												
3								Symmetrix Drilling - No recovery - Driller reports MADE GROUND consisting of construction & demolition waste consisting of plastic, wood, paper and clay	3.00	90.36		
4												
5												
6												
7								Symmetrix Drilling - No recovery - Driller reports MADE GROUND consisting of construction & demolition waste consisting of wood	7.00	86.36		
8								Symmetrix Drilling - No recovery - Driller reports MADE GROUND consisting of construction & demolition waste consisting of plastic, wood, paper and clay	7.40	85.96		
9												
								Symmetrix Drilling - No recovery - Driller reports MADE GROUND consisting of construction & demolition waste	9.50	83.86		
									9.80	83.56		

<b>REMARKS</b> Hole cased from 0.0-16.0m. Gas tap fitted on standpipe.					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					2.80					Seepage
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type						
09-12-16	11.00	1.00	11.00	50mm SP						
09-12-16	15.00	14.70	15.00	19mm SP						

IGSL RC Fl 10M 19600.GPJ IGSL.GDT 10/5/17



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> RCBH69
<b>CO-ORDINATES</b> 291,733.30 E 222,033.50 N		<b>SHEET</b> Sheet 2 of 2
<b>GROUND LEVEL (mOD)</b> 93.36	<b>RIG TYPE</b> Knebel	<b>DATE DRILLED</b> 08/12/2016
<b>CLIENT</b> Kildare Co.Co.	<b>FLUSH</b> Air/Mist	<b>DATE LOGGED</b> 09/12/2016
<b>ENGINEER</b> Jacobs	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> IGSL
	<b>CORE DIAMETER (mm)</b>	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10					0 250 500			consisting of wood. Symmetrix Drilling - No recovery - Driller reports MADE GROUND consisting of construction & demolition waste consisting of black clay with plastic and paper ( <i>continued</i> )				
11									11.50	81.86		
12								Symmetrix Drilling - No recovery - Driller reports MADE GROUND consisting of construction & demolition waste consisting of concrete	12.40	80.96		
13								Symmetrix Drilling - No recovery - Driller reports MADE GROUND consisting of construction & demolition waste consisting of plastic and paper waste	12.80	80.56		
14								Symmetrix Drilling - No recovery - Driller reports SAND and coarse GRAVEL				
15												
16								End of Borehole at 16.00 m	16.00	77.36		
17												
18												
19												

<b>REMARKS</b> Hole cased from 0.0-16.0m. Gas tap fitted on standpipe.					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					2.80					Seepage
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type						
09-12-16	11.00	1.00	11.00	50mm SP						
09-12-16	15.00	14.70	15.00	19mm SP						

IGSL RC Fl 10M 19600.GPJ IGSL.GDT 10/5/17



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> RCBH70
<b>CO-ORDINATES</b> 291,630.76 E 221,950.23 N		<b>SHEET</b> Sheet 1 of 1
<b>GROUND LEVEL (mOD)</b> 80.88	<b>RIG TYPE</b> Knebel	<b>DATE DRILLED</b> 06/12/2016
<b>CLIENT</b> Kildare Co.Co.	<b>FLUSH</b> Air/Mist	<b>DATE LOGGED</b> 07/12/2016
<b>ENGINEER</b> Jacobs	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> IGSL
	<b>CORE DIAMETER (mm)</b>	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0					0 250 500			Hand-dug Inspection Pit - No recovery - observed by driller as MADE GROUND consisting of construction & demolition waste consisting of concrete	0.70	80.18		
1								Symmetrix Drilling - No recovery - Driller reports MADE GROUND consisting of construction & demolition waste consisting of concrete	1.20	79.68		
2								Symmetrix Drilling - No recovery - Driller reports MADE GROUND consisting of construction & demolition waste consisting of sandy gravel FILL	1.80	79.08		
								Symmetrix Drilling - No recovery - Driller reports SAND	2.00	78.88		
								Symmetrix Drilling - No recovery - Driller reports sandy GRAVEL				
3												
4												
5												
6												
7												
8								Symmetrix Drilling - No recovery - Driller reports light brown clayey GRAVEL	7.50	73.38		
9								End of Borehole at 9.00 m	9.00	71.88		

<b>REMARKS</b> Hole cased from 0.0-9.0m					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					1.80					Moderate
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type	07-12-16	9.00	9.00	2.10	Water level recorded 10mins after end of drilling	
07-12-16	7.50	3.00	7.50	50mm SP						

IGSL RC Fl 10M 19600.GPJ IGSL.GDT 10/5/17



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> RCBH72
<b>CO-ORDINATES</b> 291,485.18 E 221,881.76 N		<b>SHEET</b> Sheet 1 of 2
<b>GROUND LEVEL (mOD)</b> 85.02	<b>RIG TYPE</b> Knebel	<b>DATE DRILLED</b> 06/12/2016
<b>CLIENT</b> Kildare Co.Co.	<b>FLUSH</b> Air/Mist	<b>DATE LOGGED</b> 06/12/2016
<b>ENGINEER</b> Jacobs	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> IGSL
	<b>CORE DIAMETER (mm)</b>	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0					0 250 500			Hand-dug Inspection Pit - No recovery - observed by driller as MADE GROUND consisting of construction & demolition waste consisting of concrete, boulders and gravel	1.00	84.02		
1								Symmetrix Drilling - No recovery - Driller reports MADE GROUND consisting of construction & demolition waste consisting of boulders				
2												
3												
4												
5												
6												
7								Symmetrix Drilling - No recovery - Driller reports SAND and GRAVEL	6.50	78.52		
8												
9								Symmetrix Drilling - No recovery - Driller reports sandy fine to medium GRAVEL	8.50	76.52		

<b>REMARKS</b> Hole cased from 0.0-9.0m.					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					8.50					Moderate
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type						
06-12-16	10.50	7.00	10.50	50mm SP						

IGSL RC Fl 10M 19600.GPJ IGSL.GDT 10/5/17



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER****19600****CONTRACT** Kerdiffstown Landfill**DRILLHOLE NO** RCBH72**SHEET** Sheet 2 of 2**CO-ORDINATES** 291,485.18 E  
221,881.76 N**GROUND LEVEL (mOD)** 85.02**RIG TYPE** Knebel  
**FLUSH** Air/Mist**DATE DRILLED** 06/12/2016**DATE LOGGED** 06/12/2016**CLIENT** Kildare Co.Co.  
**ENGINEER** Jacobs**INCLINATION (deg)** -90  
**CORE DIAMETER (mm)****DRILLED BY** IGSL  
**LOGGED BY** D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10					0 250 500			Symmetrix Drilling - No recovery - Driller reports sandy fine to medium GRAVEL ( <i>continued</i> )	10.50	74.52		
11								Symmetrix Drilling - No recovery - Driller reports sandy gravelly CLAY with occasional cobbles				
12												
13								End of Borehole at 13.00 m	13.00	72.02		
14												
15												
16												
17												
18												
19												

**REMARKS**

Hole cased from 0.0-9.0m.

**WATER STRIKE DETAILS**

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
8.50					Moderate

**GROUNDWATER DETAILS****INSTALLATION DETAILS**

Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments
06-12-16	10.50	7.00	10.50	50mm SP	06-12-16	13.00	10.50	Dry	Water level recorded 10mins after end of drilling

IGSL RC Fl 10M 19600.GPJ IGSL\_GDT 10/5/17



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> RCDB01
<b>CO-ORDINATES</b> 290,983.59 E 222,525.10 N		<b>SHEET</b> Sheet 1 of 3
<b>GROUND LEVEL (mOD)</b> 94.80	<b>RIG TYPE</b> Knebel	<b>DATE DRILLED</b> 27/10/2016
<b>CLIENT</b> Kildare Co.Co.	<b>FLUSH</b> Air/Mist	<b>DATE LOGGED</b> 01/11/2016
<b>ENGINEER</b> Jacobs	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> IGSL
	<b>CORE DIAMETER (mm)</b>	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0					0 250 500			Hole opened by Shell & Auger (See log DB01 - Appendix 4)				
1												
2												
3												
4												
5												
6									6.00	88.80		
								Robit Drilling - No recovery - Driller reports sandy gravelly CLAY with cobbles	6.30	88.50		
								Robit Drilling - No recovery - Driller reports gravelly CLAY				
7									7.50	87.30		
								Robit Drilling - No recovery - Driller reports sandy GRAVEL	8.00	86.80		
8												
								Robit Drilling - No recovery - Driller reports fine SAND				
9												

<b>REMARKS</b> Hole cased from 0.0-15.0m. Upon completion of drillhole, drill casing jammed in hole. Driller ran down-the-hole hammer back in to release the entrie string of casing. Gas tap fitted on standpipe.					<b>WATER STRIKE DETAILS</b>				
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)
					No water strike recorded				
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>				
					Date	Hole Depth	Casing Depth	Depth to Water	Comments
Date	Tip Depth	RZ Top	RZ Base	Type					
01-11-16	18.60	6.00	18.60	50mm SP					

IGSL RC FI 10M 19600.GPJ IGSL.GDT 10/5/17





# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill	<b>DRILLHOLE NO</b> <b>RCDB01</b>
<b>CO-ORDINATES</b> 290,983.59 E 222,525.10 N	<b>SHEET</b> Sheet 2 of 3
<b>GROUND LEVEL (mOD)</b> 94.80	<b>DATE DRILLED</b> 27/10/2016 <b>DATE LOGGED</b> 01/11/2016
<b>CLIENT</b> Kildare Co.Co. <b>ENGINEER</b> Jacobs	<b>RIG TYPE</b> Knebel <b>FLUSH</b> Air/Mist <b>INCLINATION (deg)</b> -90 <b>CORE DIAMETER (mm)</b>
	<b>DRILLED BY</b> IGSL <b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10					0 250 500			Robit Drilling - No recovery - Driller reports fine SAND <i>(continued)</i>				
11								Robit Drilling - No recovery - Driller reports sandy GRAVEL	11.30	83.50		
12								Robit Drilling - No recovery - Driller reports angular GRAVEL	11.80	83.00		
								Robit Drilling - No recovery - Driller reports brown sandy GRAVEL	12.20	82.60		
								Robit Drilling - No recovery - Driller reports clayey GRAVEL	13.00	81.80		
								Robit Drilling - No recovery - Driller reports GRAVEL	13.70	81.10		
								Robit Drilling - No recovery - Driller reports light brown clayey GRAVEL	15.00	79.80		
								Robit Drilling - No recovery - Driller reports rock	18.60	76.20		

<b>REMARKS</b> Hole cased from 0.0-15.0m. Upon completion of drillhole, drill casing jammed in hole. Driller ran down-the-hole hammer back in to release the entrie string of casing. Gas tap fitted on standpipe.					<b>WATER STRIKE DETAILS</b>						
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments	
					<b>GROUNDWATER DETAILS</b>						
<b>INSTALLATION DETAILS</b>					Date	Hole Depth	Casing Depth	Depth to Water	Comments		
Date	Tip Depth	RZ Top	RZ Base	Type							
01-11-16	18.60	6.00	18.60	50mm SP							

IGSL RC Fl 10M 19600.GPJ IGSL.GDT 10/5/17



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> RCDB01
<b>CO-ORDINATES</b> 290,983.59 E 222,525.10 N		<b>SHEET</b> Sheet 3 of 3
<b>GROUND LEVEL (mOD)</b> 94.80	<b>RIG TYPE</b> Knebel	<b>DATE DRILLED</b> 27/10/2016
<b>CLIENT</b> Kildare Co.Co.	<b>FLUSH</b> Air/Mist	<b>DATE LOGGED</b> 01/11/2016
<b>ENGINEER</b> Jacobs	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> IGSL
	<b>CORE DIAMETER (mm)</b>	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
20					0 250 500		[Brick Pattern]	Robit Drilling - No recovery - Driller reports rock <i>(continued)</i>			[Hatched Pattern]	
21									21.50	73.30		
22								End of Borehole at 21.50 m				
23												
24												
25												
26												
27												
28												
29												

<b>REMARKS</b> Hole cased from 0.0-15.0m. Upon completion of drillhole, drill casing jammed in hole. Driller ran down-the-hole hammer back in to release the entrie string of casing. Gas tap fitted on standpipe.					<b>WATER STRIKE DETAILS</b>				
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)
					No water strike recorded				
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>				
					Date	Hole Depth	Casing Depth	Depth to Water	Comments
Date	Tip Depth	RZ Top	RZ Base	Type					
01-11-16	18.60	6.00	18.60	50mm SP					

IGSL RC FI 10M 19600.GPJ IGSL.GDT 10/5/17



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> RCDB02
<b>CO-ORDINATES</b> 291,138.66 E 222,495.56 N		<b>SHEET</b> Sheet 1 of 3
<b>GROUND LEVEL (mOD)</b> 92.98	<b>RIG TYPE</b> Knebel	<b>DATE DRILLED</b> 12/12/2016
<b>CLIENT</b> Kildare Co.Co.	<b>FLUSH</b> Air/Mist	<b>DATE LOGGED</b> 14/12/2016
<b>ENGINEER</b> Jacobs	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> IGSL
	<b>CORE DIAMETER (mm)</b>	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R. %	S.C.R. %	R.Q.D. %	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0					0 250 500			Hand-dug Inspection Pit - No recovery - observed by driller as SAND and BOULDERS				
1								Symmetrix Drilling - No recovery - Driller reports fine SAND	1.20	91.78		
2												
3												
4												
5												
6												
7												
8												
9												

<b>REMARKS</b> Hole cased from 0.0-16.50m. (SPT Hammer Ref. No. IGSL3. Energy Ratio 60.30%)					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					13.60	19.50				Seepage Slow
					23.60					
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type						
14-12-16	14.00	8.00	14.00	50mm SP						
14-12-16	21.20	20.90	21.20	19mm SP						

IGSL RC Fl 10M 19600.GPJ IGSL.GDT 10/5/17



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill	<b>DRILLHOLE NO</b> RCDB02
<b>CO-ORDINATES</b> 291,138.66 E 222,495.56 N	<b>SHEET</b> Sheet 2 of 3
<b>GROUND LEVEL (mOD)</b> 92.98	<b>DATE DRILLED</b> 12/12/2016
<b>CLIENT</b> Kildare Co.Co.	<b>DATE LOGGED</b> 14/12/2016
<b>ENGINEER</b> Jacobs	<b>DRILLED BY</b> IGSL
<b>RIG TYPE</b> Knebel	<b>LOGGED BY</b> D.O'Shea
<b>FLUSH</b> Air/Mist	
<b>INCLINATION (deg)</b> -90	
<b>CORE DIAMETER (mm)</b>	

Downhole Depth (m)	Core Run Depth (m)	T.C.R. %	S.C.R. %	R.Q.D. %	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10					0 250 500			Symmetrix Drilling - No recovery - Driller reports fine SAND (continued)				
11												
12								Symmetrix Drilling - No recovery - Driller reports gravelly SAND	12.00	80.98		
13												
14												N = 50/240 mm (6, 6, 12, 14, 14, 10)
15								Symmetrix Drilling - No recovery - Driller reports clayey GRAVEL	14.80	78.18		N = 50/45 mm (17, 8, 50)
16												N = 50/60 mm (16, 9, 50)
17												N = 50/45 mm (21, 4, 50)
18												N = 50/0 mm (25, 50)
19												

<b>REMARKS</b> Hole cased from 0.0-16.50m. (SPT Hammer Ref. No. IGSL3. Energy Ratio 60.30%)					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					13.60	19.50				Seepage Slow
					23.60					
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type	12-12-16	16.50	16.50	Dry	End of Shift	
14-12-16	14.00	8.00	14.00	50mm SP	13-12-16	16.50	16.50	Dry	Start of Shift	
14-12-16	21.20	20.90	21.20	19mm SP	14-12-16	14.00	14.00	12.50	Water level recorded after borehole collapse to 14.0m bgl	

IGSL RC Fl 10M 19600.GPJ IGSL.GDT 10/5/17



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> RCDB02
<b>CO-ORDINATES</b> 291,138.66 E 222,495.56 N		<b>SHEET</b> Sheet 3 of 3
<b>GROUND LEVEL (mOD)</b> 92.98	<b>RIG TYPE</b> Knebel	<b>DATE DRILLED</b> 12/12/2016
<b>CLIENT</b> Kildare Co.Co.	<b>FLUSH</b> Air/Mist	<b>DATE LOGGED</b> 14/12/2016
<b>ENGINEER</b> Jacobs	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> IGSL
	<b>CORE DIAMETER (mm)</b>	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
20					0 250 500		[Symbol]	Symmetrix Drilling - No recovery - Driller reports clayey GRAVEL ( <i>continued</i> )			[Symbol]	
21							[Symbol]				[Symbol]	
22							[Symbol]		22.70	70.28	[Symbol]	
23							[Symbol]	Symmetrix Drilling - No recovery - Driller reports BOULDER			[Symbol]	
24							[Symbol]	Symmetrix Drilling - No recovery - Driller reports rock	24.00	68.98	[Symbol]	
25							[Symbol]				[Symbol]	
26							[Symbol]				[Symbol]	
27							[Symbol]	End of Borehole at 27.00 m	27.00	65.98	[Symbol]	
28							[Symbol]				[Symbol]	
29							[Symbol]				[Symbol]	

N = 50/60 mm  
(14, 11, 50)

<b>REMARKS</b> Hole cased from 0.0-16.50m. (SPT Hammer Ref. No. IGSL3. Energy Ratio 60.30%)					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					13.60	19.50				Seepage Slow
					23.60					
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type	13-12-16	27.00	19.50	15.20	End of Shift	
14-12-16	14.00	8.00	14.00	50mm SP						
14-12-16	21.20	20.90	21.20	19mm SP						

IGSL RC Fl 10M 19600.GPJ IGSL\_GDT 10/5/17



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> RCDB03
<b>CO-ORDINATES</b> 291,278.29 E 222,503.96 N		<b>SHEET</b> Sheet 1 of 2
<b>GROUND LEVEL (mOD)</b> 87.69	<b>RIG TYPE</b> Knebel	<b>DATE DRILLED</b> 14/12/2016
<b>CLIENT</b> Kildare Co.Co.	<b>FLUSH</b> Air/Mist	<b>DATE LOGGED</b> 15/12/2016
<b>ENGINEER</b> Jacobs	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> IGSL
	<b>CORE DIAMETER (mm)</b>	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0					0 250 500			Hand-dug Inspection Pit - No recovery - observed by driller as SAND				
1								Symmetrix Drilling - No recovery - Driller reports SAND	1.20	86.49		
2												
3												
4												
5												
6												
7												
8												
9								Symmetrix Drilling - No recovery - Driller reports slightly sandy GRAVEL	8.50	79.19		

<b>REMARKS</b> Hole cased from 0.0-15.0m. Falling head test carried out from 13.50m to 15.0m. (SPT Hammer Ref. No. IGSL3. Energy Ratio 60.30%)					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					11.00					Rapid
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type						
15-12-16	14.00	11.00	14.00	50mm SP						

IGSL RC Fl 10M 19600.GPJ IGSL.GDT 10/5/17



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill	<b>DRILLHOLE NO</b> RCDB03
<b>CO-ORDINATES</b> 291,278.29 E 222,503.96 N	<b>SHEET</b> Sheet 2 of 2
<b>GROUND LEVEL (mOD)</b> 87.69	<b>DATE DRILLED</b> 14/12/2016
<b>CLIENT</b> Kildare Co.Co.	<b>DATE LOGGED</b> 15/12/2016
<b>ENGINEER</b> Jacobs	<b>DRILLED BY</b> IGSL
<b>RIG TYPE</b> Knebel	<b>LOGGED BY</b> D.O'Shea
<b>FLUSH</b> Air/Mist	
<b>INCLINATION (deg)</b> -90	
<b>CORE DIAMETER (mm)</b>	

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10					0 250 500			Symmetrix Drilling - No recovery - Driller reports slightly sandy GRAVEL ( <i>continued</i> )	10.50	77.19		
11								Symmetrix Drilling - No recovery - Driller reports sandy GRAVEL				N = 37 (6, 6, 7, 6, 8, 16)
12												N = 48 (6, 7, 5, 7, 20, 16)
13								Symmetrix Drilling - No recovery - Driller reports fine SAND	13.00	74.69		
14								Symmetrix Drilling - No recovery - Driller reports GRAVEL Driller notes large volumes of water	13.50	74.19		N = 33 (7, 7, 8, 8, 7, 10)
15								End of Borehole at 15.00 m	15.00	72.69		N = 50/150 mm (19, 6, 22, 26, 2)
16												
17												
18												
19												

<b>REMARKS</b> Hole cased from 0.0-15.0m. Falling head test carried out from 13.50m to 15.0m. (SPT Hammer Ref. No. IGSL3. Energy Ratio 60.30%)					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					11.00					Rapid
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments	
15-12-16	14.00	11.00	14.00	50mm SP	14-12-16	15.00	15.00	10.60	Water level recorded 10mins after end of drilling	

IGSL RC Fl 10M 19600.GPJ IGSL\_GDT 10/5/17



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> RCDB04
<b>CO-ORDINATES</b> 291,336.63 E 222,447.80 N		<b>SHEET</b> Sheet 1 of 1
<b>GROUND LEVEL (mOD)</b> 87.91	<b>RIG TYPE</b> Knebel	<b>DATE DRILLED</b> 16/12/2016
	<b>FLUSH</b> Air/Mist	<b>DATE LOGGED</b> 16/12/2016
<b>CLIENT</b> Kildare Co.Co.	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> IGSL
<b>ENGINEER</b> Jacobs	<b>CORE DIAMETER (mm)</b>	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0					0      250      500			Hole opened by Shell & Auger (See log DB04 - Appendix 4)				
1												
2												
3												
4												
5												
6								Symmetrix Drilling - No recovery - Driller reports gravelly SAND with boulders. Gravel is coarse.	5.70	82.21		
7								Symmetrix Drilling - No recovery - Driller reports sandy gravelly CLAY with occasional cobbles	7.00	80.91		N = 50/75 mm (16, 9, 39, 11)
8												N = 50/40 mm (25, 50)
9												N = 50/10 mm (20, 5, 50)
									10.00	77.91		

**REMARKS** End of Borehole at 10.00 m

Hole cased from 0.0-10.0m. (SPT Hammer Ref. No. IGSL3. Energy Ratio 60.30%)					<b>WATER STRIKE DETAILS</b>				
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)
					No water strike recorded				
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>				
					Date	Hole Depth	Casing Depth	Depth to Water	Comments
16-12-16	9.00	6.00	9.00	50mm SP					

IGSL RC FI 10M 19600.GPJ IGSL.GDT 10/5/17





# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> RCDB08
<b>CO-ORDINATES</b> 291,739.92 E 221,870.39 N		<b>SHEET</b> Sheet 1 of 2
<b>GROUND LEVEL (mOD)</b> 91.91	<b>RIG TYPE</b> Knebel	<b>DATE DRILLED</b> 19/12/2016
<b>CLIENT</b> Kildare Co.Co.	<b>FLUSH</b> Air/Mist	<b>DATE LOGGED</b> 20/12/2016
<b>ENGINEER</b> Jacobs	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> IGSL
	<b>CORE DIAMETER (mm)</b>	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0					0 250 500		○	Hand-dug Inspection Pit - No recovery - observed by driller as SAND and GRAVEL				
1							○	Symmetrix Drilling - No recovery - Driller reports gravelly SAND	1.20	90.71		
2							○	Symmetrix Drilling - No recovery - Driller reports SAND	2.80	89.11		
3							○	Symmetrix Drilling - No recovery - Driller reports SAND	3.50	88.41		
4							○	Symmetrix Drilling - No recovery - Driller reports GRAVEL	3.80	88.11		
5							○	Symmetrix Drilling - No recovery - Driller reports SAND				
6							○	Symmetrix Drilling - No recovery - Driller reports SAND				
7							○	Symmetrix Drilling - No recovery - Driller reports SAND				
8							○	Symmetrix Drilling - No recovery - Driller reports slightly sandy GRAVEL	7.30	84.61		
9							○	Symmetrix Drilling - No recovery - Driller reports slightly sandy GRAVEL				

<b>REMARKS</b> Symmetrix drilling system used to 18.0m. Bit jammed in shoe at 18.0m. Pull casing and redrill using Robit hammer. Hole cased from 0.0-20.0m. (SPT Hammer Ref. No. IGSL3. Energy Ratio 60.30%)					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					13.50					Slow
					16.00					Slow
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type						
20-12-16	19.00	12.00	19.00	50mm SP						

IGSL RC Fl 10M 19600.GPJ IGSL.GDT 10/5/17



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> RCDB08
<b>CO-ORDINATES</b> 291,739.92 E 221,870.39 N		<b>SHEET</b> Sheet 2 of 2
<b>GROUND LEVEL (mOD)</b> 91.91	<b>RIG TYPE</b> Knebel	<b>DATE DRILLED</b> 19/12/2016
<b>CLIENT</b> Kildare Co.Co.	<b>FLUSH</b> Air/Mist	<b>DATE LOGGED</b> 20/12/2016
<b>ENGINEER</b> Jacobs	<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> IGSL
	<b>CORE DIAMETER (mm)</b>	<b>LOGGED BY</b> D.O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10					0 250 500			Symmetrix Drilling - No recovery - Driller reports slightly sandy GRAVEL ( <i>continued</i> )				
11												
12												
13												
14												N = 40 (6, 6, 7, 9, 11, 13)
15												N = 43 (7, 8, 9, 9, 12, 13)
16												N = 28/22 mm (13, 28)
17												
18								Robit overburden drill system used from 18.0m	18.30	73.61		
19								Robit Drilling - No recovery - Driller reports sandy gravelly CLAY with occasional cobbles				
												N = 50/10 mm (25, 50)

<b>REMARKS</b>					End of Borehole at 20.00 m					<b>WATER STRIKE DETAILS</b>		
Symmetrix drilling system used to 18.0m. Bit jammed in shoe at 18.0m. Pull casing and redrill using Robit hammer. Hole cased from 0.0-20.0m. (SPT Hammer Ref. No. IGSL3. Energy Ratio 60.30%)					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments		
					13.50					Slow		
					16.00					Slow		
					<b>GROUNDWATER DETAILS</b>							
<b>INSTALLATION DETAILS</b>					Date	Hole Depth	Casing Depth	Depth to Water	Comments			
Date	Tip Depth	RZ Top	RZ Base	Type	20-12-16	12.00	12.00	Dry	Start of Shift (Redrill)			
20-12-16	19.00	12.00	19.00	50mm SP	20-12-16	20.00	20.00	13.00	Water level recorded 10mins after end of drilling			

IGSL RC Fl 10M 19600.GPJ IGSL.GDT 10/5/17



# GEOTECHNICAL CORE LOG RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> RCDB10
<b>CO-ORDINATES</b> 291,489.20 E 221,823.76 N		<b>SHEET</b> Sheet 1 of 1
<b>GROUND LEVEL (mOD)</b> 90.02		<b>DATE DRILLED</b> 08/12/2016
<b>CLIENT</b> Kildare Co.Co.		<b>DATE LOGGED</b> 08/12/2016
<b>ENGINEER</b> Jacobs		<b>DRILLED BY</b> IGSL
<b>RIG TYPE</b> Knebel		<b>LOGGED BY</b> D.O'Shea
<b>FLUSH</b> Air/Mist		
<b>INCLINATION (deg)</b> -90		
<b>CORE DIAMETER (mm)</b>		

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0					0 250 500			Hole opened by Shell & Auger (See log DB10 - Appendix 4)				
3								Symmetrix Drilling - No recovery - Driller reports silty coarse GRAVEL	3.00	87.02		
4.5								Symmetrix Drilling - No recovery - Driller reports sandy gravelly CLAY with occasional cobbles	4.50	85.52		N = 50/55 mm (25, 50)
6												N = 50/115 mm (15, 9, 38, 12)
8												N = 50/70 mm (4, 21, 50)
9												N = 50/65 mm (8, 17, 50)
10									10.00	80.02		

<b>REMARKS</b> End of Borehole at 10.00 m					<b>WATER STRIKE DETAILS</b>					
Hole cased from 0.0-15.0m.					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
										No water strike recorded
					<b>GROUNDWATER DETAILS</b>					
<b>INSTALLATION DETAILS</b>					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type	07-12-16	7.50	7.50	Dry	End of Shift	
08-12-16	4.50	1.00	4.50	50mm SP	08-12-16	7.50	7.50	6.20	Start of Shift	
					08-12-16	10.00	7.50	Dry	End of Drillhole	

IGSL RC Fl 10M 19600.GPJ IGSL\_GDT 10/5/17



# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> BH61 (RA)
<b>CO-ORDINATES</b> 291,048.57 E 222,416.98 N		<b>SHEET</b> Sheet 1 of 3
<b>GROUND LEVEL (mOD)</b> 102.43	<b>RIG TYPE</b> SoilMec30	<b>DATE DRILLED</b> 06/12/2016
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 06/12/2016
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R. %	S.C.R. %	R.Q.D. %	Fracture Zones (m)	Fracture Spacing	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0							0 250 500		MADE GROUND (comprised of black clayey sandy gravel 20%, timber 20%, fabric 20%, plastic 20%, cobbles of various lithologies 5%, steel 5%, other 10% (coloured plastic, tinfoil, lego blocks, electrical plugs etc.)). Slight odour of rotten eggs present from G.L. to 7.0m. Strong odour present from 7.0m to 23.0m.	0			
1										1			
2										2			
3										3			
4										4			
5										5			
6										6			
7										7			
8										8			
9										9			

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure. BH drilled using 450mm auger bit					<b>WATER STRIKE DETAILS</b>				
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)
					No water strike recorded				
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>				
					Date	Hole Depth	Casing Depth	Depth to Water	Comments
Date	Tip Depth	RZ Top	RZ Base	Type					
06-12-16	22.00	1.00	22.00	50mm SP					

IGSL RC OPEN HOLE 19600.GPJ IGSL GDT 9/5/17



# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> BH61 (RA)
<b>CO-ORDINATES</b> 291,048.57 E 222,416.98 N		<b>SHEET</b> Sheet 2 of 3
<b>GROUND LEVEL (mOD)</b> 102.43	<b>RIG TYPE</b> SoilMec30	<b>DATE DRILLED</b> 06/12/2016
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 06/12/2016
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Zones (m)	Fracture Spacing	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10							0 250 500		MADE GROUND (comprised of black clayey sandy gravel 20%, timber 20%, fabric 20%, plastic 20%, cobbles of various lithologies 5%, steel 5%, other 10% (coloured plastic, tinfoil, lego blocks, electrical plugs etc.)). Slight odour of rotten eggs present from G.L. to 7.0m. Strong odour present from 7.0m to 23.0m. <i>(continued)</i>	10	0	0	
11										11	0	0	
12										12	0	0	
13										13	0	0	
14										14	0	0	
15										15	0	0	
16										16	0	0	
17										17	0	0	
18										18	0	0	
19										19	0	0	

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure. BH drilled using 450mm auger bit					<b>WATER STRIKE DETAILS</b>				
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)
					No water strike recorded				
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>				
					Date	Hole Depth	Casing Depth	Depth to Water	Comments
06-12-16	22.00	1.00	22.00	50mm SP					

IGSL RC OPEN HOLE 19600.GPJ IGSL.GDT 9/5/17



# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>BH61 (RA)</b>
<b>CO-ORDINATES</b> 291,048.57 E 222,416.98 N		<b>SHEET</b> Sheet 3 of 3
<b>GROUND LEVEL (mOD)</b> 102.43	<b>RIG TYPE</b> SoilMec30	<b>DATE DRILLED</b> 06/12/2016
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 06/12/2016
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Zones (m)	Fracture Spacing	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
20							0 250 500		<p>MADE GROUND (comprised of black clayey sandy gravel 20%, timber 20%, fabric 20%, plastic 20%, cobbles of various lithologies 5%, steel 5%, other 10% (coloured plastic, tinfoil, lego blocks, electrical plugs etc.)). Slight odour of rotten eggs present from G.L. to 7.0m. Strong odour present from 7.0m to 23.0m. <i>(continued)</i></p>				
21													
22										23.00	79.43		
23									Light brown/grey slightly gravelly silty SAND (possible natural ground). Slight odour of rotten eggs.				
24													
25													
26									End of Borehole at 26.00 m	26.00	76.43		
27													
28													
29													

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure. BH drilled using 450mm auger bit					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
										No water strike recorded
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type						
06-12-16	22.00	1.00	22.00	50mm SP						

IGSL RC OPEN HOLE 19600.GPJ IGSL.GDT 9/5/17



# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>BH62 (RA)</b>
<b>CO-ORDINATES</b> 291,187.20 E 222,402.75 N		<b>SHEET</b> Sheet 1 of 3
<b>GROUND LEVEL (mOD)</b> 107.18	<b>RIG TYPE</b> SoilMec30	<b>DATE DRILLED</b> 05/12/2016
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 05/12/2016
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R. %	S.C.R. %	R.Q.D. %	Fracture Zones (m)	Fracture Spacing	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0									MADE GROUND (comprised of black clayey sandy gravel 40%, plastic 25%, timber 25%, fabric 5%, subangular cobbles of various lithologies 5%). Slight odour of rotten eggs.				
1													
2													
3													
4													
5													
6													
7													
8													
9													

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure.  BH drilled using 450mm auger bit. BH refusal at 20.0m - decided by client to move 10m and repeat - see BH62A log					<b>WATER STRIKE DETAILS</b>				
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)
					No water strike recorded				
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>				
					Date	Hole Depth	Casing Depth	Depth to Water	Comments
Date	Tip Depth	RZ Top	RZ Base	Type					

IGSL RC OPEN HOLE 19600.GPJ IGSL GDT 9/5/17



# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> BH62 (RA)
<b>CO-ORDINATES</b> 291,187.20 E 222,402.75 N		<b>SHEET</b> Sheet 2 of 3
<b>GROUND LEVEL (mOD)</b> 107.18	<b>RIG TYPE</b> SoilMec30	<b>DATE DRILLED</b> 05/12/2016
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 05/12/2016
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Zones (m)	Fracture Spacing Min Avg Max (mm)	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10							0 250 500		MADE GROUND (comprised of black clayey sandy gravel 40%, plastic 25%, timber 25%, fabric 5%, subangular cobbles of various lithologies 5%). Slight odour of rotten eggs. <i>(continued)</i>	11.00	96.18		
11									MADE GROUND (comprised of greyish brown gravelly sand 44%, timber 25%, plastic 10%, fabric 5%, rare bones 1%). Slight odour of rotten eggs.				
12													
13													
14													
15													
16													
17									MADE GROUND (comprised of black clayey sandy gravel 30%, timber 40%, plastic 10%, fabric 5%, subangular cobbles and boulders of various lithologies 10%, steel rebars 5%). Strong odour of rotten eggs.	17.00	90.18		
18													
19													
										20.00			

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure. BH drilled using 450mm auger bit. BH refusal at 20.0m - decided by client to move 10m and repeat - see BH62A log					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike recorded					
					<b>GROUNDWATER DETAILS</b>					
<b>INSTALLATION DETAILS</b>					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type						

IGSL RC OPEN HOLE 19600.GPJ IGSL.GDT 9/5/17





# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>BH62 (RA)</b>
<b>CO-ORDINATES</b> 291,187.20 E 222,402.75 N		<b>SHEET</b> Sheet 3 of 3
<b>GROUND LEVEL (mOD)</b> 107.18	<b>RIG TYPE</b> SoilMec30	<b>DATE DRILLED</b> 05/12/2016
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 05/12/2016
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Zones (m)	Fracture Spacing Min Avg Max (mm)	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
20							0 250 500		BH terminated at 20.0m due to possible large boulders, heavy steel bars and borehole instability End of Borehole at 20.00 m		87.18		
21													
22													
23													
24													
25													
26													
27													
28													
29													

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure.  BH drilled using 450mm auger bit. BH refusal at 20.0m - decided by client to move 10m and repeat - see BH62A log					<b>WATER STRIKE DETAILS</b>				
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)
						No water strike recorded			
<b>GROUNDWATER DETAILS</b>									
<b>INSTALLATION DETAILS</b>					Date	Hole Depth	Casing Depth	Depth to Water	Comments
Date	Tip Depth	RZ Top	RZ Base	Type					

IGSL RC OPEN HOLE 19600.GPJ IGSL GDT 9/5/17



# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> BH62A (RA)
<b>CO-ORDINATES</b> 291,178.05 E 222,413.64 N		<b>SHEET</b> Sheet 1 of 3
<b>GROUND LEVEL (mOD)</b> 106.75	<b>RIG TYPE</b> SoilMec30	<b>DATE DRILLED</b> 05/12/2016
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 05/12/2016
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R. %	S.C.R. %	R.Q.D. %	Fracture Zones (m)	Fracture Spacing Min Avg Max (mm)	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0							0 250 500		MADE GROUND (comprised of black clayey sandy gravel 40%, plastic 25%, timber 20%, fabric 10%, subangular cobbles of various lithologies 5%). Strong odour of rotten eggs.				
1													
2													
3													
4													
5													
6													
7													
8													
9													

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure. BH drilled using 450mm auger bit. BH collapsed up to 18m overnight - standpipe installation completed from 0.0m to 18mbgl.					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
										No water strike recorded
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type						
06-12-16	17.00	1.00	17.00	50mm SP						

IGSL RC OPEN HOLE 19600.GPJ IGSL GDT 9/5/17



# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>BH62A (RA)</b>
<b>CO-ORDINATES</b> 291,178.05 E 222,413.64 N		<b>SHEET</b> Sheet 2 of 3
<b>GROUND LEVEL (mOD)</b> 106.75	<b>RIG TYPE</b> SoilMec30	<b>DATE DRILLED</b> 05/12/2016
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 05/12/2016
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R. %	S.C.R. %	R.Q.D. %	Fracture Zones (m)	Fracture Spacing	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10							0 250 500			10.50	96.25		
11									MADE GROUND (comprised of greyish brown gravelly sand 40%, timber 20%, plastic 20%, fabric 5%, cobbles and boulders of various lithologies 5%). Strong odour of rotten eggs.				
12													
13													
14													
15													
16													
17													
18										18.00	88.75		
19									MADE GROUND (comprised of black clayey sandy gravel 35%, timber 30%, plastic 10%, fabric 5%, subangular cobbles and boulders of various lithologies 15%, steel rebars 5%). Strong odour of rotten eggs.				
19													

**REMARKS**

Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure.

BH drilled using 450mm auger bit. BH collapsed up to 18m overnight - standpipe installation completed from 0.0m to 18mbgl.

**WATER STRIKE DETAILS**

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike recorded

**GROUNDWATER DETAILS**

**INSTALLATION DETAILS**

Date	Hole Depth	Casing Depth	Depth to Water	Comments
06-12-16	17.00	1.00	17.00	50mm SP

IGSL RC OPEN HOLE 19600.GPJ IGSL GDT 9/5/17



# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> BH62A (RA)
<b>CO-ORDINATES</b> 291,178.05 E 222,413.64 N		<b>SHEET</b> Sheet 3 of 3
<b>GROUND LEVEL (mOD)</b> 106.75	<b>RIG TYPE</b> SoilMec30	<b>DATE DRILLED</b> 05/12/2016
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 05/12/2016
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R. %	S.C.R. %	R.Q.D. %	Fracture Zones (m)	Fracture Spacing Min Avg Max (mm)	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
20							0 250 500		MADE GROUND (comprised of black clayey sandy gravel 35%, timber 30%, plastic 10%, fabric 5%, subangular cobbles and boulders of various lithologies 15%, steel rebars 5%). Strong odour of rotten eggs. <i>(continued)</i>				
21													
22									End of Borehole at 22.00 m	22.00	84.75		
23													
24													
25													
26													
27													
28													
29													

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure. BH drilled using 450mm auger bit. BH collapsed up to 18m overnight - standpipe installation completed from 0.0m to 18mbgl.					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
										No water strike recorded
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
06-12-16	17.00	1.00	17.00	50mm SP						

IGSL RC OPEN HOLE 19600.GPJ IGSL GDT 9/5/17



# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> BH63 (RA)
<b>CO-ORDINATES</b> 291,251.86 E 222,367.25 N		<b>SHEET</b> Sheet 1 of 4
<b>GROUND LEVEL (mOD)</b> 111.81	<b>RIG TYPE</b> SoilMec30	<b>DATE DRILLED</b> 02/12/2016
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 02/12/2016
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Zones (m)	Fracture Spacing	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0							0 250 500		MADE GROUND (comprised of dark brown/black clayey sandy gravel 85%, timber 10%, plastic 5%). Strong odour of rotten eggs.				
1													
2										2.50	109.31		
3									MADE GROUND (comprised of dark brown/black moist clayey sandy gravel 55%, plastic bags 20%, fabric 15%, timber 10%). Strong odour of rotten eggs.				
4													
5									MADE GROUND (comprised of brown gravelly silty clay 80%, timber 15%, steel rebars 5%). Slight odour of rotten eggs.	5.00	106.81		
6									MADE GROUND (comprised of dark brown/black clayey sandy gravel 50%, plastic bags 20%, timber 15%, fabric 15%). Strong odour of rotten eggs.	6.00	105.81		
7									MADE GROUND (comprised of brown gravelly silty clay 70%, timber 10%, plastic 10% steel rebar 10%). Slight odour of rotten eggs.	7.00	104.81		
8									MADE GROUND (comprised of dark brown/black clayey sandy gravel 40%, concrete pieces 15% plastic bags 15%, timber 15%, fabric 10%, steel rebar 5%). Strong odour of rotten eggs.	8.00	103.81		
9													

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure.  BH drilled using 450mm auger bit. Borehole terminated at 34.0m due to reaching the maximum flight for SoilMec30 rig. Therefore the base of the landfill has not been confirmed.					<b>WATER STRIKE DETAILS</b>				
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)
					No water strike recorded				
					<b>GROUNDWATER DETAILS</b>				
<b>INSTALLATION DETAILS</b>					Date	Hole Depth	Casing Depth	Depth to Water	Comments
Date	Tip Depth	RZ Top	RZ Base	Type					
02-12-16	33.00	1.00	33.00	50mm SP					

IGSL RC OPEN HOLE 19600.GPJ IGSL GDT 9/5/17



# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill	<b>DRILLHOLE NO</b> <b>BH63 (RA)</b>
<b>CO-ORDINATES</b> 291,251.86 E 222,367.25 N	<b>SHEET</b> Sheet 2 of 4
<b>GROUND LEVEL (mOD)</b> 111.81	<b>RIG TYPE</b> SoilMec30
<b>CLIENT</b> Kildare County Council	<b>DATE DRILLED</b> 02/12/2016
<b>ENGINEER</b> Jacobs	<b>DATE LOGGED</b> 02/12/2016
<b>INCLINATION (deg)</b> -90	<b>DRILLED BY</b> Dempsey
<b>HOLE DIAMETER (mm)</b>	

Downhole Depth (m)	Core Run Depth (m)	T.C.R. %	S.C.R. %	R.Q.D. %	Fracture Zones (m)	Fracture Spacing	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10									MADE GROUND (comprised of dark brown/black clayey sandy gravel 40%, concrete pieces 15% plastic bags 15%, timber 15%, fabric 10%, steel rebar 5%). Strong odour of rotten eggs. <i>(continued)</i>				
11													
12													
13													
14													
15													
16													
17													
18													
19													

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure.  BH drilled using 450mm auger bit. Borehole terminated at 34.0m due to reaching the maximum flight for SoilMec30 rig. Therefore the base of the landfill has not been confirmed.					<b>WATER STRIKE DETAILS</b>				
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)
					No water strike recorded				
					<b>GROUNDWATER DETAILS</b>				
<b>INSTALLATION DETAILS</b>					Date	Hole Depth	Casing Depth	Depth to Water	Comments
Date	Tip Depth	RZ Top	RZ Base	Type					
02-12-16	33.00	1.00	33.00	50mm SP					

IGSL RC OPEN HOLE 19600.GPJ IGSL GDT 9/5/17



# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>BH63 (RA)</b>
<b>CO-ORDINATES</b> 291,251.86 E 222,367.25 N		<b>SHEET</b> Sheet 3 of 4
<b>GROUND LEVEL (mOD)</b> 111.81	<b>RIG TYPE</b> SoilMec30	<b>DATE DRILLED</b> 02/12/2016
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 02/12/2016
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R. %	S.C.R. %	R.Q.D. %	Fracture Zones (m)	Fracture Spacing Min Avg Max (mm)	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
20							0 250 500		MADE GROUND (comprised of dark brown/black clayey sandy gravel 40%, concrete pieces 15% plastic bags 15%, timber 15%, fabric 10%, steel rebar 5%). Strong odour of rotten eggs. <i>(continued)</i>			0	
21												0	
22												0	
23												0	
24									MADE GROUND (comprised of dark brown/black clayey sandy gravel 70%, timber 30%). Strong odour of rotten eggs.	24.00	87.81	0	
25												0	
26									MADE GROUND (comprised of brown gravelly silty clay 75%, timber 15%, steel rebars 10%) - slight methane odour.	26.00	85.81	0	
27									MADE GROUND (comprised of dark brown/black clayey sandy gravel 50%, plastic bags 15%, timber 15%, fabric 10%, steel rebar 5%, concrete pieces 5%). Strong odour of rotten eggs.	27.00	84.81	0	
28												0	
29												0	

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure.  BH drilled using 450mm auger bit. Borehole terminated at 34.0m due to reaching the maximum flight for SoilMec30 rig. Therefore the base of the landfill has not been confirmed.					<b>WATER STRIKE DETAILS</b>														
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments									
					No water strike recorded														
<b>INSTALLATION DETAILS</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Date</th> <th>Tip Depth</th> <th>RZ Top</th> <th>RZ Base</th> <th>Type</th> </tr> </thead> <tbody> <tr> <td>02-12-16</td> <td>33.00</td> <td>1.00</td> <td>33.00</td> <td>50mm SP</td> </tr> </tbody> </table>					Date	Tip Depth	RZ Top	RZ Base	Type	02-12-16	33.00	1.00	33.00	50mm SP	Date	Hole Depth	Casing Depth	Depth to Water	Comments
					Date	Tip Depth	RZ Top	RZ Base	Type										
02-12-16	33.00	1.00	33.00	50mm SP															

IGSL RC OPEN HOLE 19600.GPJ IGSL GDT 9/5/17



# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>BH63 (RA)</b>
<b>CO-ORDINATES</b> 291,251.86 E 222,367.25 N		<b>SHEET</b> Sheet 4 of 4
<b>GROUND LEVEL (mOD)</b> 111.81	<b>RIG TYPE</b> SoilMec30	<b>DATE DRILLED</b> 02/12/2016
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 02/12/2016
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R. %	S.C.R. %	R.Q.D. %	Fracture Zones (m)	Fracture Spacing	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
30							0 250 500	[Cross-hatch pattern]	MADE GROUND (comprised of dark brown/black clayey sandy gravel 50%, plastic bags 15%, timber 15%, fabric 10%, steel rebar 5%, concrete pieces 5%). Strong odour of rotten eggs. <i>(continued)</i>			[Standpipe scale]	
31													
32													
33													
34									End of Borehole at 34.00 m	34.00	77.81	[Cross-hatch pattern]	
35													
36													
37													
38													
39													

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure.  BH drilled using 450mm auger bit. Borehole terminated at 34.0m due to reaching the maximum flight for SoilMec30 rig. Therefore the base of the landfill has not been confirmed.					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
										No water strike recorded
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type						
02-12-16	33.00	1.00	33.00	50mm SP						

IGSL RC OPEN HOLE 19600.GPJ IGSL GDT 9/5/17





# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill	<b>DRILLHOLE NO</b> BH64 (RA)
<b>CO-ORDINATES</b> 291,095.40 E 222,303.12 N	<b>SHEET</b> Sheet 1 of 2
<b>GROUND LEVEL (mOD)</b> 100.00	<b>DATE DRILLED</b> 07/12/2016
<b>RIG TYPE</b> SoilMec30	<b>DATE LOGGED</b> 07/12/2016
<b>CLIENT</b> Kildare County Council	<b>DRILLED BY</b> Dempsey
<b>ENGINEER</b> Jacobs	<b>INCLINATION (deg)</b> -90
<b>HOLE DIAMETER (mm)</b>	

Downhole Depth (m)	Core Run Depth (m)	T.C.R. %	S.C.R. %	R.Q.D. %	Fracture Zones (m)	Fracture Spacing Min Avg Max (mm)	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0							0 250 500		MADE GROUND (comprised of brown silty slightly gravelly sand 55%, timber 15%, plastic 10%, angular cobbles and boulders of various lithologies 20%). Slight odour of rotten eggs.				
1													
2													
3													
4													
5										5.00			
6									MADE GROUND (comprised of black clayey sandy gravel 20%, timber 40%, plastic 30%, limestone subangular boulders 10%). Strong odour of rotten eggs.		95.00		
7													
8													
9													
										10.00			

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure.  BH drilled using 450mm auger bit. Possible natural ground from 8.0m (reported by drillers) - very low ground recovery due to instability, abundance of steel rebar and boulders in fill material					<b>WATER STRIKE DETAILS</b>				
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)
						No water strike recorded			
<b>GROUNDWATER DETAILS</b>									
<b>INSTALLATION DETAILS</b>					Date	Hole Depth	Casing Depth	Depth to Water	Comments
Date	Tip Depth	RZ Top	RZ Base	Type					
07-12-16	8.00	1.00	8.00	50mm SP					

IGSL RC OPEN HOLE 19600.GPJ IGSL GDT 9/5/17



# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>BH64 (RA)</b>
<b>CO-ORDINATES</b> 291,095.40 E 222,303.12 N		<b>SHEET</b> Sheet 2 of 2
<b>GROUND LEVEL (mOD)</b> 100.00	<b>RIG TYPE</b> SoilMec30	<b>DATE DRILLED</b> 07/12/2016
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 07/12/2016
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Zones (m)	Fracture Spacing Min Avg Max (mm)	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10							0 250 500	x o x o x o x o	Light brown/grey slightly gravelly silty SAND (Possible Natural Ground)	90.00	89.00	[Hatched Box]	
11									End of Borehole at 11.00 m	11.00	89.00	[Hatched Box]	
12													
13													
14													
15													
16													
17													
18													
19													

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure.  BH drilled using 450mm auger bit. Possible natural ground from 8.0m (reported by drillers) - very low ground recovery due to instability, abundance of steel rebar and boulders in fill material					<b>WATER STRIKE DETAILS</b>				
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)
No water strike recorded									
<b>GROUNDWATER DETAILS</b>									
<b>INSTALLATION DETAILS</b>					Date	Hole Depth	Casing Depth	Depth to Water	Comments
Date	Tip Depth	RZ Top	RZ Base	Type					
07-12-16	8.00	1.00	8.00	50mm SP					

IGSL RC OPEN HOLE 19600.GPJ IGSL GDT 9/5/17



# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

**19600**

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>BH66 (RA)</b>
<b>CO-ORDINATES</b> 291,389.51 E 222,208.42 N		<b>SHEET</b> Sheet 1 of 2
<b>GROUND LEVEL (mOD)</b> 97.16	<b>RIG TYPE</b> SoilMec30	<b>DATE DRILLED</b> 25/11/2016
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 25/11/2016
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Zones (m)	Fracture Spacing Min Avg Max (mm)	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0							0 250 500		MADE GROUND (comprised of brown/grey gravelly clay 25%, dark grey sandy gravelly clay 35%, timber 10%, cobbles 10%, red brick 5%, plastic 5%, rebar 5%, concrete pieces 5%). Slight odour of rotten eggs.				
1													
2													
3									MADE GROUND (comprised of dark grey/black sandy gravelly clay 40%, timber 25%, plastic 25%, red brick 5%, textile 3%, pottery 2%). Slight odour of rotten eggs.	3.00	94.16		
4									MADE GROUND (comprised of dark grey/black timber pieces 50%, dark grey sandy gravel 25%, clay 20%, cobbles 5%). Slight odour of rotten eggs.	3.50	93.66		
5									MADE GROUND (comprised of sandy gravelly clay 25%, sandy gravel 25%, timber 15%, concrete pieces 10%, subangular cobbles of various lithologies 10%, plastic 5%, red brick 5%, pottery 3%, fabric 2%). Slight odour of rotten eggs.	4.50	92.66		
6													
7									MADE GROUND (comprised of timber 50%, sandy gravelly clay 25%, cobbles 15%, rebars 5%, plastic 5%) - moderately strong decaying odour.	7.00	90.16		
8													
9										9.50	87.66		

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure.  BH drilled using 450mm auger bit. PID tests readings taken from samples at 3.0m, 6.0m and 9.0m - for results see attached PID tests table					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					7.00					Moderate, black, no odour
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type						
25-11-16	9.00	1.00	9.00	50mm SP						

IGSL RC OPEN HOLE 19600.GPJ IGSL GDT 9/5/17



# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>BH66 (RA)</b>
<b>CO-ORDINATES</b> 291,389.51 E 222,208.42 N		<b>SHEET</b> Sheet 2 of 2
<b>GROUND LEVEL (mOD)</b> 97.16	<b>RIG TYPE</b> SoilMec30	<b>DATE DRILLED</b> 25/11/2016
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 25/11/2016
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Zones (m)	Fracture Spacing Min Avg Max (mm)	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10							0 250 500		MADE GROUND (comprised of brown/grey sandy gravelly clay 40%, cobbles 25%, rebar 15%, concrete pieces 10%, red brick 5%, plastic 5%). Slight odour of rotten eggs. <i>(continued)</i>	11.00			
11									BH terminated at 11.0m due to borehole instability associated with the inflow of groundwater at 7.0m End of Borehole at 11.00 m		86.16		
12													
13													
14													
15													
16													
17													
18													
19													

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure. BH drilled using 450mm auger bit. PID tests readings taken from samples at 3.0m, 6.0m and 9.0m - for results see attached PID tests table					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					7.00					Moderate, black, no odour
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type						
25-11-16	9.00	1.00	9.00	50mm SP						

IGSL RC OPEN HOLE 19600.GPJ IGSL GDT 9/5/17



# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> BH73 (RA)
<b>CO-ORDINATES</b> 291,707.86 E 221,811.72 N		<b>SHEET</b> Sheet 1 of 2
<b>GROUND LEVEL (mOD)</b> 92.32	<b>RIG TYPE</b> SoilMec30	<b>DATE DRILLED</b> 08/12/2016
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 08/12/2016
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Zones (m)	Fracture Spacing Min Avg Max (mm)	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0							0 250 500		MADE GROUND (comprised of brown gravelly cobbly clay 70%, concrete and rubble pieces 10%, timber 10%, plastic 5%, red brick 5%). Slight odour of rotten eggs.				
1													
2													
3										3.00	89.32		
4									MADE GROUND (comprised of black/brown clayey sandy gravel 50%, timber 15%, plastic 15%, concrete and rubble 10%, fabric 5%, ceramic tiles 3%, red brick 2%). Slight odour of rotten eggs.				
5													
6													
7													
8													
9													
										10.00			

**REMARKS**  
 Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure.  
 BH drilled using 450mm auger bit

WATER STRIKE DETAILS					
Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike recorded

INSTALLATION DETAILS				
Date	Tip Depth	RZ Top	RZ Base	Type
08-12-16	9.00	1.00	9.00	50mm SP

GROUNDWATER DETAILS				
Date	Hole Depth	Casing Depth	Depth to Water	Comments

IGSL RC OPEN HOLE 19600.GPJ IGSL GDT 9/5/17



# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> BH73 (RA)
<b>CO-ORDINATES</b> 291,707.86 E 221,811.72 N		<b>SHEET</b> Sheet 2 of 2
<b>GROUND LEVEL (mOD)</b> 92.32	<b>RIG TYPE</b> SoilMec30	<b>DATE DRILLED</b> 08/12/2016
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 08/12/2016
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R. %	S.C.R. %	R.Q.D. %	Fracture Zones (m)	Fracture Spacing Min Avg Max (mm)	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10							0 250 500	○	Light brown/brown, slightly gravelly fine to medium SAND. Gravel is fine to medium subangular to subrounded of limestone. (Possible Natural Ground).		82.32		
11								○					
12								○					
13								○	End of Borehole at 13.00 m	13.00	79.32		
14								○					
15								○					
16								○					
17								○					
18								○					
19								○					

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure. BH drilled using 450mm auger bit					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
										No water strike recorded
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
08-12-16	9.00	1.00	9.00	50mm SP						

IGSL RC OPEN HOLE 19600.GPJ IGSL GDT 9/5/17



# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> BH74 (RA)
<b>CO-ORDINATES</b> 291,254.19 E 221,997.84 N		<b>SHEET</b> Sheet 1 of 1
<b>GROUND LEVEL (mOD)</b> 95.00	<b>RIG TYPE</b> Dando RA	<b>DATE DRILLED</b> 30/11/2016
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 30/11/2016
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R. %	S.C.R. %	R.Q.D. %	Fracture Zones (m)	Fracture Spacing Min Avg Max (mm)	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0							0 250 500		MADE GROUND (comprised of grey/brown sandy gravel 40%, sandy gravelly clay 30%, concrete pieces 20%, red brick pieces 5%, plastic pieces 5%). No odour detectable.	0.50	94.50		
1									MADE GROUND (comprised of grey sandy gravelly clay 80%, cobbles 10%, plastic 5%, concrete pieces 3%, timber 2%). No odour detectable.	1.30	93.70		
2									Brown very clayey gravelly fine to coarse SAND with low cobble content. Gravel is fine to coarse subangular to subrounded of various lithologies. Cobbles are subangular to subrounded of various lithologies.	3.00	92.00		
3									End of Borehole at 3.00 m				
4													
5													
6													
7													
8													
9													

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure. BH drilled using 300mm auger bit. Drilling rig refused at 3.0m.					<b>WATER STRIKE DETAILS</b>						
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments	
										No water strike recorded	
					<b>GROUNDWATER DETAILS</b>						
<b>INSTALLATION DETAILS</b>					Date	Hole Depth	Casing Depth	Depth to Water	Comments		
Date	Tip Depth	RZ Top	RZ Base	Type							

IGSL RC OPEN HOLE 19600.GPJ IGSL GDT 9/5/17



# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> BH75 (RA)
<b>CO-ORDINATES</b> 291,226.54 E 222,107.94 N		<b>SHEET</b> Sheet 1 of 2
<b>GROUND LEVEL (mOD)</b> 95.85	<b>RIG TYPE</b> SoilMec30	<b>DATE DRILLED</b> 28/11/2016
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 28/11/2016
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Zones (m)	Fracture Spacing	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0							0 250 500		MADE GROUND (comprised of brown/grey/dark grey sandy gravelly clay 80%, cobbles of various lithologies 10%, concrete pieces 5%, red brick 5%). No odour detectable.				
1													
2									MADE GROUND (comprised of dasrk grey/grey/bwown sandy gravelly clay 50%, gravelly sand 30%, timber 10%, plastic 5%, concrete 5%). No odour detectable.	2.00	93.85		
3									Brown clayey gravelly SAND. Gravel is fine to coarse subangular to subrounded of various lithologies. No odour detectable. (FILL)	3.00	92.85		
4										4.50			
5									Grey very clayey gravelly SAND. Gravel is fine to coarse subangular to subrounded of various lithologies. No odour detectable. (FILL)	5.50	91.35		
6									Light brown silty fine SAND with some silty sandy gravel lenses. No odour detctable.		90.35		
7													
8													
9													
										10.00			

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure. BH drilled using 450mm auger bit					End of Borehole at 10.00 m					<b>WATER STRIKE DETAILS</b>				
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments				
										No water strike recorded				
					<b>GROUNDWATER DETAILS</b>									
<b>INSTALLATION DETAILS</b>					Date	Hole Depth	Casing Depth	Depth to Water	Comments					
Date	Tip Depth	RZ Top	RZ Base	Type										
28-11-16	4.50	1.00	4.50	50mm SP										

IGSL RC OPEN HOLE 19600.GPJ IGSL GDT 9/5/17





# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>BH75 (RA)</b>
<b>CO-ORDINATES</b> 291,226.54 E 222,107.94 N		<b>SHEET</b> Sheet 2 of 2
<b>GROUND LEVEL (mOD)</b> 95.85	<b>RIG TYPE</b> SoilMec30	<b>DATE DRILLED</b> 28/11/2016
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 28/11/2016
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Zones (m)	Fracture Spacing Min Avg Max (mm)	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10							0 250 500				85.85		
11													
12													
13													
14													
15													
16													
17													
18													
19													

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure. BH drilled using 450mm auger bit					<b>WATER STRIKE DETAILS</b>				
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)
					No water strike recorded				
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>				
					Date	Hole Depth	Casing Depth	Depth to Water	Comments
28-11-16	4.50	1.00	4.50	50mm SP					

IGSL RC OPEN HOLE 19600.GPJ IGSL GDT 9/5/17



# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> BH76 (RA)
<b>CO-ORDINATES</b> 291,367.93 E 222,103.67 N		<b>SHEET</b> Sheet 1 of 1
<b>GROUND LEVEL (mOD)</b> 94.72	<b>RIG TYPE</b> Dando RA	<b>DATE DRILLED</b> 30/11/2016
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 30/11/2016
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Zones (m)	Fracture Spacing	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0									MADE GROUND (comprised of brown clayey sandy cobbly gravel 40%, concrete 20%, timber 15%, plastic 10%, fabric 5%, steel 5%, brick 5%). Slight odour of rotten timber and creosote.				
1													
2													
3													
3.50									BH terminated at 3.5m due to large concrete blocks and heavy steel bars End of Borehole at 3.5 m	3.50	91.22		
4													
5													
6													
7													
8													
9													

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure. BH drilled using 300mm auger bit. Borehole refusal due to concrete pieces and rebars at 3.5m - decided by client to repeat with larger diameter auger bit (450mm).					<b>WATER STRIKE DETAILS</b>				
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)
					No water strike recorded				
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>				
					Date	Hole Depth	Casing Depth	Depth to Water	Comments
Date	Tip Depth	RZ Top	RZ Base	Type					

IGSL RC OPEN HOLE 19600.GPJ IGSL GDT 9/5/17



# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> BH76A (RA)
<b>CO-ORDINATES</b> 291,366.73 E 222,103.00 N		<b>SHEET</b> Sheet 1 of 2
<b>GROUND LEVEL (mOD)</b> 94.74	<b>RIG TYPE</b> SoilMec30	<b>DATE DRILLED</b> 01/12/2016
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 01/12/2016
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R. %	S.C.R. %	R.Q.D. %	Fracture Zones (m)	Fracture Spacing Min Avg Max (mm)	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0							0 250 500		MADE GROUND (comprised of brown clayey sandy cobbly gravel 40%, concrete 20%, timber 15%, plastic 10%, fabric 5%, steel 5%, brick 5%). Slight rotting timber and creosote odour.				
1													
2													
3													
4													
5													
6										6.50	88.24		
7									MADE GROUND (comprised of brown slightly gravelly silty sand 80%, timber pieces 20%). No odour detectable.				
8										8.00	86.74		
9									MADE GROUND (comprised of brown/black clayey gravelly sand with high cobble and medium boulders content (cobbles and boulders are subangular to subrounded of various lithologies) 40%, timber 20%, plastic bags 10%, fabric 20%, rubber 10%). Slight odour of rotten eggs.				

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure. BH drilled using 450mm auger bit					<b>WATER STRIKE DETAILS</b>				
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)
					No water strike recorded				
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>				
					Date	Hole Depth	Casing Depth	Depth to Water	Comments
01-12-16	12.56	1.00	12.56	50mm SP					

IGSL RC OPEN HOLE 19600.GPJ IGSL GDT 9/5/17



# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> BH76A (RA)
<b>CO-ORDINATES</b> 291,366.73 E 222,103.00 N		<b>SHEET</b> Sheet 2 of 2
<b>GROUND LEVEL (mOD)</b> 94.74	<b>RIG TYPE</b> SoilMec30	<b>DATE DRILLED</b> 01/12/2016
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 01/12/2016
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R. %	S.C.R. %	R.Q.D. %	Fracture Zones (m)	Fracture Spacing Min Avg Max (mm)	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10							0 250 500	[Cross-hatch pattern]	MADE GROUND (comprised of brown/black clayey gravelly sand with high cobble and medium boulders content (cobbles and boulders are subangular to subrounded of various lithologies) 40%, timber 20%, plastic bags 10%, fabric 20%, rubber 10%). Slight odour of rotten eggs. <i>(continued)</i>			[Standpipe scale]	
11								[Dotted pattern]	Brown slightly gravelly fine to medium SAND. Gravel is fine to medium subrounded of limestone. Possible natural ground	13.75	80.99	[Standpipe scale]	
12												[Standpipe scale]	
13												[Standpipe scale]	
14												[Standpipe scale]	
15												[Standpipe scale]	
16									End of Borehole at 16.00 m	16.00	78.74	[Standpipe scale]	
17												[Standpipe scale]	
18												[Standpipe scale]	
19												[Standpipe scale]	

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure. BH drilled using 450mm auger bit					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
										No water strike recorded
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type						
01-12-16	12.56	1.00	12.56	50mm SP						

IGSL RC OPEN HOLE 19600.GPJ IGSL GDT 9/5/17



# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> BH77 (RA)
<b>CO-ORDINATES</b> 291,350.79 E 222,166.12 N		<b>SHEET</b> Sheet 1 of 1
<b>GROUND LEVEL (mOD)</b> 95.93	<b>RIG TYPE</b> Dando RA	<b>DATE DRILLED</b> 30/11/2016
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 30/11/2016
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Zones (m)	Fracture Spacing	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0									MADE GROUND (comprised of brown clayey sandy cobbly gravel 45%, concrete 25%, plastic 10%, fabric 5%, timber 5%, steel 5%, brick 5%). Slight odour of rotting timber.	1.00	94.93		
1									BH terminated at 1.0m due to large concrete blocks and heavy steel bars End of Borehole at 1.00 m				
2													
3													
4													
5													
6													
7													
8													
9													

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure.  BH drilled using 300mm auger bit. Borehole refusal due to large concrete pieces and rebars at 1.0m - decided by client to repeat with larger diameter auger bit (450mm).	<b>WATER STRIKE DETAILS</b>					
	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
						No water strike recorded
<b>GROUNDWATER DETAILS</b>						
<b>INSTALLATION DETAILS</b>						
Date	Tip Depth	RZ Top	RZ Base	Type	Comments	

IGSL RC OPEN HOLE 19600.GPJ IGSL GDT 9/5/17



# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> BH77A (RA)
<b>CO-ORDINATES</b> 291,351.53 E 222,166.85 N		<b>SHEET</b> Sheet 1 of 2
<b>GROUND LEVEL (mOD)</b> 95.97	<b>RIG TYPE</b> SoilMec30	<b>DATE DRILLED</b> 01/12/2016
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 01/12/2016
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Zones (m)	Fracture Spacing Min Avg Max (mm)	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0							0 250 500		MADE GROUND (comprised of brown clayey sandy cobbly gravel 50%, concrete 10%, plastic 10%, fabric 5%, timber 10%, steel 5%, brick 10%). Slight odour of rotting timber.				
1													
2													
3													
4										4.00	91.97		
5									MADE GROUND (comprised of brown slightly gravelly silty sand 85%, timber pieces 15%). No odour detectable.				
6										5.50	90.47		
7									MADE GROUND (comprised of brown/black clayey sandy cobbly gravel 45%, timber 25%, concrete 10%, plastic 10%, fabric 5%, brick 3%, steel 2%). Slight odour of rotting timber.				
8										7.00	88.97		
9									MADE GROUND (comprised of brown moist slightly gravelly silty sand 75%, timber pieces 25%). No odour detectable.				
										9.00	86.97		
									MADE GROUND (comprised of brown/black clayey cobbly gravel with boulders 40%, timber 20%, plastic 20%, fabric 10%, rubber 10%). Slight odour of rotten eggs.				

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure. BH drilled using 450mm auger bit. Standpipe installed to 11.0m - borehole collapsed at greater depth.					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					9.50					Moderate, black, no odour
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type						
01-12-16	10.00	1.00	10.00	50mm SP						

IGSL RC OPEN HOLE 19600.GPJ IGSL GDT 9/5/17



# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> BH77A (RA)
<b>CO-ORDINATES</b> 291,351.53 E 222,166.85 N		<b>SHEET</b> Sheet 2 of 2
<b>GROUND LEVEL (mOD)</b> 95.97	<b>RIG TYPE</b> SoilMec30	<b>DATE DRILLED</b> 01/12/2016
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 01/12/2016
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Zones (m)	Fracture Spacing Min Avg Max (mm)	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10							0 250 500		MADE GROUND (comprised of brown/black clayey cobbly gravel with boulders 40%, timber 20%, plastic 20%, fabric 10%, rubber 10%). Slight odour of rotten eggs. <i>(continued)</i>				
11													
12													
13													
14													
15													
16									End of Borehole at 16.00 m	16.00	79.97		
17													
18													
19													

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure. BH drilled using 450mm auger bit. Standpipe installed to 11.0m - borehole collapsed at greater depth.					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					9.50					Moderate, black, no odour
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type						
01-12-16	10.00	1.00	10.00	50mm SP						

IGSL RC OPEN HOLE 19600.GPJ IGSL GDT 9/5/17



# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>GEW-1</b>
<b>CO-ORDINATES</b> 291,320.74 E 222,291.48 N		<b>SHEET</b> Sheet 1 of 3
<b>GROUND LEVEL (mOD)</b> 110.14	<b>RIG TYPE</b> SoilMec30	<b>DATE DRILLED</b> 21/11/2016
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 21/11/2016
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Zones (m)	Fracture Spacing Min Avg Max (mm)	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0							0 250 500		MADE GROUND (comprised of brown/grey sandy gravelly clay 55%, brown/grey sandy gravel 20%, cobbles 10%, plastic pieces 5%, timber and organic pieces 5%, steel bars 5%)				
1													
2									MADE GROUND (comprised of plastic pieces 40%, timber pieces 40%, black clayey sandy gravel 10%, cobbles 5%, steel pieces 5%)	2.00	108.14		
3													
4													
5													
6									MADE GROUND (comprised of black sandy gravelly clay 80%, cobbles 10%, timber pieces 5%, plastic pieces 5%)	6.00	104.14		
7									MADE GROUND (comprised of plastic pieces 40%, timber pieces 40%, cobbles 10%, black sandy gravelly clay 5%, steel bars 5%)	7.00	103.14		
8													
9													

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure. PID tests readings taken from samples at 5.0m, 10.0m, 15.0m, 20.0m, 25.0m - for results see Appendix 10					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike recorded					
					<b>GROUNDWATER DETAILS</b>					
<b>INSTALLATION DETAILS</b>					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type						
21-11-16	24.00	1.00	24.00	160mm						

IGSL RC OPEN HOLE 19600.GPJ IGSL GDT 2/5/17





# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>GEW-1</b>
<b>CO-ORDINATES</b> 291,320.74 E 222,291.48 N		<b>SHEET</b> Sheet 2 of 3
<b>GROUND LEVEL (mOD)</b> 110.14	<b>RIG TYPE</b> SoilMec30	<b>DATE DRILLED</b> 21/11/2016
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 21/11/2016
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R. %	S.C.R. %	R.Q.D. %	Fracture Zones (m)	Fracture Spacing Min Avg Max (mm)	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10							0 250 500		MADE GROUND (comprised of plastic pieces 40%, timber pieces 40%, cobbles 10%, black sandy gravelly clay 5%, steel bars 5%) <i>(continued)</i>			0	
11												0	
12												0	
13												0	
14												0	
15												0	
16												0	
17												0	
18										18.00	92.14	0	
19									MADE GROUND (comprised of black clayey sandy gravel 85%, cobbles 10%, timber pieces 5%)			0	
									MADE GROUND (comprised of plastic pieces 30%, timber pieces 30%, cobbles 15%, black sandy gravelly clay 10%, steel bars 15%)	19.00	91.14	0	

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure. PID tests readings taken from samples at 5.0m, 10.0m, 15.0m, 20.0m, 25.0m - for results see Appendix 10					<b>WATER STRIKE DETAILS</b>				
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)
					No water strike recorded				
					<b>GROUNDWATER DETAILS</b>				
<b>INSTALLATION DETAILS</b>					Date	Hole Depth	Casing Depth	Depth to Water	Comments
Date	Tip Depth	RZ Top	RZ Base	Type					
21-11-16	24.00	1.00	24.00	160mm					

IGSL RC OPEN HOLE 19600.GPJ IGSL GDT 2/5/17



# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>GEW-1</b>
<b>CO-ORDINATES</b> 291,320.74 E 222,291.48 N		<b>SHEET</b> Sheet 3 of 3
<b>GROUND LEVEL (mOD)</b> 110.14	<b>RIG TYPE</b> SoilMec30	<b>DATE DRILLED</b> 21/11/2016
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 21/11/2016
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Zones (m)	Fracture Spacing Min Avg Max (mm)	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
20							0 250 500		MADE GROUND (comprised of plastic pieces 30%, timber pieces 30%, cobbles 15%, black sandy gravelly clay 10%, steel bars 15%) <i>(continued)</i>				
21													
22									MADE GROUND (comprised of timber pieces 40%, steel bars and pieces 40%, concrete pieces 10%, cobbles 10%)	22.00	88.14		
23									MADE GROUND (comprised of plastic pieces 30%, timber pieces 30%, steel bars and pieces 25%, cobbles 5%, plastic pieces 7%, black sandy gravelly clay 3%)	23.00	87.14		
24													
25													
26													
27													
28													
29									End of Borehole at 29.00 m	29.00	81.14		

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure. PID tests readings taken from samples at 5.0m, 10.0m, 15.0m, 20.0m, 25.0m - for results see Appendix 10					<b>WATER STRIKE DETAILS</b>				
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)
						No water strike recorded			
<b>GROUNDWATER DETAILS</b>									
<b>INSTALLATION DETAILS</b>					Date	Hole Depth	Casing Depth	Depth to Water	Comments
Date	Tip Depth	RZ Top	RZ Base	Type					
21-11-16	24.00	1.00	24.00	160mm					

IGSL RC OPEN HOLE 19600.GPJ IGSL GDT 2/5/17



# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>GEW-2</b>
<b>CO-ORDINATES</b> 291,291.37 E 222,308.29 N		<b>SHEET</b> Sheet 1 of 3
<b>GROUND LEVEL (mOD)</b> 112.55	<b>RIG TYPE</b> SoilMec30	<b>DATE DRILLED</b> 22/11/2016
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 22/11/2016
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R. %	S.C.R. %	R.Q.D. %	Fracture Zones (m)	Fracture Spacing Min Avg Max (mm)	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0							0 250 500		MADE GROUND (comprised of brown/grey sandy gravelly clay 45%, brown/grey sandy gravel 30%, cobbles 10%, plastic pieces 5%, timber and organic pieces 5%, steel bars 5%)				
1													
2										2.50			
3									MADE GROUND (comprised of plastic pieces 35%, timber pieces 35%, black clayey sandy gravel 15%, cobbles 10%, steel pieces 5%)		110.05		
4													
5													
6													
7													
8													
9													

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure. PID tests readings taken from samples at 5.0m, 10.0m, 15.0m, 20.0m, 25.0m - for results see Appendix 10					<b>WATER STRIKE DETAILS</b>				
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)
					No water strike recorded				
					<b>GROUNDWATER DETAILS</b>				
<b>INSTALLATION DETAILS</b>					Date	Hole Depth	Casing Depth	Depth to Water	Comments
Date	Tip Depth	RZ Top	RZ Base	Type					
22-11-16	28.00	1.00	28.00	160mm					

IGSL RC OPEN HOLE 19600.GPJ IGSL GDT 2/5/17



# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>GEW-2</b>
<b>CO-ORDINATES</b> 291,291.37 E 222,308.29 N		<b>SHEET</b> Sheet 2 of 3
<b>GROUND LEVEL (mOD)</b> 112.55	<b>RIG TYPE</b> SoilMec30	<b>DATE DRILLED</b> 22/11/2016
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 22/11/2016
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R. %	S.C.R. %	R.Q.D. %	Fracture Zones (m)	Fracture Spacing Min Avg Max (mm)	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10							0 250 500		MADE GROUND (comprised of plastic pieces 35%, timber pieces 35%, black clayey sandy gravel 15%, cobbles 10%, steel pieces 5%) <i>(continued)</i>			0	
11												0	
12												0	
13												0	
14												0	
15									MADE GROUND (comprised of black sandy gravelly clay 70%, cobbles 20%, timber pieces 5%, plastic pieces 5%)	15.00	97.55	0	
16									MADE GROUND (comprised of plastic pieces 30%, timber pieces 30%, cobbles 15%, black sandy gravelly clay 10%, steel bars 15%)	15.50	97.05	0	
17												0	
18												0	
19												0	
										20.00		0	

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure. PID tests readings taken from samples at 5.0m, 10.0m, 15.0m, 20.0m, 25.0m - for results see Appendix 10					<b>WATER STRIKE DETAILS</b>				
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)
						No water strike recorded			
<b>GROUNDWATER DETAILS</b>									
<b>INSTALLATION DETAILS</b>					Date	Hole Depth	Casing Depth	Depth to Water	Comments
Date	Tip Depth	RZ Top	RZ Base	Type					
22-11-16	28.00	1.00	28.00	160mm					

IGSL RC OPEN HOLE 19600.GPJ IGSL.GDT 2/5/17



# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>GEW-2</b>
<b>CO-ORDINATES</b> 291,291.37 E 222,308.29 N		<b>SHEET</b> Sheet 3 of 3
<b>GROUND LEVEL (mOD)</b> 112.55	<b>RIG TYPE</b> SoilMec30	<b>DATE DRILLED</b> 22/11/2016
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 22/11/2016
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R. %	S.C.R. %	R.Q.D. %	Fracture Zones (m)	Fracture Spacing	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
20							0 250 500		MADE GROUND (comprised of angular cobbles and boulders 85%, black clayey sandy gravel 15%)	21.00	92.55		
21									MADE GROUND (comprised of plastic pieces 30%, timber pieces 30%, steel bars 20%, cobbles 10%, plastic pieces 5%, black sandy gravelly clay 5%)		91.55		
22													
23													
24													
25													
26													
27													
28													
29									End of Borehole at 29.00 m	29.00	83.55		

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure. PID tests readings taken from samples at 5.0m, 10.0m, 15.0m, 20.0m, 25.0m - for results see Appendix 10					<b>WATER STRIKE DETAILS</b>				
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)
					No water strike recorded				
					<b>GROUNDWATER DETAILS</b>				
<b>INSTALLATION DETAILS</b>					Date	Hole Depth	Casing Depth	Depth to Water	Comments
Date	Tip Depth	RZ Top	RZ Base	Type					
22-11-16	28.00	1.00	28.00	160mm					

IGSL RC OPEN HOLE 19600.GPJ IGSL.GDT 2/5/17



# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>GEW-3</b>
<b>CO-ORDINATES</b> 291,339.58 E 222,307.90 N		<b>SHEET</b> Sheet 1 of 4
<b>GROUND LEVEL (mOD)</b> 110.78	<b>RIG TYPE</b> SoilMec30	<b>DATE DRILLED</b> 18/11/2016
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 18/11/2016
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Zones (m)	Fracture Spacing Min Avg Max (mm)	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0							0 250 500		MADE GROUND (comprised of brown/grey sandy gravelly clay 40%, brown/grey sandy gravel 35%, cobbles 10%, plastic pieces 5%, timber and organic pieces 5%, steel bars 5%)				
1										1.50	109.28		
2									MADE GROUND (comprised of plastic pieces 40%, timber pieces 40%, black clayey sandy gravel 10%, cobbles 5%, steel pieces 5%)				
3													
4													
5													
6									MADE GROUND (comprised of black sandy gravelly clay 80%, cobbles 10%, timber pieces 5%, plastic pieces 5%)	6.00	104.78		
7									MADE GROUND (comprised of plastic pieces 40%, timber pieces 40%, cobbles 10%, black sandy gravelly clay 3%, steel bars 7%)	6.50	104.28		
8													
9													

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure. PID tests readings taken from samples at 5.0m, 10.0m, 15.0m, 20.0m, 25.0m - for results see Appendix 10					<b>WATER STRIKE DETAILS</b>				
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)
					No water strike recorded				
					<b>GROUNDWATER DETAILS</b>				
<b>INSTALLATION DETAILS</b>					Date	Hole Depth	Casing Depth	Depth to Water	Comments
Date	Tip Depth	RZ Top	RZ Base	Type					
18-11-16	27.50	1.00	27.50	160mm					

IGSL RC OPEN HOLE 19600.GPJ IGSL GDT 2/5/17



# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>GEW-3</b>
<b>CO-ORDINATES</b> 291,339.58 E 222,307.90 N		<b>SHEET</b> Sheet 2 of 4
<b>GROUND LEVEL (mOD)</b> 110.78	<b>RIG TYPE</b> SoilMec30	<b>DATE DRILLED</b> 18/11/2016
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 18/11/2016
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Zones (m)	Fracture Spacing Min Avg Max (mm)	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10							0 250 500		MADE GROUND (comprised of plastic pieces 40%, timber pieces 40%, cobbles 10%, black sandy gravelly clay 3%, steel bars 7%) <i>(continued)</i>				
11													
12													
13													
14													
15													
16									MADE GROUND (comprised of black sandy gravelly clay 50%, cobbles 40%, timber pieces 5%, plastic pieces 5%)	16.00	94.78		
17									MADE GROUND (comprised of plastic pieces 35%, timber pieces 30%, steel bars and pieces 20%, cobbles 5%, plastic pieces 7%, black sandy gravelly clay 3%)	17.00	93.78		
18													
19													

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure. PID tests readings taken from samples at 5.0m, 10.0m, 15.0m, 20.0m, 25.0m - for results see Appendix 10					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike recorded					
					<b>GROUNDWATER DETAILS</b>					
<b>INSTALLATION DETAILS</b>					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type						
18-11-16	27.50	1.00	27.50	160mm						

IGSL RC OPEN HOLE 19600.GPJ IGSL GDT 2/5/17



# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>GEW-3</b>
<b>CO-ORDINATES</b> 291,339.58 E 222,307.90 N		<b>SHEET</b> Sheet 3 of 4
<b>GROUND LEVEL (mOD)</b> 110.78	<b>RIG TYPE</b> SoilMec30	<b>DATE DRILLED</b> 18/11/2016
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 18/11/2016
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Zones (m)	Fracture Spacing Min Avg Max (mm)	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
20							0 250 500		MADE GROUND (comprised of plastic pieces 35%, timber pieces 30%, steel bars and pieces 20%, cobbles 5%, plastic pieces 7%, black sandy gravelly clay 3%) (continued)				
21													
22													
23													
24													
25													
26													
27													
28													
29													
										30.00			

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure. PID tests readings taken from samples at 5.0m, 10.0m, 15.0m, 20.0m, 25.0m - for results see Appendix 10					End of Borehole at 30.00 m					<b>WATER STRIKE DETAILS</b>				
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments				
										No water strike recorded				
					<b>GROUNDWATER DETAILS</b>									
<b>INSTALLATION DETAILS</b>					Date	Hole Depth	Casing Depth	Depth to Water	Comments					
Date	Tip Depth	RZ Top	RZ Base	Type										
18-11-16	27.50	1.00	27.50	160mm										

IGSL RC OPEN HOLE 19600.GPJ IGSL GDT 2/5/17





# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>GEW-3</b>
<b>CO-ORDINATES</b> 291,339.58 E 222,307.90 N		<b>SHEET</b> Sheet 4 of 4
<b>GROUND LEVEL (mOD)</b> 110.78		<b>DATE DRILLED</b> 18/11/2016
<b>RIG TYPE</b> SoilMec30		<b>DATE LOGGED</b> 18/11/2016
<b>CLIENT</b> Kildare County Council		<b>DRILLED BY</b> Dempsey
<b>ENGINEER</b> Jacobs		
<b>INCLINATION (deg)</b> -90		
<b>HOLE DIAMETER (mm)</b>		

Downhole Depth (m)	Core Run Depth (m)	T.C.R. %	S.C.R. %	R.Q.D. %	Fracture Zones (m)	Fracture Spacing Min Avg Max (mm)	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
30							0 250 500				80.78		
31													
32													
33													
34													
35													
36													
37													
38													
39													

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure. PID tests readings taken from samples at 5.0m, 10.0m, 15.0m, 20.0m, 25.0m - for results see Appendix 10					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
										No water strike recorded
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
18-11-16	27.50	1.00	27.50	160mm						

IGSL RC OPEN HOLE 19600.GPJ IGSL GDT 2/5/17



# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>GEW-4</b>
<b>CO-ORDINATES</b> 291,277.21 E 222,324.84 N		<b>SHEET</b> Sheet 1 of 4
<b>GROUND LEVEL (mOD)</b> 111.31	<b>RIG TYPE</b> SoilMec30	<b>DATE DRILLED</b> 24/11/2016
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 24/11/2016
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Zones (m)	Fracture Spacing Min Avg Max (mm)	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0							0    250    500		MADE GROUND (comprised of grey/black sandy gravelly clay 40%, grey sandy gravel 35%, cobbles 10%, plastic pieces 5%, timber and organic pieces 5%, steel bars 5%)	1.00	110.31		
1									MADE GROUND (comprised of plastic pieces 40%, timber pieces 30%, black clayey sandy gravel 15%, cobbles 5%, concrete pieces 5%, steel pieces 5%)				
2													
3													
4													
5													
6									MADE GROUND (comprised of black sandy gravelly clay 70%, cobbles 15%, timber pieces 10%, plastic pieces 3%, steel bars 2%)	6.00	105.31		
7									MADE GROUND (comprised of plastic pieces 40%, timber pieces 30%, black clayey sandy gravel 10%, cobbles 10%, steel pieces 10%)	7.00	104.31		
8													
9													

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure.  PID tests readings taken from samples at 5.0m, 10.0m, 15.0m, 20.0m, 25.0m and 30.0m - for results see Appendix 10					<b>WATER STRIKE DETAILS</b>														
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments									
					21.00					Seepage									
<b>INSTALLATION DETAILS</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Date</th> <th>Tip Depth</th> <th>RZ Top</th> <th>RZ Base</th> <th>Type</th> </tr> <tr> <td>24-11-16</td> <td>28.50</td> <td>1.00</td> <td>28.50</td> <td>160mm</td> </tr> </table>					Date	Tip Depth	RZ Top	RZ Base	Type	24-11-16	28.50	1.00	28.50	160mm	Date	Hole Depth	Casing Depth	Depth to Water	Comments
					Date	Tip Depth	RZ Top	RZ Base	Type										
24-11-16	28.50	1.00	28.50	160mm															

IGSL RC OPEN HOLE 19600.GPJ IGSL GDT 2/5/17



# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>GEW-4</b>
<b>CO-ORDINATES</b> 291,277.21 E 222,324.84 N		<b>SHEET</b> Sheet 2 of 4
<b>GROUND LEVEL (mOD)</b> 111.31	<b>RIG TYPE</b> SoilMec30	<b>DATE DRILLED</b> 24/11/2016
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 24/11/2016
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R. %	S.C.R. %	R.Q.D. %	Fracture Zones (m)	Fracture Spacing Min Avg Max (mm)	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10							0 250 500		MADE GROUND (comprised of plastic pieces 40%, timber pieces 30%, black clayey sandy gravel 10%, cobbles 10%, steel pieces 10%) <i>(continued)</i>			0	
11												0	
12												0	
13												0	
14												0	
15												0	
16												0	
17												0	
18									MADE GROUND (comprised of black clayey sandy gravel 85%, cobbles 10%, timber pieces 5%)	18.00	93.31	0	
19												0	

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure.  PID tests readings taken from samples at 5.0m, 10.0m, 15.0m, 20.0m, 25.0m and 30.0m - for results see Appendix 10					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					21.00					Seepage
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type						
24-11-16	28.50	1.00	28.50	160mm						

IGSL RC OPEN HOLE 19600.GPJ IGSL.GDT 2/5/17



# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>GEW-4</b>
<b>CO-ORDINATES</b> 291,277.21 E 222,324.84 N		<b>SHEET</b> Sheet 3 of 4
<b>GROUND LEVEL (mOD)</b> 111.31	<b>RIG TYPE</b> SoilMec30	<b>DATE DRILLED</b> 24/11/2016
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 24/11/2016
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R. %	S.C.R. %	R.Q.D. %	Fracture Zones (m)	Fracture Spacing Min Avg Max (mm)	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
20							0 250 500		MADE GROUND (comprised of black clayey sandy gravel 85%, cobbles 10%, timber pieces 5%) <i>(continued)</i>	21.00	90.31		
21									MADE GROUND (comprised of plastic pieces 40%, timber pieces 30%, cobbles 10%, black sandy gravelly clay 5%, steel bars 15%)				
22													
23													
24													
25									MADE GROUND (comprised of timber pieces 30%, steel bars 20%, concrete pieces 20%, cobbles 15%, plastic pieces 10%, black sandy gravelly clay 5%)	25.00	86.31		
26													
27													
28									MADE GROUND (comprised of plastic pieces 35%, timber pieces 35%, cobbles 10%, black sandy gravelly clay 10%, steel bars 10%)	28.00	83.31		
29													

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure. PID tests readings taken from samples at 5.0m, 10.0m, 15.0m, 20.0m, 25.0m and 30.0m - for results see Appendix 10					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					21.00					Seepage
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
24-11-16	28.50	1.00	28.50	160mm						

IGSL RC OPEN HOLE 19600.GPJ IGSL GDT 2/5/17



# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>GEW-4</b>
<b>CO-ORDINATES</b> 291,277.21 E 222,324.84 N		<b>SHEET</b> Sheet 4 of 4
<b>GROUND LEVEL (mOD)</b> 111.31	<b>RIG TYPE</b> SoilMec30	<b>DATE DRILLED</b> 24/11/2016
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 24/11/2016
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Zones (m)	Fracture Spacing	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
30							0 250 500		MADE GROUND (comprised of plastic pieces 35%, timber pieces 35%, cobbles 10%, black sandy gravelly clay 10%, steel bars 10%) <i>(continued)</i>				
31													
32									End of Borehole at 32.00 m	32.00	79.31		
33													
34													
35													
36													
37													
38													
39													

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure.  PID tests readings taken from samples at 5.0m, 10.0m, 15.0m, 20.0m, 25.0m and 30.0m - for results see Appendix 10					<b>WATER STRIKE DETAILS</b>					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					21.00					Seepage
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type						
24-11-16	28.50	1.00	28.50	160mm						

IGSL RC OPEN HOLE 19600.GPJ IGSL GDT 2/5/17



# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>GEW-5</b>
<b>CO-ORDINATES</b> 291,242.28 E 222,330.17 N		<b>SHEET</b> Sheet 1 of 4
<b>GROUND LEVEL (mOD)</b> 110.84	<b>RIG TYPE</b> SoilMec30	<b>DATE DRILLED</b> 23/11/2015
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 23/11/2015
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Zones (m)	Fracture Spacing	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0							0 250 500		MADE GROUND (comprised of grey/black sandy gravelly clay 40%, grey sandy gravel 35%, cobbles 10%, plastic pieces 5%, timber and organic pieces 5%, steel bars 5%)	1.00	109.84		
1									MADE GROUND (comprised of plastic pieces 35%, timber pieces 35%, black clayey sandy gravel 10%, cobbles 10%, concrete pieces 5%, steel pieces 5%)				
2													
3													
4													
5													
6									MADE GROUND (comprised of grey/black angular cobbles and stones 100%)	6.00	104.84		
6.50									MADE GROUND (comprised of plastic pieces 40%, timber pieces 30%, black clayey sandy gravel 15%, cobbles 5%, steel pieces 10%)	6.50	104.34		
7													
8													
9													

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure. PID tests readings taken from samples at 5.0m, 10.0m, 15.0m, 20.0m, 25.0m and 30.0m - for results see Appendix 10					<b>WATER STRIKE DETAILS</b>				
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)
					No water strike recorded				
					<b>GROUNDWATER DETAILS</b>				
<b>INSTALLATION DETAILS</b>					Date	Hole Depth	Casing Depth	Depth to Water	Comments
Date	Tip Depth	RZ Top	RZ Base	Type					
23-11-16	28.00	1.00	28.00	160mm					

IGSL RC OPEN HOLE 19600.GPJ IGSL GDT 2/5/17



# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>GEW-5</b>
<b>CO-ORDINATES</b> 291,242.28 E 222,330.17 N		<b>SHEET</b> Sheet 2 of 4
<b>GROUND LEVEL (mOD)</b> 110.84	<b>RIG TYPE</b> SoilMec30	<b>DATE DRILLED</b> 23/11/2015
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 23/11/2015
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Zones (m)	Fracture Spacing	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10							0 250 500		MADE GROUND (comprised of plastic pieces 40%, timber pieces 30%, black clayey sandy gravel 15%, cobbles 5%, steel pieces 10%) <i>(continued)</i>			0	
11												0	
12												0	
13												0	
14												0	
15												0	
16										16.00		0	
16									MADE GROUND (comprised of black sandy gravelly clay 50%, cobbles 50%)		94.84	0	
17									MADE GROUND (comprised of plastic pieces 40%, timber pieces 30%, cobbles 10%, black sandy gravelly clay 10%, steel bars 10%)	16.80	94.04	0	
18												0	
19												0	

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure. PID tests readings taken from samples at 5.0m, 10.0m, 15.0m, 20.0m, 25.0m and 30.0m - for results see Appendix 10					<b>WATER STRIKE DETAILS</b>				
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)
					No water strike recorded				
					<b>GROUNDWATER DETAILS</b>				
<b>INSTALLATION DETAILS</b>					Date	Hole Depth	Casing Depth	Depth to Water	Comments
Date	Tip Depth	RZ Top	RZ Base	Type					
23-11-16	28.00	1.00	28.00	160mm					

IGSL RC OPEN HOLE 19600.GPJ IGSL GDT 2/5/17



# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>GEW-5</b>
<b>CO-ORDINATES</b> 291,242.28 E 222,330.17 N		<b>SHEET</b> Sheet 3 of 4
<b>GROUND LEVEL (mOD)</b> 110.84	<b>RIG TYPE</b> SoilMec30	<b>DATE DRILLED</b> 23/11/2015
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 23/11/2015
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Zones (m)	Fracture Spacing Min Avg Max (mm)	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
20							0 250 500		MADE GROUND (comprised of plastic pieces 40%, timber pieces 30%, cobbles 10%, black sandy gravelly clay 10%, steel bars 10%) <i>(continued)</i>	21.00	89.84		
21									MADE GROUND (comprised of black cobbles 35%, steel bars and pieces 35%, concrete pieces 20%, timber 10%)	23.00	87.84		
22													
23									MADE GROUND (comprised of plastic pieces 40%, timber pieces 40%, cobbles 10%, black sandy gravelly clay 5%, steel bars 5%)				
24													
25													
26													
27													
28													
29													
										30.00			

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure. PID tests readings taken from samples at 5.0m, 10.0m, 15.0m, 20.0m, 25.0m and 30.0m - for results see Appendix 10					End of Borehole at 30.00 m					<b>WATER STRIKE DETAILS</b>				
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments				
										No water strike recorded				
					<b>GROUNDWATER DETAILS</b>									
<b>INSTALLATION DETAILS</b>					Date	Hole Depth	Casing Depth	Depth to Water	Comments					
Date	Tip Depth	RZ Top	RZ Base	Type										
23-11-16	28.00	1.00	28.00	160mm										

IGSL RC OPEN HOLE 19600.GPJ IGSL GDT 2/5/17





# OPEN HOLE DRILLING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill		<b>DRILLHOLE NO</b> <b>GEW-5</b>
<b>CO-ORDINATES</b> 291,242.28 E 222,330.17 N		<b>SHEET</b> Sheet 4 of 4
<b>GROUND LEVEL (mOD)</b> 110.84	<b>RIG TYPE</b> SoilMec30	<b>DATE DRILLED</b> 23/11/2015
<b>CLIENT</b> Kildare County Council	<b>INCLINATION (deg)</b> -90	<b>DATE LOGGED</b> 23/11/2015
<b>ENGINEER</b> Jacobs	<b>HOLE DIAMETER (mm)</b>	<b>DRILLED BY</b> Dempsey

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Zones (m)	Fracture Spacing Min Avg Max (mm)	Fracture Spacing Log (mm)	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
30							0 250 500				80.84		
31													
32													
33													
34													
35													
36													
37													
38													
39													

<b>REMARKS</b> Rock and soil descriptions are based on examination of drilling returns. These samples can be heavily disturbed and fragmented, with a loss of fines. Typical fragments of 2 to 3 mm are recovered. Accurate descriptions are not, therefore, possible. Similarly, it is not possible to accurately assess soil stratification or rock condition/structure. PID tests readings taken from samples at 5.0m, 10.0m, 15.0m, 20.0m, 25.0m and 30.0m - for results see Appendix 10					<b>WATER STRIKE DETAILS</b>				
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)
					No water strike recorded				
<b>INSTALLATION DETAILS</b>					<b>GROUNDWATER DETAILS</b>				
					Date	Hole Depth	Casing Depth	Depth to Water	Comments
23-11-16	28.00	1.00	28.00	160mm					

IGSL RC OPEN HOLE 19600.GPJ IGSL GDT 2/5/17



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> <b>BB01</b>	
<b>CO-ORDINATES</b> 291,515.32 E 222,206.42 N		<b>RIG TYPE</b> Dando 2000		<b>SHEET</b> Sheet 1 of 1	
<b>GROUND LEVEL (m AOD)</b> 81.02		<b>BOREHOLE DIAMETER (mm)</b> 200		<b>DATE COMMENCED</b> 25/10/2016	
		<b>BOREHOLE DEPTH (m)</b> 8.20		<b>DATE COMPLETED</b> 26/10/2016	
<b>CLIENT</b> Kildare Co.Co.		<b>SPT HAMMER REF. NO.</b> SPT2		<b>BORED BY</b> P.Thomas	
<b>ENGINEER</b> Jacobs		<b>ENERGY RATIO (%)</b> 53		<b>PROCESSED BY</b> F.C	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	TOPSOIL		80.92	0.10	AA54396	ENV	0.25			
	Soft to firm brown sandy gravelly CLAY. Gravel is fine to coarse subrounded to subangular of various lithologies.				AA54397	ENV	0.50			
1	Medium dense brown gravelly fine to coarse SAND. Gravel is fine to coarse subangular to subrounded of various lithologies.		79.92	1.10	AA54398	ENV	1.00			
					AA54399	D	1.00			
			79.22	1.80	AA54400	B	1.50	N = 27 (3, 4, 5, 6, 8, 8)		
2	Medium dense to dense brown/grey sandy GRAVEL with medium cobble content. Gravel is fine to coarse subangular to subrounded of various lithologies. Cobbles are subangular to subrounded of limestone.				AA59351	ENV	2.00			
					AA59352	D	2.00			
					AA59353	B	2.50	N = 21 (2, 3, 5, 5, 5, 6)		
					AA59354	D	3.00			
					AA59355	B	3.50	N = 28 (3, 6, 8, 8, 6, 6)		
					AA59356	D	4.00			
					AA59357	B	4.50			
					AA59358	U	4.50			
					AA59358	D	5.00			
					AA59359	B	5.50			
					AA59360	D	6.00	N = 40 (4, 7, 8, 10, 10, 12)		
					AA59361	B	6.50			
7	Grey silty fine to medium SAND with medium cobble and boulder content. Cobbles and boulders are subangular of limestone.		74.02	7.00	AA59362	D	7.00			
					AA59363	B	7.50			
					AA59363	U	7.50			
8	COBBLES and BOULDERS. Cobbles and boulders are subangular of limestone lithologies. End of Borehole at 8.20 m		73.02	8.00	AA59364	D	8.00	N = 15/25 mm (25, 35, 15)		
					AA59365	B	8.20			

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
8	8.2	1	Slow progress	3.30	3.30	No	2.40	20	Moderate

INSTALLATION DETAILS					GROUNDWATER PROGRESS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments
25-10-16					25-10-16	8.00	8.00	2.40	End of 1st Day
04-11-16	8.00	1.00	8.00	50mm SP	26-10-16	8.00	8.00	2.00	Start of 2nd Day

<b>REMARKS</b> Hand excavated pit to 1.20m	<b>Sample Legend</b> D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) UT - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample
--	--

IGSL BH LOG 19600.GPJ IGSL\_GDT 2/5/17



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> <b>BB02</b>	
<b>CO-ORDINATES</b> 291,361.34 E 222,419.10 N		<b>RIG TYPE</b> Dando 2000		<b>SHEET</b> Sheet 1 of 1	
<b>GROUND LEVEL (m AOD)</b> 87.10		<b>BOREHOLE DIAMETER (mm)</b> 200		<b>DATE COMMENCED</b> 24/10/2016	
		<b>BOREHOLE DEPTH (m)</b> 3.80		<b>DATE COMPLETED</b> 24/10/2016	
<b>CLIENT</b> Kildare Co.Co.		<b>SPT HAMMER REF. NO.</b> SPT2		<b>BORED BY</b> P.Thomas	
<b>ENGINEER</b> Jacobs		<b>ENERGY RATIO (%)</b> 53		<b>PROCESSED BY</b> F.C	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	TOPSOIL		87.00	0.10	AA54386	ENV	0.25	N = 29 (3, 4, 6, 6, 8, 9)  N = 50/95 mm (6, 8, 36, 14)  N = 50/30 mm (14, 11, 50)		
	Brown fine to coarse GRAVEL with medium cobble content. Gravel is fine to coarse subangular to subrounded of various lithologies. Cobbles are subangular to subrounded of various lithologies.				AA54387	ENV	0.50			
1	Medium dense brown fine to medium SAND.		86.00	1.10	AA54388	ENV	1.00			
					AA54389	D	1.00			
					AA54390	B	1.50			
2	Very dense brown sandy GRAVEL with high cobble content. Gravel is fine to coarse subangular to subrounded of various lithologies. Cobbles are subangular of limestone lithologies.		84.90	2.20	AA54391	ENV	2.00			
					AA54392	D	2.00			
					AA54393	B	2.50			
3					AA54394	ENV	3.00			
					AA54395	D	3.00			
4	Obstruction End of Borehole at 3.80 m		83.30	3.80						

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
3	3.5	1	Slow progress						No water strike
3.5	3.8	1	Slow progress						
INSTALLATION DETAILS				GROUNDWATER PROGRESS					
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments

<b>REMARKS</b> Hand excavated pit to 1.20m	<b>Sample Legend</b> D - Small Disturbed (tub) Sample B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) UT - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample
--	---

IGSL BH LOG 19600.GPJ IGSL.GDT 2/5/17



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> <b>BB03</b>	
<b>CO-ORDINATES</b> 291,153.42 E 221,985.86 N		<b>RIG TYPE</b> Dando 2000		<b>SHEET</b> Sheet 1 of 1	
<b>GROUND LEVEL (m AOD)</b> 92.82		<b>BOREHOLE DIAMETER (mm)</b> 200		<b>DATE COMMENCED</b> 03/11/2016	
		<b>BOREHOLE DEPTH (m)</b> 2.50		<b>DATE COMPLETED</b> 03/11/2016	
<b>CLIENT</b> Kildare Co.Co.		<b>SPT HAMMER REF. NO.</b> SPT2		<b>BORED BY</b> P.Thomas	
<b>ENGINEER</b> Jacobs		<b>ENERGY RATIO (%)</b> 53		<b>PROCESSED BY</b> F.C	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	TOPSOIL		92.72	0.10						
	Very stiff brown very sandy very gravelly CLAY with cobbles . Gravel is fine to coarse subangular to subrounded of various lithologies. Cobbles are subangular to subrounded of various lithologies.		92.02	0.80						
1	Very dense brown clayey sandy GRAVEL with some pockets of brown clay and a high cobble and boulder content. Gravel is fine to coarse subangular to subrounded of various lithologies. Cobbles and boulders are subangular to subrounded of limestone.				AA54772	D	1.00		N = 50/205 mm (5, 11, 14, 18, 18)	
					AA54773	B	1.50			
2					AA54774	D	2.00			
					AA54775	B	2.50			
	Obstruction - Possible cobbles or boulders End of Borehole at 2.50 m		90.32	2.50				N = 50/125 mm (17, 8, 29, 21)		

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
2.4	2.5	1	Slow progress						No water strike
INSTALLATION DETAILS				GROUNDWATER PROGRESS					
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments

<b>REMARKS</b> Hand excavated pit to 1.20m . Refusal reported at 2.50m. Borehole relocated 1m away and rebored as BB03A.	<b>Sample Legend</b> D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) UT - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample
--	--

IGSL BH LOG 19600.GPJ IGSL\_GDT\_2/5/17



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> <b>BB03A</b>	
<b>CO-ORDINATES</b> 291,152.26 E 221,984.86 N		<b>RIG TYPE</b> Dando 2000		<b>SHEET</b> Sheet 1 of 1	
<b>GROUND LEVEL (m AOD)</b> 92.67		<b>BOREHOLE DIAMETER (mm)</b> 200		<b>DATE COMMENCED</b> 03/11/2016	
		<b>BOREHOLE DEPTH (m)</b> 2.30		<b>DATE COMPLETED</b> 03/11/2016	
<b>CLIENT</b> Kildare Co.Co.		<b>SPT HAMMER REF. NO.</b> SPT2		<b>BORED BY</b> P.Thomas	
<b>ENGINEER</b> Jacobs		<b>ENERGY RATIO (%)</b> 53		<b>PROCESSED BY</b> F.C	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	<b>TOPSOIL</b> Very stiff brown very sandy very gravelly CLAY with medium cobble content. Gravel is fine to coarse subangular to subrounded of various lithologies. Cobbles are subangular to subrounded of various lithologies. Brown clayey very sandy GRAVEL with some brown sandy clay pockets. Gravel is fine to coarse subangular to subrounded of various lithologies.		92.57	0.10						
			91.87	0.80						
2			90.37	2.30						
	Obstruction - Possible cobbles or boulders End of Borehole at 2.30 m									
3										
4										
5										
6										
7										
8										
9										
10										
11										

HARD STRATA BORING/CHISELLING					WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments		Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
										No water strike
INSTALLATION DETAILS					GROUNDWATER PROGRESS					
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments	

<b>REMARKS</b> Hand excavated pit to 1.20m	<b>Sample Legend</b> D - Small Disturbed (tub) Sample B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) UT - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample
--	---

IGSL BH LOG 19600.GPJ IGSL\_GDT\_2/5/17



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> <b>BB04</b>	
<b>CO-ORDINATES</b> 291,713.06 E 222,076.48 N		<b>RIG TYPE</b> Dando 2000		<b>SHEET</b> Sheet 1 of 1	
<b>GROUND LEVEL (m AOD)</b> 81.61		<b>BOREHOLE DIAMETER (mm)</b> 200		<b>DATE COMMENCED</b> 01/11/2016	
		<b>BOREHOLE DEPTH (m)</b> 5.20		<b>DATE COMPLETED</b> 02/11/2016	
<b>CLIENT</b> Kildare Co.Co.		<b>SPT HAMMER REF. NO.</b> SPT2		<b>BORED BY</b> P.Thomas	
<b>ENGINEER</b> Jacobs		<b>ENERGY RATIO (%)</b> 53		<b>PROCESSED BY</b> F.C	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	TOPSOIL		81.41	0.20						
1	Soft brown sandy slightly gravelly CLAY. Gravel is fine to coarse subangular to subrounded of various lithologies.		80.61	1.00	AA54762	D	1.00		N = 5 (1, 1, 1, 1, 1, 2)  N = 27 (2, 2, 5, 5, 8, 9)  N = 36 (2, 6, 8, 8, 10, 10)  N = 50/295 mm (4, 9, 12, 12, 12, 14)  N = 18/35 mm (27, 32, 18)	
1	Soft brown very sandy gravelly CLAY. Gravel is fine to coarse subangular to subrounded of various lithologies.				AA54763	B	1.50			
2	Brown clayey sandy GRAVEL. Gravel is fine to coarse subangular to subrounded of various lithologies.		79.51	2.10	AA54764	D	2.00			
2	Brown/grey very sandy fine to coarse GRAVEL. Gravel is subangular to subrounded of various lithologies.		79.11	2.50	AA54765	B	2.50			
3	Dense grey clayey sandy fine to coarse GRAVEL with medium cobble content. Gravel is fine to coarse subangular to subrounded of various lithologies. Cobbles are subangular to subrounded of limestone.		78.11	3.50	AA54767	B	3.50			
3	Very dense grey sandy GRAVEL with high cobble and conglomerate material content. Gravel is fine to coarse subangular to subrounded of various lithologies. Cobbles are subangular to subrounded of limestone.		77.11	4.50	AA54768	D	4.00			
4					AA54769	B	4.50			
5					AA54770	D	5.00			
5					AA54771	B	5.20			
6	Obstruction End of Borehole at 5.20 m									

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
4.9	5.2	1	Slow progress	2.00	2.00	No	1.40	20	Slow

INSTALLATION DETAILS					GROUNDWATER PROGRESS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments
01-11-16					02-11-16	2.50	2.50	1.40	End of 1st Day
						2.50	2.50	1.40	Start of 2nd Day

<b>REMARKS</b> Hand excavated pit to 1.20m					<b>Sample Legend</b> D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) UT - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample				
--	--	--	--	--	--	--	--	--	--

IGSL BH LOG 19600.GPJ IGSL.GDT 2/5/17



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> BH71	
<b>CO-ORDINATES</b> 291,545.53 E 221,965.38 N				<b>SHEET</b> Sheet 1 of 1	
<b>GROUND LEVEL (m AOD)</b> 82.55		<b>RIG TYPE</b> Dando 2000		<b>DATE COMMENCED</b> 07/12/2016	
		<b>BOREHOLE DIAMETER (mm)</b> 200		<b>DATE COMPLETED</b> 08/12/2016	
		<b>BOREHOLE DEPTH (m)</b> 7.20			
<b>CLIENT</b> Kildare Co.Co.		<b>SPT HAMMER REF. NO.</b> SPT2		<b>BORED BY</b> P.Thomas	
<b>ENGINEER</b> Jacobs		<b>ENERGY RATIO (%)</b> 53		<b>PROCESSED BY</b> I.Reeder	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	MADE GROUND (comprised of grey sandy gravelly clay 60%, sandy gravel 20%, red brick pieces 5%, concrete pieces 5%, timber 5%, plastic 5%)									
1			80.75	1.80						
2	MADE GROUND (comprised of grey sandy gravelly CLAY with cobbles and some sandy lenses)									
3										
4										
5	MADE GROUND (comprised of sandy gravelly clay 50%, rubble fill 25%, red brick 10%, concrete 5%, timber 5%, angular cobbles 5%)		77.55	5.00	AA58283	B	5.00			
6										
7	Very stiff grey sandy very gravelly CLAY with high cobble content. Gravel is fine to coarse subangular to subrounded of various lithologies. Cobbles are subangular to subrounded of limestone. (Possible natural ground)		75.65	6.90						
7	End of Borehole at 7.20 m		75.35	7.20						
8										
9										
10										
11										

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
1.2	1.5	0.75	Slow progress	2.00	2.00	1.80	0.50	20	Rapid
6.5	7	1	Slow progress	6.80	6.80	No	3.20	20	Rapid
7	7.2	1	No progress						

INSTALLATION DETAILS					GROUNDWATER PROGRESS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments
08-12-16	5.00	1.00	5.00	50mm SP					

<b>REMARKS</b> Hand excavated pit to 1.20m	<b>Sample Legend</b> D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) UT - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample
--	--

IGSL BH LOG 19600.GPJ IGSL.GDT 2/5/17



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> BH78	
<b>CO-ORDINATES</b> 291,413.20 E 222,043.70 N				<b>SHEET</b> Sheet 1 of 1	
<b>GROUND LEVEL (m AOD)</b> 86.50		<b>RIG TYPE</b> Dando 2000		<b>DATE COMMENCED</b> 09/12/2016	
		<b>BOREHOLE DIAMETER (mm)</b> 200		<b>DATE COMPLETED</b> 12/12/2016	
		<b>BOREHOLE DEPTH (m)</b> 9.00			
<b>CLIENT</b> Kildare Co.Co.		<b>SPT HAMMER REF. NO.</b> SPT2		<b>BORED BY</b> P.Thomas	
<b>ENGINEER</b> Jacobs		<b>ENERGY RATIO (%)</b> 53		<b>PROCESSED BY</b> I.Reder	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	MADE GROUND (comprised of black clayey sandy gravel 50%, concrete and rubble 20%, red brick 10%, plastic 10%, steel bars 5%, rubber 5%)									
1					AA30307	B	1.50			
2					AA30308	B	2.50			
6			80.00	6.50						
7	Soft to firm grey very sandy very gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded of various lithologies. (Possible natural ground)									
8	Grey very sandy GRAVEL. Sand is fine to coarse. Gravel is fine to medium subangular to subrounded of various lithologies.		78.60	7.90						
9	End of Borehole at 9.00 m		77.50	9.00						

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
1.7	1.9	0.5	Slow progress						No water strike
8.6	9	1	No progress						

INSTALLATION DETAILS					GROUNDWATER PROGRESS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments
12-12-16	5.50	1.00	5.50	50mm SP					

<b>REMARKS</b> Hand excavated pit to 1.20m	<b>Sample Legend</b> D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) UT - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample
--	--

IGSL BH LOG 19600.GPJ IGSL.GDT 2/5/17





# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> BH79	
<b>CO-ORDINATES</b> 291,469.65 E 222,140.57 N				<b>SHEET</b> Sheet 1 of 1	
<b>GROUND LEVEL (m AOD)</b> 86.81		<b>RIG TYPE</b> Dando 2000		<b>DATE COMMENCED</b> 15/12/2016	
		<b>BOREHOLE DIAMETER (mm)</b> 200		<b>DATE COMPLETED</b> 16/12/2016	
		<b>BOREHOLE DEPTH (m)</b> 10.00			
<b>CLIENT</b> Kildare Co.Co.		<b>SPT HAMMER REF. NO.</b> SPT2		<b>BORED BY</b> P.Thomas	
<b>ENGINEER</b> Jacobs		<b>ENERGY RATIO (%)</b> 53		<b>PROCESSED BY</b> I.Reeder	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	MADE GROUND (comprised of slightly clayey gravelly rubble/crushed concrete 100%)									
1	MADE GROUND (comprised of black clayey sandy gravel 55%, concrete and rubble 15%, red brick 10%, plastic 10%, timber 5%, steel bars 2%, rubber 2%, glass 1%)		85.81	1.00						
					AA30312	B	1.50			
						AA30313	B	2.50		
7	Firm to stiff brown slightly sandy gravelly CLAY with medium cobble and low boulder content. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded of various lithologies. Cobbles and boulders are subangular to subrounded of limestone lithology.		79.21	7.60						
10					76.81	10.00				
10	End of Borehole at 10.00 m									

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
1.3	1.6	0.75	Slow progress						No water strike
9	10	2	Slow progress						

INSTALLATION DETAILS					GROUNDWATER PROGRESS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments
16-12-16	6.70	1.00	6.70	50mm SP					

<b>REMARKS</b> Hand excavated pit to 1.20m. Possible fuel/diesel contamination between 1.60m and 2.50m (strong odour smell).	<b>Sample Legend</b> D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) UT - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample
--	--

IGSL BH LOG 19600.GPJ IGSL.GDT 2/5/17



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> <b>BH80</b>	
<b>CO-ORDINATES</b> 291,596.24 E 222,085.73 N		<b>RIG TYPE</b> Dando 2000		<b>SHEET</b> Sheet 1 of 1	
<b>GROUND LEVEL (m AOD)</b> 85.78		<b>BOREHOLE DIAMETER (mm)</b> 200		<b>DATE COMMENCED</b> 12/12/2016	
		<b>BOREHOLE DEPTH (m)</b> 9.00		<b>DATE COMPLETED</b> 13/12/2016	
<b>CLIENT</b> Kildare Co.Co.		<b>SPT HAMMER REF. NO.</b> SPT2		<b>BORED BY</b> P.Thomas	
<b>ENGINEER</b> Jacobs		<b>ENERGY RATIO (%)</b> 53		<b>PROCESSED BY</b> I.Reder	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	MADE GROUND (comprised of compacted angular gravel, rubble and crushed concrete)		85.28	0.50						
1	MADE GROUND (comprised of black clayey sandy gravel 50%, concrete and rubble 20%, red brick 10%, plastic 5%, timber 5%, steel bars 5%, rubber 5%)									
2					AA30309	B	2.00			
3										
4										
5										
6	Grey very sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded of various lithologies.		79.78	6.00						
7										
8										
9	End of Borehole at 9.00 m		76.78	9.00						
10										
11										

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
3.8	4.3	1	Slow progress						No water strike

INSTALLATION DETAILS					GROUNDWATER PROGRESS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments
14-12-16	5.00	1.00	5.00	50mm SP					

<b>REMARKS</b> Hand excavated pit to 1.20m	<b>Sample Legend</b> D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) UT - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample
--	--

IGSL BH LOG 19600.GPJ IGSL\_GDT 2/5/17



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> <b>DB01</b>	
<b>CO-ORDINATES</b> 290,982.91 E 222,525.01 N		<b>RIG TYPE</b> Dando 2000		<b>SHEET</b> Sheet 1 of 1	
<b>GROUND LEVEL (m AOD)</b> 94.70		<b>BOREHOLE DIAMETER (mm)</b> 200		<b>DATE COMMENCED</b> 20/10/2016	
		<b>BOREHOLE DEPTH (m)</b> 5.50		<b>DATE COMPLETED</b> 21/10/2016	
<b>CLIENT</b> Kildare Co.Co.		<b>SPT HAMMER REF. NO.</b> SPT2		<b>BORED BY</b> P.Thomas	
<b>ENGINEER</b> Jacobs		<b>ENERGY RATIO (%)</b> 53		<b>PROCESSED BY</b> F.C	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	TOPSOIL		94.50	0.20						
	MADE GROUND (comprised of dark brown sandy gravelly clay with rubble, bricks and organic matter)		94.20	0.50	AA54358	ENV	0.25			
					AA54359	ENV	0.50			
1	Firm brown sandy slightly gravelly CLAY. Gravel is fine to coarse subangular to subrounded of various lithologies.		93.20	1.50	AA54360	ENV	1.00			
					AA54361	D	1.00			
	Medium dense brown silty fine SAND		92.70	2.00	AA54362	B	1.50			
2	Firm brown very sandy silty CLAY with some fine gravel bands. Sand is fine to coarse. Gravel is fine subangular to subrounded of various lithologies.				AA54363	ENV	2.00			
					AA54364	D	2.00			
					AA54365	U	2.50	0%rec		
					AA54366	B	2.50			
3					AA54367	ENV	3.00			
					AA54368	D	3.00			
					AA54369	B	3.50			
4					AA54370	U	4.00	80%rec		
					AA54371	ENV	4.10			
					AA54372	D	4.20			
					AA54373	D	4.50			
					AA54374	B	4.50			
5	Stiff to very stiff brown slightly sandy gravelly CLAY with medium cobble content . Gravel is fine to coarse subangular to subrounded of various lithologies. Cobbles are subangular to subrounded of limestone.				AA54375	ENV	5.00			
					AA54376	D	5.00			
					AA54377	B	5.50			
6	Obstruction End of Borehole at 5.50 m									

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
4.7	4.9	0.75	Slow progress						No water strike
5.4	5.5	1	Slow progress						
5.5	5.5	1	No progress						

INSTALLATION DETAILS					GROUNDWATER PROGRESS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments

<b>REMARKS</b> Hand excavated pit to 1.20m . Falling head permeability test carried out from 2.0 to 3.0m and from 4.0 to 5.0m.	<b>Sample Legend</b> D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) UT - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample
--	--

IGSL BH LOG 19600.GPJ IGSL.GDT 2/5/17



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> DB02	
<b>CO-ORDINATES</b> 291,144.34 E 222,492.42 N		<b>RIG TYPE</b> Dando 2000		<b>SHEET</b> Sheet 1 of 1	
<b>GROUND LEVEL (m AOD)</b> 93.47		<b>BOREHOLE DIAMETER (mm)</b> 150		<b>DATE COMMENCED</b> 15/11/2016	
		<b>BOREHOLE DEPTH (m)</b> 1.50		<b>DATE COMPLETED</b> 15/11/2016	
<b>CLIENT</b> Kildare Co.Co.		<b>SPT HAMMER REF. NO.</b> SPT1		<b>BORED BY</b> J.Carr	
<b>ENGINEER</b> Jacobs		<b>ENERGY RATIO (%)</b> 51		<b>PROCESSED BY</b> F.C	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	TOPSOIL Brown sandy fine to coarse subangular to subrounded GRAVEL (Possible Fill / Made Ground)		93.37	0.10	AA56004	B	0.10			
1	Brown very cobbly coarse GRAVEL (possible fill/made ground)		92.27	1.20	AA56005	D B	1.00			
	Obstruction - Possible boulders End of Borehole at 1.50 m		91.97	1.50			1.00			
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
1.3	1.5	1	No progress						No water strike

INSTALLATION DETAILS					GROUNDWATER PROGRESS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments

**REMARKS** Hand excavated pit to 1.20m. Obstruction / possible boulder encountered at 1.50m. Borehole relocated 3m away and rebored as DB02A.

**Sample Legend**  
 D - Small Disturbed (tub)  
 B - Bulk Disturbed  
 LB - Large Bulk Disturbed  
 Env - Environmental Sample (Jar + Vial + Tub)

UT - Undisturbed 100mm Diameter Sample  
 P - Undisturbed Piston Sample  
 W - Water Sample

IGSL BH LOG 19600.GPJ IGSL\_GDT\_2/5/17



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> DB02A	
<b>CO-ORDINATES</b> 291,142.07 E 222,494.90 N		<b>RIG TYPE</b> Dando 2000		<b>SHEET</b> Sheet 1 of 2	
<b>GROUND LEVEL (m AOD)</b> 92.97		<b>BOREHOLE DIAMETER (mm)</b> 150		<b>DATE COMMENCED</b> 15/11/2016	
		<b>BOREHOLE DEPTH (m)</b> 13.50		<b>DATE COMPLETED</b> 16/11/2016	
<b>CLIENT</b> Kildare Co.Co.		<b>SPT HAMMER REF. NO.</b> SPT1		<b>BORED BY</b> J.Carr	
<b>ENGINEER</b> Jacobs		<b>ENERGY RATIO (%)</b> 51		<b>PROCESSED BY</b> F.C	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	<b>TOPSOIL</b> Soft to firm brown sandy slightly gravelly CLAY with low cobble content. Gravel is fine to coarse subangular to subrounded of various lithologies. Cobbles are subangular to subrounded of limestone.		92.87	0.10	AA56006	B	0.10			
1	Grey sandy fine to coarse GRAVEL with medium cobble content. Gravel is subangular to subrounded of various lithologies. Cobbles are subangular to subrounded of limestone.		91.47	1.50	AA56007	B	1.50		N = 50/225 mm (4, 8, 15, 15, 20)	
2			90.97	2.00		D	2.00		N = 17 (2, 3, 3, 4, 5, 5)	
3	Medium dense to dense grey slightly silty slightly gravelly fine to medium SAND. Gravel is fine to coarse subangular to subrounded of various lithologies.				AA56008	D	3.00		N = 23 (2, 4, 4, 5, 6, 8)	
4						D	3.00		N = 20 (2, 4, 4, 4, 5, 7)	
5						D	5.00		N = 19 (2, 3, 4, 4, 5, 6)	
6						D	6.00			
7						AA56009	B	6.50		N = 23 (3, 4, 4, 5, 6, 8)
8						D	7.00			
9						D	8.00		N = 27 (2, 3, 5, 7, 7, 8)	
10						D	9.00			
10						AA56010	D	10.00		N = 34 (3, 4, 5, 7, 9, 13)
10						B	10.00			
11	D	11.00		N = 29 (4, 5, 5, 7, 7, 10)						
			81.47	11.50						

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
									No water strike

INSTALLATION DETAILS					GROUNDWATER PROGRESS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments

<b>REMARKS</b> Hand excavated pit to 1.20m	<b>Sample Legend</b> D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) UT - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample
--	--

IGSL BH LOG 19600.GPJ IGSL.GDT 2/5/17



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> DB02A	
<b>CO-ORDINATES</b> 291,142.07 E 222,494.90 N		<b>RIG TYPE</b> Dando 2000		<b>SHEET</b> Sheet 2 of 2	
<b>GROUND LEVEL (m AOD)</b> 92.97		<b>BOREHOLE DIAMETER (mm)</b> 150		<b>DATE COMMENCED</b> 15/11/2016	
		<b>BOREHOLE DEPTH (m)</b> 13.50		<b>DATE COMPLETED</b> 16/11/2016	
<b>CLIENT</b> Kildare Co.Co.		<b>SPT HAMMER REF. NO.</b> SPT1		<b>BORED BY</b> J.Carr	
<b>ENGINEER</b> Jacobs		<b>ENERGY RATIO (%)</b> 51		<b>PROCESSED BY</b> F.C	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
12	Dense grey slightly sandy fine to coarse subangular to subrounded GRAVEL of various lithologies		80.47	12.50	AA56011	B	11.50			
					D	12.00				
13	Grey fine to coarse SAND		79.47	13.50	AA56012	D	13.00			
					B	13.00				
14	End of Borehole at 13.50 m									
15										
16										
17										
18										
19										
20										
21										
22										

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
									No water strike

INSTALLATION DETAILS					GROUNDWATER PROGRESS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments

<b>REMARKS</b> Hand excavated pit to 1.20m	<b>Sample Legend</b> D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) UT - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample
--	--

IGSL BH LOG 19600.GPJ IGSL\_GDT\_2/5/17



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

**19600**

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> <b>DB03</b>	
<b>CO-ORDINATES</b> 291,280.25 E 222,504.71 N		<b>RIG TYPE</b> Dando 2000		<b>SHEET</b> Sheet 1 of 1	
<b>GROUND LEVEL (m AOD)</b> 87.49		<b>BOREHOLE DIAMETER (mm)</b> 150		<b>DATE COMMENCED</b> 10/11/2016	
		<b>BOREHOLE DEPTH (m)</b> 9.10		<b>DATE COMPLETED</b> 14/11/2016	
<b>CLIENT</b> Kildare Co.Co.		<b>SPT HAMMER REF. NO.</b> SPT1		<b>BORED BY</b> J.Carr	
<b>ENGINEER</b> Jacobs		<b>ENERGY RATIO (%)</b> 51		<b>PROCESSED BY</b> F.C	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	TOPSOIL		87.09	0.40						
0.40	Soft brown sandy CLAY with medium gravel and low cobble content. Gravel is fine to coarse subangular to subrounded of various lithologies. Cobbles are subangular of limestone.				AA51047	B	0.40			
0.40					AA51048	B	0.40			
1.20	Medium dense grey GRAVEL with high cobble content. Gravel is fine to coarse subangular to subrounded of various lithologies. Cobbles are sunangular to subrounded of limestone.		86.29	1.20	AA51049	B	1.00			N = 18 (4, 5, 5, 4, 5, 4)
2.00					AA51050	D B	2.00 2.00			
3.00	Medium dense grey slightly silty fine to medium SAND		85.49	2.00						N = 20 (3, 3, 4, 5, 5, 6)
3.00	Medium dense grey gravelly fine to coarse SAND. Gravel is fine to coarse subangular to subrounded of various lithologies.		84.49	3.00		D	3.00			N = 17 (3, 4, 3, 4, 4, 6)
4.00						D	4.00			
4.00	Medium dense grey slightly silty gravelly fine to coarse SAND. Gravel is fine to coarse subangular to subrounded of various lithologies.		83.49	4.00		D	4.00			N = 23 (2, 2, 5, 4, 6, 8)
5.00						D	5.00			
6.00						D	6.00			N = 21 (2, 3, 4, 5, 5, 7)
6.50					AA56001	B	6.50			
7.00						D	7.00			N = 23 (3, 4, 4, 5, 6, 8)
8.00						D	8.00			
8.00	Dense very clayey slightly sandy fine to coarse subangular to subrounded GRAVEL of various lithologies		79.49	8.00	AA56002	D B	8.00 8.00			N = 35 (4, 6, 6, 8, 8, 13)
8.50						D	8.50			
8.50	Firm to stiff grey sandy slightly gravelly CLAY with medium cobble content. Gravel is fine to coarse subangular to subrounded of various lithologies. Cobbles are subangular to subrounded of limestone.		78.99	8.50		D	8.50			N = 25/75 mm (25, 25, 25)
9.10						D	9.10			
9.10	End of Borehole at 9.10 m									

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
8.5	8.7	0.75	No progress						No water strike
9	9.1	1	No progress						

INSTALLATION DETAILS					GROUNDWATER PROGRESS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments

<b>REMARKS</b> Hand excavated pit to 1.20m. Falling head permeability test carried out from 7.20 to 9.30m.	<b>Sample Legend</b> D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub)	<b>UT</b> - Undisturbed 100mm Diameter Sample <b>P</b> - Undisturbed Piston Sample <b>W</b> - Water Sample
--	---	--

IGSL BH LOG 19600.GPJ IGSL.GDT 2/5/17



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> DB04	
<b>CO-ORDINATES</b> 291,335.85 E 222,448.33 N		<b>RIG TYPE</b> Dando 2000		<b>SHEET</b> Sheet 1 of 1	
<b>GROUND LEVEL (m AOD)</b> 87.80		<b>BOREHOLE DIAMETER (mm)</b> 200		<b>DATE COMMENCED</b> 18/11/2016	
		<b>BOREHOLE DEPTH (m)</b> 5.70		<b>DATE COMPLETED</b> 21/11/2016	
<b>CLIENT</b> Kildare Co.Co.		<b>SPT HAMMER REF. NO.</b> SPT2		<b>BORED BY</b> P.Thomas	
<b>ENGINEER</b> Jacobs		<b>ENERGY RATIO (%)</b> 53		<b>PROCESSED BY</b> F.C	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	TOPSOIL		87.60	0.20						
	Soft brown sandy gravelly CLAY. Gravel is fine to coarse subangular to subrounded of various lithologies.		87.00	0.80						
1	Dense brown sandy fine to coarse subangular to subrounded GRAVEL of various lithologies.				AA53640	B	1.00		N = 50/250 mm (7, 12, 14, 14, 15, 7)  N = 37 (2, 2, 4, 9, 10, 14)  N = 50/275 mm (3, 5, 10, 12, 17, 11)  N = 50/275 mm (4, 6, 9, 11, 18, 12)  N = 49/125 mm (10, 15, 24, 25)	
					AA53641	B	1.50			
					AA53642	B	2.00			
					AA53643	B	2.50			
			84.80	3.00	AA53644	B	3.00			
					AA53645	B	3.50			
					AA53646	D	4.00			
			83.30	4.50	AA53647	B	4.50			
					AA53648	D	5.00			
					AA53649	B	5.50			
3	Dense brown very gravelly fine to coarse SAND. Gravel is fine to coarse subangular to subrounded of various lithologies.									
5	Very Dense brown GRAVEL with high cobble low boulder and low sand and gravel conglomerates content. Gravel is coarse subangular to subrounded of various lithologies. Cobbles and boulders are subangular to subrounded of various lithologies.									
5.70	End of Borehole at 5.70 m		82.10	5.70						

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
5.4	5.7	1	No progress						No water strike

INSTALLATION DETAILS					GROUNDWATER PROGRESS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments

<b>REMARKS</b> Hand excavated pit to 1.20m	<b>Sample Legend</b> D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) UT - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample
--	--

IGSL BH LOG 19600.GPJ IGSL\_GDT 2/5/17





# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

**19600**

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> <b>DB05</b>	
<b>CO-ORDINATES</b> 291,489.31 E 222,302.39 N		<b>RIG TYPE</b> Dando 2000		<b>SHEET</b> Sheet 1 of 1	
<b>GROUND LEVEL (m AOD)</b> 80.70		<b>BOREHOLE DIAMETER (mm)</b> 200		<b>DATE COMMENCED</b> 16/11/2016	
		<b>BOREHOLE DEPTH (m)</b> 7.80		<b>DATE COMPLETED</b> 16/11/2016	
<b>CLIENT</b> Kildare Co.Co.		<b>SPT HAMMER REF. NO.</b> SPT1		<b>BORED BY</b> J.Carr	
<b>ENGINEER</b> Jacobs		<b>ENERGY RATIO (%)</b> 51		<b>PROCESSED BY</b> F.C	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	TOPSOIL Soft to firm brown sandy gravelly CLAY. Gravel is fine to coarse subangular to subrounded of various lithologies.		80.60	0.10						
1					AA53625	D	1.00			
					AA53626	B	1.50		N = 14 (2, 3, 2, 4, 3, 5)	
2	Soft grey sandy gravelly SILT. Gravel is fine to medium subangular to subrounded of various lithologies.		78.70	2.00	AA53627	D	2.00			
			78.40	2.30	AA53628	B	2.50		N = 12 (1, 1, 2, 2, 4, 4)	
3	Medium dense grey slightly sandy GRAVEL with low cobble content. Gravel is fine to coarse subangular to subrounded of various lithologies. Cobbles are subangular to subrounded of various lithologies.				AA53629	D	3.00			
					AA53630	B	3.50		N = 17 (1, 2, 3, 4, 4, 6)	
4					AA53631	D	4.00			
					AA53632	B	4.50		N = 15 (1, 1, 2, 3, 5, 5)	
5					AA53633	D	5.00			
					AA53634	B	5.50		N = 18 (2, 2, 3, 4, 5, 6)	
6					AA53635	D	6.00			
					AA53636	B	6.50		N = 27 (1, 1, 2, 5, 8, 12)	
7	Stiff to very stiff brown slightly sandy gravelly CLAY with many cobbles. Gravel is fine to coarse, subangular to subrounded of various lithologies. Cobbles subangular to subrounded of limestone.		73.70	7.00	AA53637	D	7.00			
					AA53638	B	7.50			
			72.90	7.80	AA53639	D	7.80		N = 220/200 mm (6, 12, 185, 18, 17)	
8	End of Borehole at 7.80 m									

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
7.4	7.8	1	No progress	2.30	2.30	No	2.20	20	Slow

INSTALLATION DETAILS					GROUNDWATER PROGRESS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments
16-11-16	7.50	1.00	7.50	50mm SP					

<b>REMARKS</b> Hand excavated pit to 1.20m	<b>Sample Legend</b> D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) UT - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample
--	--

IGSL BH LOG 19600.GPJ IGSL\_GDT 2/5/17



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

**19600**

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> <b>DB06</b>	
<b>CO-ORDINATES</b> 291,606.82 E 222,133.73 N		<b>RIG TYPE</b> Dando 2000		<b>SHEET</b> Sheet 1 of 1	
<b>GROUND LEVEL (m AOD)</b> 80.84		<b>BOREHOLE DIAMETER (mm)</b> 200		<b>DATE COMMENCED</b> 15/11/2016	
		<b>BOREHOLE DEPTH (m)</b> 8.00		<b>DATE COMPLETED</b> 15/11/2016	
<b>CLIENT</b> Kildare Co.Co.		<b>SPT HAMMER REF. NO.</b> SPT1		<b>BORED BY</b> J.Carr	
<b>ENGINEER</b> Jacobs		<b>ENERGY RATIO (%)</b> 51		<b>PROCESSED BY</b> F.C	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	TOPSOIL		80.64	0.20						
	Soft brown sandy gravelly CLAY. Gravel is fine to medium subangular to subrounded of various lithologies.		80.54	0.30						
			80.34	0.50						
1	Brown fine to coarse subangular to subrounded GRAVEL of various lithologies				AA53611	D	1.00			
	Soft grey/brown sandy slightly gravelly CLAY. Gravel is fine to coarse subangular to subrounded of various lithologies.		78.84	2.00	AA53612	B	1.50		N = 9 (1, 2, 2, 2, 2, 3)	
2	Medium dense grey slightly silty sandy GRAVEL. Gravel is fine to coarse subangular to subrounded of various lithologies.				AA53613	D	2.00			
					AA53614	B	2.50		N = 16 (3, 5, 7, 3, 3, 3)	
					AA53615	D	3.00			
					AA53616	B	3.50		N = 17 (2, 3, 4, 4, 4, 5)	
					AA53617	D	4.00			
					AA53618	B	4.50		N = 20 (1, 2, 4, 5, 5, 6)	
					AA53619	D	5.00			
					AA53620	B	5.50		N = 23 (2, 4, 4, 6, 6, 7)	
					AA53621	D	6.00			
					AA53622	B	6.50		N = 24 (2, 2, 5, 6, 5, 8)	
7			73.54	7.30	AA53623	D	7.00			
	Dense grey GRAVEL with low cobble content. Gravel is coarse subangular to subrounded of various lithologies. Cobbles are subangular to subrounded of various lithologies.				AA53624	B	7.50		N = 50/190 mm (6, 8, 12, 19, 19)	
8	End of Borehole at 8.00 m		72.84	8.00					N = 50/50 mm (25, 50)	

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
7.7	8	1	No progress	2.80	2.80	No	2.30	20	Slow

INSTALLATION DETAILS					GROUNDWATER PROGRESS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments
15-11-16	8.00	3.00	8.00	50mm SP					

<b>REMARKS</b> Hand excavated pit to 1.20m	<b>Sample Legend</b> D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) UT - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample
--	--

IGSL BH LOG 19600.GPJ IGSL\_GDT\_2/5/17



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

**19600**

<b>CONTRACT</b> Kerdiffstown Landfill		<b>BOREHOLE NO.</b> <b>DB07</b>	
<b>CO-ORDINATES</b> 291,759.24 E 221,980.26 N		<b>SHEET</b> Sheet 1 of 1	
<b>GROUND LEVEL (m AOD)</b> 92.63		<b>DATE COMMENCED</b> 22/11/2016	
<b>RIG TYPE</b> Dando 2000		<b>DATE COMPLETED</b> 24/11/2016	
<b>BOREHOLE DIAMETER (mm)</b> 200			
<b>BOREHOLE DEPTH (m)</b> 10.50			
<b>CLIENT</b> Kildare Co.Co.		<b>SPT HAMMER REF. NO.</b> SPT2	
<b>ENGINEER</b> Jacobs		<b>ENERGY RATIO (%)</b> 53	
		<b>BORED BY</b> P.Thomas	
		<b>PROCESSED BY</b> F.C	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	TOPSOIL		92.43	0.20						
	Soft brown sandy gravelly CLAY. Gravel is fine to coarse subangular to subrounded of various lithologies.		91.83	0.80						
1	Very dense brown very sandy GRAVEL with high cobble content. Gravel is fine to coarse subangular to subrounded of various lithologies. Cobbles are subangular to subrounded of various lithologies.				AA53650	D	1.00			
					AA58601	B	1.50	N = 50/150 mm (14, 11, 21, 29)		
2					AA58602	D	2.00			
					AA58603	B	2.50	N = 50/210 mm (7, 15, 16, 18, 16)		
3	3.15 - 6.0m Some thin fine to coarse sand bands				AA58604	D	3.00			
					AA58605	B	3.50	N = 50/265 mm (2, 6, 10, 11, 20, 9)		
4					AA58606	D	4.00			
					AA58607	B	4.50	N = 50/260 mm (5, 9, 12, 14, 16, 8)		
5					AA58608	D	5.00			
					AA58609	B	5.50	N = 23/60 mm (25, 27, 23)		
6					AA58610	D	6.00			
					AA58611	B	6.50	N = 50/270 mm (4, 10, 11, 15, 15, 9)		
7	Dense brown very sandy GRAVEL with a high cobble content. Gravel is fine to coarse subangular to subrounded of various lithologies. Cobbles are subangular to subrounded of various lithologies.		85.73	6.90	AA58612	D	7.00			
					AA58613	B	7.50	N = 41 (3, 4, 7, 9, 10, 15)		
8	Very dense brown very sandy GRAVEL with a high cobble content. Gravel is fine to coarse subangular to subrounded of various lithologies. Cobbles are subangular to subrounded of various lithologies.		84.63	8.00	AA58614	D	8.00			
					AA58615	B	8.50	N = 50/260 mm (9, 0, 12, 14, 16, 8)		
9	Dense brown very sandy GRAVEL with a high cobble content. Gravel is fine to coarse subangular to subrounded of various lithologies. Cobbles are subangular to subrounded of various lithologies.		83.53	9.10	AA58616	D	9.00			
					AA58617	B	9.50	N = 24 (3, 4, 4, 6, 6, 8)		
10	Stiff brown sandy gravelly CLAY with a high cobble content. Gravel is fine to coarse subangular to subrounded of various lithologies. Cobbles are subangular to subrounded of limestone.		82.63	10.00	AA58618	D	10.00			
								N = 14/25 mm (25, 36, 14)		
11	End of Borehole at 10.50 m									

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
1.5	1.8	0.75	Slow progress	9.00	9.00	NO	NO	20	Seepage
5.6	5.8	0.5	Slow progress						
10.3	10.5	1	No progress						

INSTALLATION DETAILS					GROUNDWATER PROGRESS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments
24-11-16	8.50	2.00	8.50	50mm SP					

<b>REMARKS</b> Hand excavated pit to 1.20m	<b>Sample Legend</b> D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) UT - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample
--	--

IGSL BH LOG 19600.GPJ IGSL.GDT 2/5/17



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> DB08	
<b>CO-ORDINATES</b> 291,737.61 E 221,871.08 N		<b>RIG TYPE</b> Dando 2000		<b>SHEET</b> Sheet 1 of 1	
<b>GROUND LEVEL (m AOD)</b> 91.98		<b>BOREHOLE DIAMETER (mm)</b> 200		<b>DATE COMMENCED</b> 25/11/2016	
		<b>BOREHOLE DEPTH (m)</b> 2.70		<b>DATE COMPLETED</b> 25/11/2016	
<b>CLIENT</b> Kildare Co.Co.		<b>SPT HAMMER REF. NO.</b> SPT2		<b>BORED BY</b> P.Thomas	
<b>ENGINEER</b> Jacobs		<b>ENERGY RATIO (%)</b> 53		<b>PROCESSED BY</b> F.C	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	TOPSOIL		91.88	0.10						
	Firm brown sandy gravelly CLAY. Gravel is fine to coarse subangular to subrounded of various lithologies.		91.18	0.80						
1	Very dense grey/brown sandy GRAVEL with high cobble content. Gravel is fine to coarse subangular to subrounded of various lithologies. Cobbles are subangular to subrounded of various lithologies.				AA58619	D	1.00	N = 51 (5, 6, 9, 12, 14, 16)		
					AA58620	B	1.50			
2					AA58621	D	2.00			
					AA58622	B	2.50			
3	Obstruction - Possible large cobbles or boulders End of Borehole at 2.70 m		89.28	2.70				N = 50/225 mm (3, 9, 15, 16, 19)		
4										
5										
6										
7										
8										
9										
10										
11										

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
1.7	2.7	2	Slow progress						No water strike

INSTALLATION DETAILS					GROUNDWATER PROGRESS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments

**REMARKS** Hand excavated pit to 1.20m. Obstruction / possible cobbles and boulders encountered at 2.70m. Borehole relocated 1m away and rebored as DB08A.

**Sample Legend**  
 D - Small Disturbed (tub)  
 B - Bulk Disturbed  
 LB - Large Bulk Disturbed  
 Env - Environmental Sample (Jar + Vial + Tub)

UT - Undisturbed 100mm Diameter Sample  
 P - Undisturbed Piston Sample  
 W - Water Sample

IGSL BH LOG 19600.GPJ IGSL\_GDT 2/5/17



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

**19600**

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> <b>DB08A</b>	
<b>CO-ORDINATES</b> 291,737.18 E 221,868.74 N		<b>RIG TYPE</b> Dando 2000		<b>SHEET</b> Sheet 1 of 2	
<b>GROUND LEVEL (m AOD)</b> 91.87		<b>BOREHOLE DIAMETER (mm)</b> 200		<b>DATE COMMENCED</b> 25/11/2016	
		<b>BOREHOLE DEPTH (m)</b> 12.00		<b>DATE COMPLETED</b>	
<b>CLIENT</b> Kildare Co.Co.		<b>SPT HAMMER REF. NO.</b> SPT2		<b>BORED BY</b> P.Thomas	
<b>ENGINEER</b> Jacobs		<b>ENERGY RATIO (%)</b> 53		<b>PROCESSED BY</b> F.C	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details			
					Ref. Number	Sample Type	Depth (m)	Recovery					
0	TOPSOIL Firm brown sandy gravelly CLAY. Gravel is fine to coarse subangular to subrounded of various lithologies.		91.77	0.10									
			91.07	0.80									
1	Dense grey/brown sandy GRAVEL with high cobble content. Gravel is fine to coarse subangular to subrounded of various lithologies. Cobbles are subangular to subrounded of various lithologies.												
3					AA58623	D	3.00						
3.5					AA58624	B	3.50			N = 44 (3, 4, 7, 10, 12, 15)			
4					AA58625	D	4.00						
4.5					87.37	4.50	AA58626	B	4.50		N = 30 (3, 5, 5, 8, 8, 9)		
5			Medium dense to dense brown/grey very sandy fine to medium subrounded to subangular GRAVEL of various lithologies				AA58627	D	5.00			N = 22 (1, 1, 2, 4, 6, 10)	
5.5							AA58628	B	5.50				
6							AA58629	D	6.00				
6.5							AA58630	B	6.50				N = 30 (1, 0, 3, 7, 8, 12)
7							AA58631	D	7.00				
7.5					AA58632	B	7.50				N = 31 (2, 4, 5, 7, 9, 10)		
8					AA58633	D	8.00						
8.5					AA58634	B	8.50				N = 38 (3, 5, 5, 10, 11, 12)		
9	Very dense grey very sandy GRAVEL with medium cobble content. Gravel is fine to coarse subangular to subrounded of various lithologies. Cobbles are subangular to subrounded of various lithologies.				AA58635	D	9.00						
9.5					AA58636	B	9.50				N = 50/240 mm (6, 8, 12, 15, 18, 5)		
10					AA58637	D	10.00						
10.5					AA58638	B	10.50						
11					AA58639	D	11.00				N = 50/275 mm (5, 10, 12, 14, 14, 10)		

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
2.1	2.3	0.5	Slow progress						No water strike
3.3	3.5	0.75	Slow progress						
11.5	12	1	No progress						

INSTALLATION DETAILS					GROUNDWATER PROGRESS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments
28-11-16	10.00	2.00	10.00	50mm SP					

<b>REMARKS</b> Hand excavated pit to 1.20m	<b>Sample Legend</b> D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) UT - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample
--	--

IGSL BH LOG 19600.GPJ IGSL.GDT 2/5/17



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> DB08A	
<b>CO-ORDINATES</b> 291,737.18 E 221,868.74 N		<b>RIG TYPE</b> Dando 2000		<b>SHEET</b> Sheet 2 of 2	
<b>GROUND LEVEL (m AOD)</b> 91.87		<b>BOREHOLE DIAMETER (mm)</b> 200		<b>DATE COMMENCED</b> 25/11/2016	
		<b>BOREHOLE DEPTH (m)</b> 12.00		<b>DATE COMPLETED</b>	
<b>CLIENT</b> Kildare Co.Co.		<b>SPT HAMMER REF. NO.</b> SPT2		<b>BORED BY</b> P.Thomas	
<b>ENGINEER</b> Jacobs		<b>ENERGY RATIO (%)</b> 53		<b>PROCESSED BY</b> F.C	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
12	End of Borehole at 12.00 m		79.87	12.00	AA58640	B	11.50		N = 50/220 mm (7, 9, 15, 16, 19)	
12					AA58641	D	12.00			
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
2.1	2.3	0.5	Slow progress						No water strike
3.3	3.5	0.75	Slow progress						
11.5	12	1	No progress						

INSTALLATION DETAILS					GROUNDWATER PROGRESS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments
28-11-16	10.00	2.00	10.00	50mm SP					

<b>REMARKS</b> Hand excavated pit to 1.20m	<b>Sample Legend</b> D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) UT - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample
--	--

IGSL BH LOG 19600.GPJ IGSL\_GDT 2/5/17



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

**19600**

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> <b>DB09</b>	
<b>CO-ORDINATES</b> 291,606.26 E 221,773.48 N		<b>RIG TYPE</b> Dando 2000		<b>SHEET</b> Sheet 1 of 1	
<b>GROUND LEVEL (m AOD)</b> 91.93		<b>BOREHOLE DIAMETER (mm)</b> 200		<b>DATE COMMENCED</b> 30/11/2016	
		<b>BOREHOLE DEPTH (m)</b> 6.20		<b>DATE COMPLETED</b> 30/11/2016	
<b>CLIENT</b> Kildare Co.Co.		<b>SPT HAMMER REF. NO.</b> SPT2		<b>BORED BY</b> P.Thomas	
<b>ENGINEER</b> Jacobs		<b>ENERGY RATIO (%)</b> 53		<b>PROCESSED BY</b> F.C	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	TOPSOIL		91.83	0.10						
	Very stiff brown sandy gravelly CLAY. Gravel is fine to coarse subangular to subrounded of various lithologies.		91.03	0.90						
1	Dense to very dense brown clayey sandy GRAVEL with medium cobble content. Gravel is fine to coarse subangular to subrounded of various lithologies. Cobbles are subangular to subrounded of various lithologies.				AA58641	D	1.00		N = 50/150 mm (8, 12, 21, 29)  N = 22/50 mm (25, 28, 22)  N = 50/220 mm (3, 5, 14, 16, 20)  N = 50/220 mm (3, 5, 14, 16, 20)  N = 22 (3, 3, 3, 5, 5, 9)  N = 14/20 mm (25, 36, 14)  N = 50/70 mm (25, 50)	
					AA58642	B	1.50			
					AA58643	D	2.00			
					AA58644	B	2.50			
					AA58645	D	3.00			
					AA58646	B	3.50			
					AA58647	D	4.00			
					AA58648	B	4.50			
					AA58649	D	5.00			
					AA58650	B	5.50			
4	Medium dense brown clayey slightly gravelly fine to coarse SAND. Gravel is fine to coarse subangular to subrounded of various lithologies.		87.73	4.20						
5	Vewry dense brown very clayey sandy GRAVEL with high cobble and low boulder content. Gravel is fine to coarse subangular to subrounded of various lithologies. Cobbles and boulders are subangular to subrounded of various lithologies.		86.93	5.00						
					AA58651	D	6.00			
6	Obstruction - Possible large cobbles or boulders End of Borehole at 6.20 m		85.73	6.20						

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
2.1	2.4	0.75	Slow progress						No water strike
5.5	6.2	1	Slow progress						
INSTALLATION DETAILS				GROUNDWATER PROGRESS					
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments
30-11-16	5.50	1.00	5.50	50mm SP					

<b>REMARKS</b> Hand excavated pit to 1.20m	<b>Sample Legend</b> D - Small Disturbed (tub) Sample B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) UT - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample
--	---

IGSL BH LOG 19600.GPJ IGSL.GDT 2/5/17



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> <b>DB10</b>	
<b>CO-ORDINATES</b> 291,490.08 E 221,823.45 N		<b>RIG TYPE</b> Dando 2000		<b>SHEET</b> Sheet 1 of 1	
<b>GROUND LEVEL (m AOD)</b> 90.05		<b>BOREHOLE DIAMETER (mm)</b> 200		<b>DATE COMMENCED</b> 01/12/2016	
		<b>BOREHOLE DEPTH (m)</b> 3.20		<b>DATE COMPLETED</b> 01/12/2016	
<b>CLIENT</b> Kildare Co.Co.		<b>SPT HAMMER REF. NO.</b> SPT2		<b>BORED BY</b> P.Thomas	
<b>ENGINEER</b> Jacobs		<b>ENERGY RATIO (%)</b> 53		<b>PROCESSED BY</b> F.C	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	TOPSOIL		89.95	0.10						
1	Brown very clayey sandy GRAVEL with low cobble content. Gravel is fine to coarse subangular to subrounded of various lithologies. Cobbles are subangular to subrounded of various lithologies. (Possible Fill)		88.95	1.10	AA30302	D	1.00		N = 35 (4, 6, 7, 8, 8, 12)	
2	Dense to very dense brown clayey sandy GRAVEL with high cobble and low boulder content. Gravel is fine to coarse subangular to subrounded of various lithologies. Cobbles and boulders are subangular to subrounded of various lithologies.				AA30303	B	1.50			
3					AA30304	D	2.00			
4					AA30305	B	2.50			
5					AA30306	D	3.00			
3	Obstruction - Possible large cobbles or boulders End of Borehole at 3.20 m		86.85	3.20						

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
2.9	3.2	1	No progress						No water strike

INSTALLATION DETAILS					GROUNDWATER PROGRESS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments

<b>REMARKS</b> Hand excavated pit to 1.20m. Obstruction / possible cobbles and boulders encountered at 3.20m. Borehole relocated 1m away and rebored as DB10A.	<b>Sample Legend</b> D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub)	<b>UT</b> - Undisturbed 100mm Diameter Sample <b>P</b> - Undisturbed Piston Sample <b>W</b> - Water Sample
--	---	--

IGSL BH LOG 19600.GPJ IGSL\_GDT\_2/5/17





# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> DB10A	
<b>CO-ORDINATES</b> 291,490.96 E 221,822.61 N		<b>RIG TYPE</b> Dando 2000		<b>SHEET</b> Sheet 1 of 1	
<b>GROUND LEVEL (m AOD)</b> 90.11		<b>BOREHOLE DIAMETER (mm)</b> 200		<b>DATE COMMENCED</b> 01/12/2016	
		<b>BOREHOLE DEPTH (m)</b> 2.60		<b>DATE COMPLETED</b> 02/12/2016	
<b>CLIENT</b> Kildare Co.Co.		<b>SPT HAMMER REF. NO.</b> SPT2		<b>BORED BY</b> P.Thomas	
<b>ENGINEER</b> Jacobs		<b>ENERGY RATIO (%)</b> 53		<b>PROCESSED BY</b> F.C	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	TOPSOIL		90.01	0.10						
1	Brown very clayey sandy GRAVEL with medium cobble content. Gravel is fine to coarse subangular to subrounded of various lithologies. Cobbles are subangular to subrounded of various lithologies. (Possible Fill)		89.11	1.00						
2	Brown very clayey sandy GRAVEL with high cobble and low boulder content. Gravel is fine to coarse subangular to subrounded of various lithologies. Cobbles and boulders are subangular to subrounded of various lithologies.		87.51	2.60						
3	Obstruction - Possible large cobbles or boulders End of Borehole at 2.60 m									
4										
5										
6										
7										
8										
9										
10										
11										

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
2	2.5	1	Slow progress						No water strike
2.5	2.6	1	No progress						

INSTALLATION DETAILS					GROUNDWATER PROGRESS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments

<b>REMARKS</b> Hand excavated pit to 1.20m	<b>Sample Legend</b> D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) UT - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample
--	--

IGSL BH LOG 19600.GPJ IGSL\_GDT 2/5/17



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> <b>DB11</b>	
<b>CO-ORDINATES</b> 291,401.39 E 221,861.72 N		<b>RIG TYPE</b> Dando 2000		<b>SHEET</b> Sheet 1 of 1	
<b>GROUND LEVEL (m AOD)</b> 91.39		<b>BOREHOLE DIAMETER (mm)</b> 200		<b>DATE COMMENCED</b> 23/11/2016	
		<b>BOREHOLE DEPTH (m)</b> 5.00		<b>DATE COMPLETED</b> 23/11/2016	
<b>CLIENT</b> Kildare Co.Co.		<b>SPT HAMMER REF. NO.</b> SPT1		<b>BORED BY</b> J.Carr	
<b>ENGINEER</b> Jacobs		<b>ENERGY RATIO (%)</b> 51		<b>PROCESSED BY</b> F.C	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	MADE GROUND (comprised of grey gravelly CLAY)		91.19	0.20	AA56029	B	0.20		N = 8 (1, 2, 1, 2, 1, 4)  N = 50/235 mm (8, 9, 11, 12, 14, 13)  N = 35 (4, 6, 6, 8, 9, 12)  N = 32 (3, 5, 5, 7, 9, 11)  N = 50/85 mm (10, 15, 25, 25)	
	Soft to firm brown sandy slightly gravelly CLAY. Gravel is fine to coarse subangular to subrounded of various lithologies.				AA56030	D	1.00			
1			89.99	1.40	AA56031	B	1.40			
	Very dense brown GRAVEL with high cobble content. Gravel is fine to coarse subangular to subrounded of various lithologies. Cobbles are subangular to subrounded of various lithologies.				AA56032	D	2.00			
2			88.89	2.50	AA56033	D	3.00			
	Dense grey very clayey sandy GRAVEL with high cobble content. Gravel is fine to coarse subangular to subrounded of various lithologies. Cobbles are subangular to subrounded of various lithologies.				AA56034 AA56035	D B	4.00 4.00			
5	End of Borehole at 5.00 m		86.39	5.00	AA56036	D	5.00			

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
2.4	2.6	0.5	Slow progress						No water strike
4.86	5	1	No progress						
INSTALLATION DETAILS				GROUNDWATER PROGRESS					
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments

**REMARKS** Hand excavated pit to 1.20m

**Sample Legend**  
 D - Small Disturbed (tub)  
 B - Bulk Disturbed  
 LB - Large Bulk Disturbed  
 Env - Environmental Sample (Jar + Vial + Tub)

UT - Undisturbed 100mm Diameter Sample  
 P - Undisturbed Piston Sample  
 W - Water Sample

IGSL BH LOG 19600.GPJ IGSL\_GDT\_2/5/17



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> <b>DB12</b>	
<b>CO-ORDINATES</b> 291,350.77 E 221,964.12 N		<b>RIG TYPE</b> Dando 2000		<b>SHEET</b> Sheet 1 of 1	
<b>GROUND LEVEL (m AOD)</b> 93.58		<b>BOREHOLE DIAMETER (mm)</b> 200		<b>DATE COMMENCED</b> 19/12/2016	
		<b>BOREHOLE DEPTH (m)</b> 9.00		<b>DATE COMPLETED</b> 20/04/2017	
<b>CLIENT</b> Kildare Co.Co.		<b>SPT HAMMER REF. NO.</b> SPT2		<b>BORED BY</b> P.Thomas	
<b>ENGINEER</b> Jacobs		<b>ENERGY RATIO (%)</b> 53		<b>PROCESSED BY</b> I.Reder	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	MADE GROUND (comprised of Tarmac)		93.38	0.20						
1	MADE GROUND (comprised of Lean-mix and angular Gravel Fill)				AA30314	D	1.00			
2	MADE GROUND (comprised of brown sandy gravelly CLAY with angular cobbles)		92.08	1.50	AA30315	B	1.50		N = 26 (15, 10, 8, 4, 5, 9)	
3					AA30316	D	2.00			
4					AA30317	B	2.50		N = 31 (3, 5, 5, 8, 8, 10)	
5					AA30318	D	3.00			
6					AA30319	B	3.50		N = 25 (2, 6, 7, 5, 4, 9)	
7	Medium dense to dense brown slightly gravelly silty SAND with Gravel/Sand conglomerate from 8.50m. Sand is fine to coarse. Gravel is fine to medium subangular to subrounded of various lithologies.		89.48	4.10	AA30320	D	4.00			
8					AA30321	B	4.50		N = 33 (4, 5, 8, 7, 8, 10)	
9					AA30322	D	5.00			
10					AA30323	B	5.50		N = 29 (1, 1, 3, 6, 9, 11)	
11					AA30324	D	6.00			
12					AA30325	B	6.50		N = 36 (2, 4, 5, 8, 9, 14)	
13					AA30326	D	7.00			
14					AA30327	B	7.50		N = 40 (4, 6, 8, 10, 10, 12)	
15					AA30328	D	8.00			
16					AA30329	B	8.50		N = 50/105 mm (7, 18, 28, 22)	
17	End of Borehole at 9.00 m		84.58	9.00	AA30330	D	9.00			

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
1.2	1.5	0.75	Slow progress						No water strike
8.5	9	1.25	Slow progress						

INSTALLATION DETAILS					GROUNDWATER PROGRESS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments
20-12-16	8.00	3.00	8.00	50mm SP					

<b>REMARKS</b> Hand excavated pit to 1.20m. Small spade lost down the hole after drilling; unable to retrieve. Falling head permeability test performed from 8.0 to 9.0m.	<b>Sample Legend</b> D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) UT - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample
---	--

IGSL BH LOG 19600.GPJ IGSL.GDT 2/5/17



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> <b>DB14</b>	
<b>CO-ORDINATES</b> 291,202.79 E 222,259.02 N		<b>RIG TYPE</b> Dando 2000		<b>SHEET</b> Sheet 1 of 1	
<b>GROUND LEVEL (m AOD)</b> 99.15		<b>BOREHOLE DIAMETER (mm)</b> 150		<b>DATE COMMENCED</b> 17/11/2016	
		<b>BOREHOLE DEPTH (m)</b> 3.50		<b>DATE COMPLETED</b> 18/11/2016	
<b>CLIENT</b> Kildare Co.Co.		<b>SPT HAMMER REF. NO.</b> SPT1		<b>BORED BY</b> J.Carr	
<b>ENGINEER</b> Jacobs		<b>ENERGY RATIO (%)</b> 51		<b>PROCESSED BY</b> F.C	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	MADE GROUND (Comprised of 35% grey sandy gravel fill, 20% concrete and rubble, 10% old cables and wires, 5% soft and hard plastic pieces, 5% steel rebar, 15% textile pieces, 5% glass pieces, 5% timber pieces)		95.65	3.50					N = 0 (0, 0, 0, 0, 0, 0)	
1									N = 33 (4, 8, 8, 7, 9, 9)	
2									N = 35 (4, 6, 7, 6, 7, 15)	
3	End of Borehole at 3.50 m									
4										
5										
6										
7										
8										
9										
10										
11										

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
2.2	2.3	0.5	Slow progress						No water strike
3.4	3.5	1	No progress						

INSTALLATION DETAILS					GROUNDWATER PROGRESS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments

**REMARKS** Hand excavated pit to 0.60m. Extensive re-bar found in pit. Pit progressed with the assistance of tracked excavator (2hrs). Pit dug to 1.60m. Borehole terminated at 3.50m due to obstruction in Made Ground / Fill. Gas alarm reported to have sounded during removal of casing. On Jacobs instruction, borehole later repositioned outside of landfill site and rebored as DB14A in adjacent grass field.

Sample Legend
D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)
UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

IGSL BH LOG 19600.GPJ IGSL.GDT 2/5/17



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> <b>DB14A</b>	
<b>CO-ORDINATES</b> 291,176.62 E 222,232.37 N		<b>RIG TYPE</b> Dando 2000		<b>SHEET</b> Sheet 1 of 1	
<b>GROUND LEVEL (m AOD)</b> 96.73		<b>BOREHOLE DIAMETER (mm)</b> 200		<b>DATE COMMENCED</b> 21/12/2016	
		<b>BOREHOLE DEPTH (m)</b> 10.00		<b>DATE COMPLETED</b> 22/12/2016	
<b>CLIENT</b> Kildare Co.Co.		<b>SPT HAMMER REF. NO.</b> SPT2		<b>BORED BY</b> P.Thomas	
<b>ENGINEER</b> Jacobs		<b>ENERGY RATIO (%)</b> 53		<b>PROCESSED BY</b> I.Reeder	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	TOPSOIL		96.53	0.20						
	Soft brown very sandy gravelly CLAY. Gravel is fine to coarse subangular to subrounded of various lithologies.		96.13	0.60						
1	Medium dense to dense brown slightly gravelly fine to coarse SAND with some sandy gravel bands and low cobble content. Gravel is fine to coarse subangular to subrounded of various lithologies. Cobbles are subangular to subrounded of various lithologies.				AA30331	D	1.00		N = 36 (3, 3, 5, 9, 10, 12)	
					AA30332	B	1.50			
					AA30333	D	2.00			
					AA30334	B	2.50		N = 35 (2, 2, 4, 7, 8, 16)	
					AA30335	D	3.00			
					AA30336	B	3.50		N = 27 (3, 3, 4, 6, 7, 10)	
					AA30337	D	4.00			
					AA30338	B	4.50		N = 38 (4, 5, 7, 9, 10, 12)	
					AA30339	D	5.00			
					AA30340	B	5.50		N = 50/250 mm (5, 9, 12, 15, 16, 7)	
					AA30341	D	6.00			
					AA30342	B	6.50		N = 32 (2, 4, 5, 7, 8, 12)	
					AA30343	D	7.00			
					AA30344	B	7.50		N = 43 (3, 6, 7, 10, 12, 14)	
					AA30345	D	8.00			
					AA30346	B	8.50		N = 46 (2, 3, 8, 9, 12, 17)	
					AA30347	D	9.00			
					AA30348	B	9.50		N = 40 (1, 3, 6, 8, 11, 15)	
					AA30349	D	10.00			
10	End of Borehole at 10.00 m		86.73	10.00						

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
5.8	6	0.5	Slow progress						No water strike

INSTALLATION DETAILS					GROUNDWATER PROGRESS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments
22-12-16	9.00	1.00	9.00	50mm SP					

**REMARKS** Hand excavated pit to 1.20m. Gas tap placed on 50mm monitoring well. Borehole drilled in grass field adjacent to landfill.

**Sample Legend**  
 D - Small Disturbed (tub)  
 B - Bulk Disturbed  
 LB - Large Bulk Disturbed  
 Env - Environmental Sample (Jar + Vial + Tub)

UT - Undisturbed 100mm Diameter Sample  
 P - Undisturbed Piston Sample  
 W - Water Sample

IGSL BH LOG 19600.GPJ IGSL\_GDT\_2/5/17



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> <b>DB15</b>	
<b>CO-ORDINATES</b> 291,039.22 E 222,353.40 N		<b>RIG TYPE</b> Dando 2000		<b>SHEET</b> Sheet 1 of 1	
<b>GROUND LEVEL (m AOD)</b> 100.12		<b>BOREHOLE DIAMETER (mm)</b> 200		<b>DATE COMMENCED</b> 21/11/2016	
		<b>BOREHOLE DEPTH (m)</b> 9.00		<b>DATE COMPLETED</b> 22/11/2016	
<b>CLIENT</b> Kildare Co.Co.		<b>SPT HAMMER REF. NO.</b> SPT1		<b>BORED BY</b> J.Carr	
<b>ENGINEER</b> Jacobs		<b>ENERGY RATIO (%)</b> 51		<b>PROCESSED BY</b> F.C	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	MADE GROUND (comprised of subangular to subrounded COBBLES)		99.92	0.20	AA56015	B	0.20			
	MADE GROUND (comprised of black slightly sandy silty clay 80%, cobbles 10%, timber 5%, plastic 5%)		99.72	0.40	AA56016	B	0.60			
1	MADE GROUND (comprised of brown/grey sandy gravelly clay 45%, cobbles 30%, concrete pieces 10%, red brick 5%, plastic 5%, steel 5%)		98.12	2.00	AA56017	D	1.00			N = 14 (2, 4, 3, 4, 4, 3)
2	MADE GROUND (comprised of brown/grey clayey sandy gravel 30%, cobbles 20%, concrete pieces 15%, timber 10%, plastic 10%, red brick 5%, steel 5%, textiles 5%)		AA56018	D	2.00			N = 50/160 mm (10, 15, 15, 20, 15)		
3			AA56019	D	3.00			N = 27 (3, 4, 4, 7, 7, 9)		
4			AA56020	D	4.00			N = 19 (4, 5, 5, 5, 4, 5)		
4.5			AA56021	B	4.50					
5			AA56022	D	5.00			N = 8 (4, 4, 3, 2, 2, 1)		
6			AA56023	D	6.00					
6.5			AA56024	B	6.50			N = 15 (3, 4, 3, 2, 5, 5)		
7			AA56025	D	7.00					
8			AA56026	D	8.00			N = 19 (4, 7, 4, 4, 6, 5)		
8			AA56027	B	8.00					
9	End of Borehole at 9.00 m			91.12	9.00	AA56028	D	9.00		

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
8.8	9	1	No progress						No water strike

INSTALLATION DETAILS					GROUNDWATER PROGRESS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments
22-11-16	8.00	1.00	8.00	50mm SP					

**REMARKS** Hand excavated pit to 1.20m. Borehole terminated at 9.0m on obstruction in Made Ground / Fill. On Jacobs instruction, borehole later rebored to locate natural ground. Borehole rebored as DB15A approximately 10m away.

**Sample Legend**  
 D - Small Disturbed (tub)  
 B - Bulk Disturbed  
 LB - Large Bulk Disturbed  
 Env - Environmental Sample (Jar + Vial + Tub)  
 UT - Undisturbed 100mm Diameter Sample  
 P - Undisturbed Piston Sample  
 W - Water Sample

IGSL BH LOG 19600.GPJ IGSL\_GDT 2/5/17



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> <b>DB15A</b>	
<b>CO-ORDINATES</b> 291,031.79 E 222,356.14 N		<b>RIG TYPE</b> Dando 2000		<b>SHEET</b> Sheet 1 of 1	
<b>GROUND LEVEL (m AOD)</b> 100.18		<b>BOREHOLE DIAMETER (mm)</b> 200		<b>DATE COMMENCED</b> 14/12/2016	
		<b>BOREHOLE DEPTH (m)</b> 7.00		<b>DATE COMPLETED</b> 15/12/2016	
<b>CLIENT</b> Kildare Co.Co.		<b>SPT HAMMER REF. NO.</b> SPT2		<b>BORED BY</b> P.Thomas	
<b>ENGINEER</b> Jacobs		<b>ENERGY RATIO (%)</b> 53		<b>PROCESSED BY</b> I.Reeder	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	MADE GROUND (comprised of clayey gravel 60%, rubble and crushed concrete 40%)									
1			98.38	1.80	AA30310	B	1.50			
2	Firm brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse subrounded to subangular of various lithologies. (Possible natural ground)									
3			96.38	3.80						
4	Brown very sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse subrounded to subangular of various lithologies.				AA30311	B	4.50			
5										
6										
7	End of Borehole at 7.00 m		93.18	7.00						
8										
9										
10										
11										

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
1.5	1.7	0.5	Slow progress						No water strike
6.4	6.6	0.5	Slow progress						

INSTALLATION DETAILS					GROUNDWATER PROGRESS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments

<b>REMARKS</b> Hand excavated pit to 1.20m. DB15A drilled approximately 10m from DB15 towards perimeter of landfill.	<b>Sample Legend</b> D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub)	<b>UT</b> - Undisturbed 100mm Diameter Sample <b>P</b> - Undisturbed Piston Sample <b>W</b> - Water Sample
--	---	--

IGSL BH LOG 19600.GPJ IGSL\_GDT\_2/5/17



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

**19600**

<b>CONTRACT</b> Kerdiffstown Landfill		<b>BOREHOLE NO.</b> <b>RM01</b>	
<b>CO-ORDINATES</b> 291,471.57 E 222,502.97 N		<b>SHEET</b> Sheet 1 of 1	
<b>GROUND LEVEL (m AOD)</b> 79.21		<b>DATE COMMENCED</b> 26/10/2016	
<b>RIG TYPE</b> Dando 2000		<b>DATE COMPLETED</b> 27/10/2016	
<b>BOREHOLE DIAMETER (mm)</b> 200			
<b>BOREHOLE DEPTH (m)</b> 8.80			
<b>CLIENT</b> Kildare Co.Co.		<b>SPT HAMMER REF. NO.</b> SPT2	
<b>ENGINEER</b> Jacobs		<b>ENERGY RATIO (%)</b> 53	
		<b>BORED BY</b> P.Thomas	
		<b>PROCESSED BY</b> F.C	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	TOPSOIL Soft brown sandy gravelly CLAY. Gravel is fine to coarse subangular to subrounded of various lithologies.		79.11	0.10	AA59366	ENV	0.25			
			78.41	0.80	AA59367	ENV	0.50			
1	Brown/grey silty sandy fine to coarse GRAVEL. Gravel is subangular to subrounded of various lithologies.				AA59368	ENV	1.00			
						AA59369	D			1.00
						AA59370	B			1.50
						AA59371	ENV			2.00
						AA59372	D			2.00
						AA59373	B			2.50
						AA59374	ENV			3.00
						AA59375	D			3.00
						AA59376	B			3.50
					75.21	4.00	AA59377			ENV
	Brown/grey fine to coarse GRAVEL with some lenses of gravelly sand and a medium cobble content. Gravel is subangular to subrounded of various lithologies. Cobbles are subangular to subrounded of limestone.				AA59378	D	4.00			
						AA59379	B			4.50
						AA59380	ENV			5.00
						AA59381	D			5.00
						AA59382	B			5.50
						AA59383	ENV			6.00
						AA59384	D			6.00
						AA59385	B			6.50
						AA59386	ENV			7.00
						AA59387	D			7.00
				AA59388	B	7.50				
	Stiff brown slightly sandy very gravelly CLAY with a high cobble content. Gravel is fine to coarse subangular to subrounded of various lithologies. Cobbles are subangular to subrounded of limestone.		71.21	8.00	AA59389	ENV	8.00			
						AA59390	D			8.00
					70.41	8.80	AA59391			B
9	End of Borehole at 8.80 m									

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
				1.70	1.70	No	1.40	20	Slow

INSTALLATION DETAILS					GROUNDWATER PROGRESS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments
27-10-16	7.50	1.50	7.50	50mm SP	26-10-16	4.00	4.00	1.20	End of 1st Day
					27-10-16	8.80	Nil	1.20	End of BH

<b>REMARKS</b> Hand excavated pit to 1.20m. Falling head permeability test carried out from 2.0 to 3.0m and from 7.70 to 8.70m.	<b>Sample Legend</b> D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) UT - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample
---	--

IGSL BH LOG 19600.GPJ IGSL.GDT 2/5/17





# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> RM02	
<b>CO-ORDINATES</b> 291,460.75 E 222,463.30 N				<b>SHEET</b> Sheet 1 of 1	
<b>GROUND LEVEL (m AOD)</b> 79.42		<b>RIG TYPE</b> Dando 2000		<b>DATE COMMENCED</b> 28/10/2016	
		<b>BOREHOLE DIAMETER (mm)</b> 200		<b>DATE COMPLETED</b> 01/11/2016	
<b>CLIENT</b> Kildare Co.Co.		<b>SPT HAMMER REF. NO.</b> SPT2		<b>BORED BY</b> P.Thomas	
<b>ENGINEER</b> Jacobs		<b>ENERGY RATIO (%)</b> 53		<b>PROCESSED BY</b> F.C	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details		
					Ref. Number	Sample Type	Depth (m)	Recovery				
0	TOPSOIL		79.22	0.20	AA59392	ENV	0.25					
	Soft brown sandy slightly gravelly CLAY. Gravel is fine to coarse subangular to subrounded of various lithologies.				AA59393	ENV	0.50					
1												
	Soft grey gravelly slightly sandy SILT. Gravel is fine to coarse subangular to subrounded of various lithologies.		78.32	1.10	AA59394	ENV	1.00					
						AA59395	D	1.00				
	Dense grey slightly sandy GRAVEL with occasional silty sand pockets and medium cobble content. Gravel is fine to coarse subangular to subrounded of various lithologies. Cobbles are subrounded to subangular of limestone.				AA59396	B	1.50					
2								AA59397	ENV	2.00		
								AA59398	D	2.00		
								AA59399	B	2.50		
3								AA54751	D	3.00		
								AA59400	ENV	3.00		
								AA54752	B	3.50		
4								AA54753	ENV	4.00		
								AA54754	D	4.00		
								AA54755	B	4.50		
5				AA54756	ENV	5.00						
				AA54757	D	5.00						
				AA54758	B	5.50						
6				AA54759	ENV	6.00						
				AA54760	D	6.00						
				AA54761	B	6.50						
7	End of Borehole at 6.90 m		72.52	6.90								

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
6.8	6.9	0.5	No progress	2.00	2.00	No	1.30	20	Slow
INSTALLATION DETAILS				GROUNDWATER PROGRESS					
				Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type					
28-10-16					5.00	5.00	1.30	End of 1st Day	
01-11-16	6.30	1.50	6.30	50mm SP	5.00	5.00	1.30	Start of 2nd Day	

<b>REMARKS</b> Hand excavated pit to 1.20m. Falling head permeability test carried out from 2.0 to 3.0m and from 5.90 to 6.90m.	<b>Sample Legend</b> D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) UT - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample
---	--

IGSL BH LOG 19600.GPJ IGSL\_GDT\_2/5/17



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> RM03	
<b>CO-ORDINATES</b> 291,480.67 E 222,367.85 N				<b>SHEET</b> Sheet 1 of 1	
<b>GROUND LEVEL (m AOD)</b> 79.95		<b>RIG TYPE</b> Dando 2000		<b>DATE COMMENCED</b> 09/11/2016	
		<b>BOREHOLE DIAMETER (mm)</b> 200		<b>DATE COMPLETED</b> 10/11/2016	
		<b>BOREHOLE DEPTH (m)</b> 6.50			
<b>CLIENT</b> Kildare Co.Co.			<b>SPT HAMMER REF. NO.</b> SPT2		<b>BORED BY</b> P.Thomas
<b>ENGINEER</b> Jacobs			<b>ENERGY RATIO (%)</b> 53		<b>PROCESSED BY</b> F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	TOPSOIL		79.75	0.20	AA59792	ENV	0.25			
	Soft brown slightly sandy very gravelly CLAY. Gravel is fine to coarse subangular to subrounded of various lithologies.		79.25	0.70	AA59793	ENV	0.50			
1	Soft mottled brown/grey mottled slightly sandy fibrous SILT		78.65	1.30	AA59794 AA59795	ENV D	1.00 1.00			
	Soft mottled brown/grey very gravelly fibrous SILT. Gravel is fine to medium of various lithologies.		78.45	1.50	AA59796	B	1.50			
2	Grey slightly sandy silty fine to coarse subrounded to subangular GRAVEL of various lithologies				AA59797 AA59798	ENV D	2.00 2.00			
					AA59799	B	2.50			
3	Grey fine to coarse GRAVEL with medium cobble content. Gravel is subrounded to subangular of various lithologies. Cobbles are subrounded to subangular of limestone.		76.95	3.00	AA53601 AA59800	D ENV	3.00 3.00			
					AA53602	B	3.50			
4					AA53603 AA53604	ENV D	4.00 4.00			
					AA53605	B	4.50			
5					AA53606 AA53607	ENV D	5.00 5.00			
			74.35	5.60	AA53608	B	5.50			
6	Stiff brown slightly sandy very gravelly CLAY with high cobble content. Gravel is fine to coarse subangular to subrounded of various lithologies. Cobbles are subangular to subrounded of limestone.		73.45	6.50	AA53609 AA53610	ENV D	6.00 6.00			
	End of Borehole at 6.50 m									

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
6	6.5	1	Slow progress	2.50	2.50	No	1.60	20	Slow

INSTALLATION DETAILS					GROUNDWATER PROGRESS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments
10-11-16	5.00	2.00	5.00	50mm SP	10-11-16	3.00	3.00	1.50	Start of 2nd Day

<b>REMARKS</b> Hand excavated pit to 1.20m. Falling head permeability tests carried out from 2.20 to 3.20m and from 5.0 to 6.0m.	<b>Sample Legend</b> D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) UT - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample
--	--

IGSL BH LOG 19600.GPJ IGSL.GDT 2/5/17



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> <b>RM04</b>	
<b>CO-ORDINATES</b> 291,507.46 E 222,333.10 N		<b>RIG TYPE</b> Dando 2000		<b>SHEET</b> Sheet 1 of 1	
<b>GROUND LEVEL (m AOD)</b> 80.18		<b>BOREHOLE DIAMETER (mm)</b> 200		<b>DATE COMMENCED</b> 04/11/2016	
		<b>BOREHOLE DEPTH (m)</b> 7.50		<b>DATE COMPLETED</b> 07/11/2016	
<b>CLIENT</b> Kildare Co.Co.		<b>SPT HAMMER REF. NO.</b> SPT2		<b>BORED BY</b> P.Thomas	
<b>ENGINEER</b> Jacobs		<b>ENERGY RATIO (%)</b> 53		<b>PROCESSED BY</b> F.C	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	TOPSOIL		79.78	0.40	AA54776	ENV	0.25			
	Soft brown very sandy slightly gravelly CLAY with occasional tree roots. Gravel is fine to medium subangular to subrounded of various lithologies.				AA54777	ENV	0.50			
1			78.88	1.30	AA54778	ENV	1.00			
	Brown/grey silty sandy fine to coarse subangular to subrounded GRAVEL of various lithologies				AA54779	D	1.00			
					AA54780	B	1.50			
2					AA54781	ENV	2.00			
					AA54782	D	2.00			
					AA54783	B	2.50			
3			77.18	3.00	AA54784	ENV	3.00			
	Dense grey sandy fine to coarse subangular to subrounded GRAVEL with a high cobble and low boulder content. Cobbles and boulders are subangular to subrounded of limestone.				AA54785	D	3.00			
					AA54786	B	3.50			
4					AA54787	ENV	4.00			
					AA54788	D	4.00			
5					AA54789	B	4.85			
	5.50 - 6.50m Some very gravelly sand lenses				AA54790	ENV	5.00			
					AA54791	D	5.00			
					AA54792	B	5.50			
6					AA54793	ENV	6.00			
					AA54794	D	6.00			
					AA54795	B	6.50			
7					AA54796	ENV	7.00			
					AA54797	D	7.00			
	End of Borehole at 7.50 m		72.68	7.50	AA54798	B	7.50			

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
7.4	7.5	1	No progress						No water strike

INSTALLATION DETAILS					GROUNDWATER PROGRESS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments
07-11-16	7.00	2.00	7.00	50mm SP					

<b>REMARKS</b> Hand excavated pit to 1.20m. Falling head permeability tests carried out from 2.0 to 3.20m and from 6.50 to 7.50m.	<b>Sample Legend</b> D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) UT - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample
---	--

IGSL BH LOG 19600.GPJ IGSL.GDT 2/5/17



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> RM05	
<b>CO-ORDINATES</b> 291,552.77 E 222,256.20 N		<b>RIG TYPE</b> Dando 2000		<b>SHEET</b> Sheet 1 of 1	
<b>GROUND LEVEL (m AOD)</b> 80.51		<b>BOREHOLE DIAMETER (mm)</b> 200		<b>DATE COMMENCED</b> 07/11/2016	
		<b>BOREHOLE DEPTH (m)</b> 7.70		<b>DATE COMPLETED</b> 08/11/2016	
<b>CLIENT</b> Kildare Co.Co.		<b>SPT HAMMER REF. NO.</b> SPT2		<b>BORED BY</b> P.Thomas	
<b>ENGINEER</b> Jacobs		<b>ENERGY RATIO (%)</b> 53		<b>PROCESSED BY</b> F.C	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	TOPSOIL		80.31	0.20						
	Soft brown very sandy CLAY with occasional tree roots				AA54799	ENV	0.25			
					AA54800	ENV	0.50			
1	Soft grey slightly sandy SILT with occasional roots		79.41	1.10	AA59751	ENV	1.00			
					AA59752	D	1.00			
			78.81	1.70	AA59753	B	1.50			
2	Grey very silty sandy fine to coarse subrounded to subangular GRAVEL of various lithologies				AA59754	ENV	2.00			
					AA59755	D	2.00			
					AA59756	B	2.50			
3	Grey slightly sandy GRAVEL with medium cobble content and sand/gravel conglomerates at 4.20m and very sandy gravel lenses from 6.50m to 7.70m. Gravel is fine to coarse subrounded to subangular of various lithologies. Cobbles are subrounded to subangular of limestone.		77.51	3.00	AA59757	ENV	3.00			
					AA59758	D	3.00			
					AA59759	B	3.50			
4					AA59760	ENV	4.00			
					AA59761	D	4.00			
					AA59762	B	4.50			
5					AA59763	ENV	5.00			
					AA59764	D	5.00			
					AA59765	B	5.50			
6					AA59766	ENV	6.00			
					AA59767	D	6.00			
					AA59768	B	6.50			
7					AA59769	ENV	7.00			
					AA59770	D	7.00			
			72.81	7.70	AA59771	B	7.50			
8	End of Borehole at 7.70 m									

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
				2.40	2.40	No	1.40	20	Slow

INSTALLATION DETAILS					GROUNDWATER PROGRESS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments
08-11-16	6.70	2.50	6.70	50mm SP	08-11-16	3.00	3.00	1.40	Start of 2nd day

<b>REMARKS</b> Hand excavated pit to 1.20m. Falling head permeability test carried out from 2.20 to 3.20m and from 6.0 to 7.0m.	<b>Sample Legend</b> D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) UT - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample
---	--

IGSL BH LOG 19600.GPJ IGSL\_GDT\_2/5/17



# GEOTECHNICAL BORING RECORD

**REPORT NUMBER**

19600

<b>CONTRACT</b> Kerdiffstown Landfill				<b>BOREHOLE NO.</b> RM06	
<b>CO-ORDINATES</b> 291,602.33 E 222,182.30 N				<b>SHEET</b> Sheet 1 of 1	
<b>GROUND LEVEL (m AOD)</b> 80.80		<b>RIG TYPE</b> Dando 2000		<b>DATE COMMENCED</b> 08/11/2016	
		<b>BOREHOLE DIAMETER (mm)</b> 200		<b>DATE COMPLETED</b> 09/11/2016	
		<b>BOREHOLE DEPTH (m)</b> 6.50			
<b>CLIENT</b> Kildare Co.Co.		<b>SPT HAMMER REF. NO.</b> SPT2		<b>BORED BY</b> P.Thomas	
<b>ENGINEER</b> Jacobs		<b>ENERGY RATIO (%)</b> 53		<b>PROCESSED BY</b> F.C	

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	TOPSOIL		80.70	0.10	AA59772	ENV	0.25			
	Soft brown sandy gravelly CLAY with occasional roots. Gravel is fine to coarse subangular to subrounded of various lithologies.				AA59773	ENV	0.50			
1	Soft mottled brown/grey slightly sandy fibrous SILT		79.70	1.10	AA59774	ENV	1.00			
			79.20	1.60	AA59775	D	1.00			
	Soft grey sandy SILT with some small white marl pieces				AA59776	B	1.50			
2	Soft grey sandy very gravelly SILT. Gravel is fine to coarse subangular to subrounded of various lithologies.		78.70	2.10	AA59777	ENV	2.00			
			78.40	2.40	AA59778	D	2.00			
					AA59779	B	2.50			
3	Grey slightly sandy fine to coarse subangular to subrounded GRAVEL of various lithologies				AA59780	ENV	3.00			
					AA59781	D	3.00			
					AA59782	B	3.50			
4					AA59783	ENV	4.00			
					AA59784	D	4.00			
					AA59785	B	4.50			
5	Grey coarse GRAVEL with high cobble content. Gravel is subrounded of subangular of various lithologies. Cobbels are subrounded to subangular of limestone.		75.80	5.00	AA59786	ENV	5.00			
					AA59787	D	5.00			
					AA59788	B	5.50			
6					AA59789	ENV	6.00			
			74.30	6.50	AA59790	D	6.00			
	End of Borehole at 6.50 m				AA59791	B	6.50			
7					AA59792	ENV	7.00			
					AA59793	D	7.00			
					AA59794	B	7.50			

HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
6	6.5	1	Slow progress						No water strike

INSTALLATION DETAILS					GROUNDWATER PROGRESS				
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments
09-11-16	6.00	2.50	6.00	50mm SP					

**REMARKS** Hand excavated pit to 1.20m. Falling head permeability test carried out from 2.20 to 3.20m and from 5.50 to 6.50m.

**Sample Legend**  
 D - Small Disturbed (tub)  
 B - Bulk Disturbed  
 LB - Large Bulk Disturbed  
 Env - Environmental Sample (Jar + Vial + Tub)

UT - Undisturbed 100mm Diameter Sample  
 P - Undisturbed Piston Sample  
 W - Water Sample

IGSL BH LOG 19600.GPJ IGSL.GDT 2/5/17

## Appendix D. Laboratory Reports

**ALS Environmental Ltd**  
Torrington Avenue  
Coventry  
CV4 9GU

T: +44 (0)24 7642 1213  
F: +44 (0)24 7685 6575  
[www.alsenvironmental.co.uk](http://www.alsenvironmental.co.uk)

**Mr Downes**  
**SKM Ireland c/o Jacobs**  
**Engineering Ireland**  
**Jacobs**  
**Merrion House**  
**Merrion Road**  
**Dublin 4 South Dublin**

14 March 2017

**Test Report: COV/1357629/2017**

Dear Mr Downes

Analysis of your sample(s) submitted on 30 January 2017 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed: 

Name: C. Law

Title: Inorganics Operations Manager



# Report Summary



1314  
0897  
4409



**Mr Ultan Downes  
SKM Ireland c/o Jacobs  
Engineering Ireland  
Jacobs  
Merrion House  
Merrion Road  
Dublin 4  
South Dublin**

Date of Issue: **09 March 2017**

Report Number: **COV/1357629/2017**

Issue **1**

This issue replaces  
all previous issues

**Job Description:** Kerdiffstown Landfill

Number of Samples  
included in this report **4**

Job Received: **30 January 2017**

Number of Test Results  
included in this report **68**

Analysis Commenced: **14 January 2017**

Signed:

Name: **C. Law**

Date: **09 March 2017**

Title: **Inorganics Operations Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested.

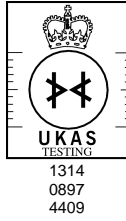
Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

(c) ALS Environmental Ltd 2017. All rights reserved. We, ALS Environmental Ltd, are the owner of all copyright in this report. You must not copy, reproduce, amend or adapt this report, its contents or any format in which it is delivered without our prior written agreement. If you copy, reproduce, amend, or adapt this report in any way without our agreement you will be liable for any damage or loss to us. In the event of a dispute the copy of the report held by us shall be the reference copy.



# Certificate of Analysis



Report Number: **COV/1357629/2017**

Issue **1**

Laboratory Number: **15843387**

Sample **1** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **EMW11**

Sample Matrix: **Ground Water**

Sample Date/Time: **30 January 2017**

Sample Received: **30 January 2017**

Analysis Complete: **09 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	90.1	mg/l	31/01/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	<0.0010	mg/l	01/02/2017	Y Cov	WAS060
Alkalinity Total	Analyst Com	mg/l	09/03/2017	Y S	SUBCON
Calcium , Total as Ca	360	mg/l	01/02/2017	Y Cov	WAS049
Iron , Total as Fe	0.77	mg/l	01/02/2017	Y Cov	WAS049
Manganese , Total as Mn	0.081	mg/l	01/02/2017	Y Cov	WAS049
Potassium , Total as K	43.2	mg/l	01/02/2017	Y Cov	WAS049
Sodium , Total as Na	66.9	mg/l	01/02/2017	Y Cov	WAS049
pH	7.1	pH units	31/01/2017	Y Cov	WAS039
Conductivity- Electrical 20C	2040	uS/cm	31/01/2017	Y Cov	WAS039
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	01/02/2017	Y Cov	WAS067
Chloride as Cl	50.8	mg/l	31/01/2017	N Cov	WAS036
Sulphate as SO4	747	mg/l	31/01/2017	N Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	06/02/2017	Y Cov	WAS001
COD (Total)	38.0	mg/l	03/02/2017	Y Cov	WAS040
TOC (Filtered)	8.8	mg/l	06/02/2017	Y Cov	WAS005
Cyanide, Total as CN	0.022	mg/l	02/02/2017	N Cov	WAS018

**Analyst Comments for 15843387:**

Insufficient sample for Total Alkalinity analysis, due to AQC failure.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **C. Law**

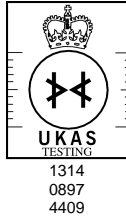
Date: **09 March 2017**

Title: **Inorganics Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1357629/2017**

Issue **1**

Laboratory Number: **15843388**

Sample **2** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **EMW12**

Sample Matrix: **Ground Water**

Sample Date/Time: **30 January 2017**

Sample Received: **30 January 2017**

Analysis Complete: **09 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	34.3	mg/l	31/01/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	<0.0010	mg/l	01/02/2017	Y Cov	WAS060
Calcium , Total as Ca	193	mg/l	01/02/2017	Y Cov	WAS049
Iron , Total as Fe	<0.23	mg/l	01/02/2017	Y Cov	WAS049
Manganese , Total as Mn	0.016	mg/l	01/02/2017	Y Cov	WAS049
Potassium , Total as K	4.08	mg/l	01/02/2017	Y Cov	WAS049
Sodium , Total as Na	23.1	mg/l	01/02/2017	Y Cov	WAS049
pH	7.3	pH units	31/01/2017	Y Cov	WAS039
Conductivity- Electrical 20C	1070	uS/cm	31/01/2017	Y Cov	WAS039
Alkalinity as CaCO3	270	mg/l	14/01/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	01/02/2017	Y Cov	WAS067
Chloride as Cl	29.4	mg/l	31/01/2017	N Cov	WAS036
Sulphate as SO4	320	mg/l	31/01/2017	N Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	06/02/2017	Y Cov	WAS001
COD (Total)	<11.0	mg/l	03/02/2017	Y Cov	WAS040
TOC (Filtered)	2.5	mg/l	06/02/2017	Y Cov	WAS005
Cyanide, Total as CN	0.019	mg/l	02/02/2017	N Cov	WAS018

Analyst Comments for 15843388:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **C. Law**

Date: **09 March 2017**

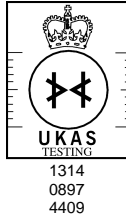
Title: **Inorganics Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Page 3 of 5

# Certificate of Analysis



Report Number: **COV/1357629/2017**

Issue **1**

Laboratory Number: **15843389**

Sample **3** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **EMW13**

Sample Matrix: **Ground Water**

Sample Date/Time: **30 January 2017**

Sample Received: **30 January 2017**

Analysis Complete: **09 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	6.1	mg/l	31/01/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.013	mg/l	01/02/2017	Y Cov	WAS060
Calcium , Total as Ca	197	mg/l	01/02/2017	Y Cov	WAS049
Iron , Total as Fe	11.5	mg/l	01/02/2017	Y Cov	WAS049
Manganese , Total as Mn	1.00	mg/l	01/02/2017	Y Cov	WAS049
Potassium , Total as K	84.8	mg/l	01/02/2017	Y Cov	WAS049
Sodium , Total as Na	224	mg/l	01/02/2017	Y Cov	WAS049
pH	7.0	pH units	31/01/2017	Y Cov	WAS039
Conductivity- Electrical 20C	3430	uS/cm	31/01/2017	Y Cov	WAS039
Alkalinity as CaCO3	1660	mg/l	21/02/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	191	mg/l	02/02/2017	N Cov	WAS036
Chloride as Cl	240	mg/l	31/01/2017	N Cov	WAS036
Sulphate as SO4	69.0	mg/l	31/01/2017	N Cov	WAS036
BOD + ATU (5 day)	4	mg/l	06/02/2017	Y Cov	WAS001
COD (Total)	360	mg/l	03/02/2017	Y Cov	WAS040
TOC (Filtered)	47.5	mg/l	06/02/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	02/02/2017	N Cov	WAS018

Analyst Comments for 15843389:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **C. Law**

Date: **09 March 2017**

Title: **Inorganics Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Page 4 of 5

# Certificate of Analysis



Report Number: **COV/1357629/2017**

Issue **1**

Laboratory Number: **15843390**

Sample **4** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH26**

Sample Matrix: **Ground Water**

Sample Date/Time: **30 January 2017**

Sample Received: **30 January 2017**

Analysis Complete: **09 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	31/01/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.030	mg/l	01/02/2017	Y Cov	WAS060
Calcium , Total as Ca	142	mg/l	01/02/2017	Y Cov	WAS049
Iron , Total as Fe	5.83	mg/l	01/02/2017	Y Cov	WAS049
Manganese , Total as Mn	1.70	mg/l	01/02/2017	Y Cov	WAS049
Potassium , Total as K	48.3	mg/l	01/02/2017	Y Cov	WAS049
Sodium , Total as Na	260	mg/l	01/02/2017	Y Cov	WAS049
pH	6.9	pH units	31/01/2017	Y Cov	WAS039
Conductivity- Electrical 20C	3400	uS/cm	31/01/2017	Y Cov	WAS039
Alkalinity as CaCO3	1460	mg/l	21/02/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	144	mg/l	02/02/2017	N Cov	WAS036
Chloride as Cl	408	mg/l	31/01/2017	N Cov	WAS036
Sulphate as SO4	17.7	mg/l	31/01/2017	N Cov	WAS036
BOD + ATU (5 day)	3	mg/l	06/02/2017	Y Cov	WAS001
COD (Total)	447	mg/l	03/02/2017	Y Cov	WAS040
TOC (Filtered)	80.5	mg/l	06/02/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	02/02/2017	N Cov	WAS018

Analyst Comments for 15843390:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **C. Law**

Date: **09 March 2017**

Title: **Inorganics Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Page 5 of 5

**ALS Environmental Ltd**  
Torrington Avenue  
Coventry  
CV4 9GU

T: +44 (0)24 7642 1213  
F: +44 (0)24 7685 6575  
[www.alsenvironmental.co.uk](http://www.alsenvironmental.co.uk)

**Mr Downes**  
**SKM Ireland c/o Jacobs**  
**Engineering Ireland**  
**Jacobs**  
**Merrion House**  
**Merrion Road**  
**Dublin 4 South Dublin**

15 February 2017

**Test Report: COV/1357917/2017**

Dear Mr Downes

Analysis of your sample(s) submitted on 31 January 2017 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed: 

Name: A. Horobin

Title: Organic Operations Manager



# Report Summary



1314  
0897  
4409



**Mr Ultan Downes  
SKM Ireland c/o Jacobs  
Engineering Ireland  
Jacobs  
Merrion House  
Merrion Road  
Dublin 4  
South Dublin**

Date of Issue: **15 February 2017**

Report Number: **COV/1357917/2017**

Issue **1**

**Job Description:** Kerdiffstown Landfill

Number of Samples  
included in this report **8**

Job Received: **31 January 2017**

Number of Test Results  
included in this report **136**

Analysis Commenced: **01 February 2017**

Signed: *A I Horobin*

Name: **A. Horobin**

Date: **15 February 2017**

Title: **Organic Operations Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.

Information on the methods of analysis and performance characteristics are available on request.

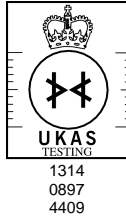
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

(c) ALS Environmental Ltd 2017. All rights reserved. We, ALS Environmental Ltd, are the owner of all copyright in this report. You must not copy, reproduce, amend or adapt this report, its contents or any format in which it is delivered without our prior written agreement. If you copy, reproduce, amend, or adapt this report in any way without our agreement you will be liable for any damage or loss to us. In the event of a dispute the copy of the report held by us shall be the reference copy.

# Certificate of Analysis



Report Number: **COV/1357917/2017**

Issue **1**

Laboratory Number: **15846175**

Sample **1** of **8**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **SW01**

Sample Matrix: **Surface Water**

Sample Date/Time: **30 January 2017**

Sample Received: **31 January 2017**

Analysis Complete: **15 February 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	13.8	mg/l	01/02/2017	Y Cov	WAS036
Arsenic, Ultra Low Total as As	<0.0010	mg/l	03/02/2017	N Cov	WAS060
Calcium , Total as Ca	101	mg/l	04/02/2017	N Cov	WAS049
Iron , Total as Fe	<0.23	mg/l	04/02/2017	N Cov	WAS049
Manganese , Total as Mn	<0.007	mg/l	04/02/2017	N Cov	WAS049
Potassium , Total as K	1.05	mg/l	04/02/2017	N Cov	WAS049
Sodium , Total as Na	7.63	mg/l	04/02/2017	N Cov	WAS049
pH	8.2	pH units	01/02/2017	N Cov	WAS039
Conductivity- Electrical 20C	567	uS/cm	01/02/2017	N Cov	WAS039
Alkalinity as CaCO3	248	mg/l	14/02/2017	N Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	01/02/2017	N Cov	WAS067
Chloride as Cl	16.9	mg/l	01/02/2017	Y Cov	WAS036
Sulphate as SO4	16.6	mg/l	01/02/2017	Y Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	06/02/2017	Y Cov	WAS001
COD (Total)	<11.0	mg/l	05/02/2017	Y Cov	WAS040
TOC (Filtered)	1.0	mg/l	06/02/2017	N Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	04/02/2017	N Cov	WAS018

Analyst Comments for 15846175:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).  
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed: *A I Horobin*

Name: **A. Horobin**

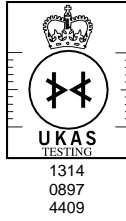
Date: **15 February 2017**

Title: **Organic Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1357917/2017**

Issue **1**

Laboratory Number: **15846176**

Sample **2** of **8**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **SW03**

Sample Matrix: **Surface Water**

Sample Date/Time: **30 January 2017**

Sample Received: **31 January 2017**

Analysis Complete: **15 February 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	11.4	mg/l	01/02/2017	Y Cov	WAS036
Arsenic, Ultra Low Total as As	<0.0010	mg/l	03/02/2017	N Cov	WAS060
Calcium , Total as Ca	100	mg/l	04/02/2017	N Cov	WAS049
Iron , Total as Fe	<0.23	mg/l	04/02/2017	N Cov	WAS049
Manganese , Total as Mn	<0.007	mg/l	04/02/2017	N Cov	WAS049
Potassium , Total as K	1.17	mg/l	04/02/2017	N Cov	WAS049
Sodium , Total as Na	8.11	mg/l	04/02/2017	N Cov	WAS049
pH	8.1	pH units	01/02/2017	N Cov	WAS039
Conductivity- Electrical 20C	539	uS/cm	01/02/2017	N Cov	WAS039
Alkalinity as CaCO3	241	mg/l	14/02/2017	N Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	01/02/2017	N Cov	WAS067
Chloride as Cl	16.7	mg/l	01/02/2017	Y Cov	WAS036
Sulphate as SO4	18.2	mg/l	01/02/2017	Y Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	06/02/2017	Y Cov	WAS001
COD (Total)	<11.0	mg/l	05/02/2017	Y Cov	WAS040
TOC (Filtered)	1.0	mg/l	06/02/2017	N Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	04/02/2017	N Cov	WAS018

Analyst Comments for 15846176:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).  
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed: *A I Horobin*

Name: **A. Horobin**

Date: **15 February 2017**

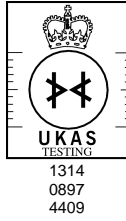
Title: **Organic Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575



# Certificate of Analysis



Report Number: **COV/1357917/2017**

Issue **1**

Laboratory Number: **15846177**

Sample **3** of **8**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **SW03A**

Sample Matrix: **Surface Water**

Sample Date/Time: **30 January 2017**

Sample Received: **31 January 2017**

Analysis Complete: **15 February 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	11.2	mg/l	01/02/2017	Y Cov	WAS036
Arsenic, Ultra Low Total as As	<0.0010	mg/l	03/02/2017	N Cov	WAS060
Calcium , Total as Ca	102	mg/l	04/02/2017	N Cov	WAS049
Iron , Total as Fe	<0.23	mg/l	04/02/2017	N Cov	WAS049
Manganese , Total as Mn	<0.007	mg/l	04/02/2017	N Cov	WAS049
Potassium , Total as K	1.20	mg/l	04/02/2017	N Cov	WAS049
Sodium , Total as Na	8.65	mg/l	04/02/2017	N Cov	WAS049
pH	8.1	pH units	01/02/2017	N Cov	WAS039
Conductivity- Electrical 20C	538	uS/cm	01/02/2017	N Cov	WAS039
Alkalinity as CaCO3	252	mg/l	14/02/2017	N Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	01/02/2017	N Cov	WAS067
Chloride as Cl	16.7	mg/l	01/02/2017	Y Cov	WAS036
Sulphate as SO4	17.9	mg/l	01/02/2017	Y Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	06/02/2017	Y Cov	WAS001
COD (Total)	<11.0	mg/l	05/02/2017	Y Cov	WAS040
TOC (Filtered)	0.8	mg/l	02/02/2017	N Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	04/02/2017	N Cov	WAS018

Analyst Comments for 15846177:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).  
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed: *A I Horobin*

Name: **A. Horobin**

Date: **15 February 2017**

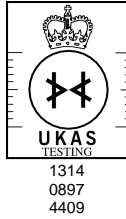
Title: **Organic Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Page 4 of 9

# Certificate of Analysis



Report Number: **COV/1357917/2017**

Issue **1**

Laboratory Number: **15846178**

Sample **4** of **8**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **SW05**

Sample Matrix: **Surface Water**

Sample Date/Time: **30 January 2017**

Sample Received: **31 January 2017**

Analysis Complete: **15 February 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	11.3	mg/l	01/02/2017	Y Cov	WAS036
Arsenic, Ultra Low Total as As	<0.0010	mg/l	03/02/2017	N Cov	WAS060
Calcium , Total as Ca	98.4	mg/l	04/02/2017	N Cov	WAS049
Iron , Total as Fe	<0.23	mg/l	04/02/2017	N Cov	WAS049
Manganese , Total as Mn	<0.007	mg/l	04/02/2017	N Cov	WAS049
Potassium , Total as K	1.16	mg/l	04/02/2017	N Cov	WAS049
Sodium , Total as Na	8.23	mg/l	04/02/2017	N Cov	WAS049
pH	8.1	pH units	01/02/2017	N Cov	WAS039
Conductivity- Electrical 20C	537	uS/cm	01/02/2017	N Cov	WAS039
Alkalinity as CaCO3	273	mg/l	14/02/2017	N Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	01/02/2017	N Cov	WAS067
Chloride as Cl	17.0	mg/l	01/02/2017	Y Cov	WAS036
Sulphate as SO4	19.0	mg/l	01/02/2017	Y Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	06/02/2017	Y Cov	WAS001
COD (Total)	13.0	mg/l	05/02/2017	Y Cov	WAS040
TOC (Filtered)	0.9	mg/l	02/02/2017	N Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	04/02/2017	N Cov	WAS018

Analyst Comments for 15846178:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).  
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed: *A I Horobin*

Name: **A. Horobin**

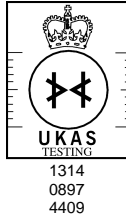
Date: **15 February 2017**

Title: **Organic Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1357917/2017**

Issue **1**

Laboratory Number: **15846179**

Sample **5** of **8**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **SW13**

Sample Matrix: **Surface Water**

Sample Date/Time: **30 January 2017**

Sample Received: **31 January 2017**

Analysis Complete: **15 February 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	01/02/2017	Y Cov	WAS036
Arsenic, Ultra Low Total as As	0.0072	mg/l	03/02/2017	N Cov	WAS060
Calcium , Total as Ca	160	mg/l	04/02/2017	N Cov	WAS049
Iron , Total as Fe	2.42	mg/l	04/02/2017	N Cov	WAS049
Manganese , Total as Mn	1.55	mg/l	04/02/2017	N Cov	WAS049
Potassium , Total as K	3.55	mg/l	04/02/2017	N Cov	WAS049
Sodium , Total as Na	38.3	mg/l	04/02/2017	N Cov	WAS049
pH	7.3	pH units	01/02/2017	N Cov	WAS039
Conductivity- Electrical 20C	898	uS/cm	01/02/2017	N Cov	WAS039
Alkalinity as CaCO3	424	mg/l	14/02/2017	N Cov	WAS025
Ammoniacal Nitrogen as N (LL)	3.16	mg/l	01/02/2017	N Cov	WAS067
Chloride as Cl	66.9	mg/l	01/02/2017	Y Cov	WAS036
Sulphate as SO4	22.8	mg/l	01/02/2017	Y Cov	WAS036
BOD + ATU (5 day)	3	mg/l	06/02/2017	Y Cov	WAS001
COD (Total)	25.0	mg/l	05/02/2017	Y Cov	WAS040
TOC (Filtered)	8.1	mg/l	02/02/2017	N Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	04/02/2017	N Cov	WAS018

Analyst Comments for 15846179:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).  
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed: *A I Horobin*

Name: **A. Horobin**

Date: **15 February 2017**

Title: **Organic Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Page 6 of 9

# Certificate of Analysis



Report Number: **COV/1357917/2017**

Issue **1**

Laboratory Number: **15846180**

Sample **6** of **8**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **SW11**

Sample Matrix: **Surface Water**

Sample Date/Time: **30 January 2017**

Sample Received: **31 January 2017**

Analysis Complete: **15 February 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	01/02/2017	Y Cov	WAS036
Arsenic, Ultra Low Total as As	0.0014	mg/l	03/02/2017	N Cov	WAS060
Calcium , Total as Ca	69.7	mg/l	04/02/2017	N Cov	WAS049
Iron , Total as Fe	0.73	mg/l	04/02/2017	N Cov	WAS049
Manganese , Total as Mn	0.147	mg/l	04/02/2017	N Cov	WAS049
Potassium , Total as K	2.33	mg/l	04/02/2017	N Cov	WAS049
Sodium , Total as Na	27.0	mg/l	04/02/2017	N Cov	WAS049
pH	7.8	pH units	01/02/2017	N Cov	WAS039
Conductivity- Electrical 20C	479	uS/cm	01/02/2017	N Cov	WAS039
Alkalinity as CaCO3	202	mg/l	14/02/2017	N Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	01/02/2017	N Cov	WAS067
Chloride as Cl	50.0	mg/l	01/02/2017	Y Cov	WAS036
Sulphate as SO4	10.7	mg/l	01/02/2017	Y Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	06/02/2017	Y Cov	WAS001
COD (Total)	19.0	mg/l	05/02/2017	Y Cov	WAS040
TOC (Filtered)	3.3	mg/l	02/02/2017	N Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	04/02/2017	N Cov	WAS018

Analyst Comments for 15846180:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).  
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed: *A I Horobin*

Name: **A. Horobin**

Date: **15 February 2017**

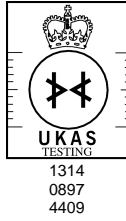
Title: **Organic Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Page 7 of 9

# Certificate of Analysis



Report Number: **COV/1357917/2017**

Issue **1**

Laboratory Number: **15846181**

Sample **7** of **8**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **SW02**

Sample Matrix: **Surface Water**

Sample Date/Time: **30 January 2017**

Sample Received: **31 January 2017**

Analysis Complete: **15 February 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	7.3	mg/l	01/02/2017	Y Cov	WAS036
Arsenic, Ultra Low Total as As	0.0025	mg/l	03/02/2017	N Cov	WAS060
Calcium , Total as Ca	79.2	mg/l	04/02/2017	N Cov	WAS049
Iron , Total as Fe	1.10	mg/l	04/02/2017	N Cov	WAS049
Manganese , Total as Mn	0.172	mg/l	04/02/2017	N Cov	WAS049
Potassium , Total as K	4.01	mg/l	04/02/2017	N Cov	WAS049
Sodium , Total as Na	9.15	mg/l	04/02/2017	N Cov	WAS049
pH	8.1	pH units	01/02/2017	N Cov	WAS039
Conductivity- Electrical 20C	425	uS/cm	01/02/2017	N Cov	WAS039
Alkalinity as CaCO3	212	mg/l	14/02/2017	N Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.08	mg/l	01/02/2017	N Cov	WAS067
Chloride as Cl	22.4	mg/l	01/02/2017	Y Cov	WAS036
Sulphate as SO4	13.5	mg/l	01/02/2017	Y Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	06/02/2017	Y Cov	WAS001
COD (Total)	45.0	mg/l	05/02/2017	Y Cov	WAS040
TOC (Filtered)	6.8	mg/l	02/02/2017	N Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	04/02/2017	N Cov	WAS018

Analyst Comments for 15846181:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed: *A I Horobin*

Name: **A. Horobin**

Date: **15 February 2017**

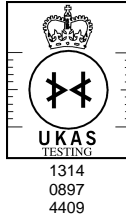
Title: **Organic Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Page 8 of 9

# Certificate of Analysis



Report Number: **COV/1357917/2017**

Issue **1**

Laboratory Number: **15846182**

Sample **8** of **8**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **SWMH09**

Sample Matrix: **Surface Water**

Sample Date/Time: **30 January 2017**

Sample Received: **31 January 2017**

Analysis Complete: **15 February 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	01/02/2017	Y Cov	WAS036
Arsenic, Ultra Low Total as As	0.0060	mg/l	03/02/2017	N Cov	WAS060
Calcium , Total as Ca	41.3	mg/l	04/02/2017	N Cov	WAS049
Iron , Total as Fe	4.53	mg/l	04/02/2017	N Cov	WAS049
Manganese , Total as Mn	0.609	mg/l	04/02/2017	N Cov	WAS049
Potassium , Total as K	1.78	mg/l	04/02/2017	N Cov	WAS049
Sodium , Total as Na	1.20	mg/l	04/02/2017	N Cov	WAS049
pH	8.2	pH units	01/02/2017	N Cov	WAS039
Conductivity- Electrical 20C	160	uS/cm	01/02/2017	N Cov	WAS039
Alkalinity as CaCO3	109	mg/l	14/02/2017	N Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.10	mg/l	01/02/2017	N Cov	WAS067
Chloride as Cl	12.8	mg/l	01/02/2017	Y Cov	WAS036
Sulphate as SO4	<4.4	mg/l	01/02/2017	Y Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	06/02/2017	Y Cov	WAS001
COD (Total)	88.0	mg/l	05/02/2017	Y Cov	WAS040
TOC (Filtered)	2.1	mg/l	02/02/2017	N Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	04/02/2017	N Cov	WAS018

Analyst Comments for 15846182:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).  
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed: *A I Horobin*

Name: **A. Horobin**

Date: **15 February 2017**

Title: **Organic Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

**ALS Environmental Ltd**  
Torrington Avenue  
Coventry  
CV4 9GU

T: +44 (0)24 7642 1213  
F: +44 (0)24 7685 6575  
[www.alsenvironmental.co.uk](http://www.alsenvironmental.co.uk)

**Mr Downes**  
**SKM Ireland c/o Jacobs**  
**Engineering Ireland**  
**Jacobs**  
**Merrion House**  
**Merrion Road**  
**Dublin 4 South Dublin**

17 February 2017

**Test Report: COV/1357918/2017**

Dear Mr Downes

Analysis of your sample(s) submitted on 31 January 2017 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed: 

Name: A. Horobin

Title: Organic Operations Manager



# Report Summary



1314  
0897  
4409



**Mr Ultan Downes  
SKM Ireland c/o Jacobs  
Engineering Ireland  
Jacobs  
Merrion House  
Merrion Road  
Dublin 4  
South Dublin**

Date of Issue: **17 February 2017**

Report Number: **COV/1357918/2017**

Issue **1**

**Job Description:** Kerdiffstown Landfill

Number of Samples  
included in this report **7**

Job Received: **31 January 2017**

Number of Test Results  
included in this report **119**

Analysis Commenced: **01 February 2017**

Signed: *A I Horobin*

Name: **A. Horobin**

Date: **17 February 2017**

Title: **Organic Operations Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested.

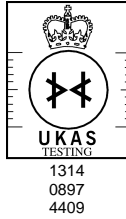
Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

(c) ALS Environmental Ltd 2017. All rights reserved. We, ALS Environmental Ltd, are the owner of all copyright in this report. You must not copy, reproduce, amend or adapt this report, its contents or any format in which it is delivered without our prior written agreement. If you copy, reproduce, amend, or adapt this report in any way without our agreement you will be liable for any damage or loss to us. In the event of a dispute the copy of the report held by us shall be the reference copy.



# Certificate of Analysis



Report Number: **COV/1357918/2017**

Issue **1**

Laboratory Number: **15846183**

Sample **1** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **EMW03**

Sample Matrix: **Ground Water**

Sample Date/Time: **30 January 2017**

Sample Received: **31 January 2017**

Analysis Complete: **17 February 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	22.1	mg/l	01/02/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.015	mg/l	03/02/2017	Y Cov	WAS060
Calcium , Total as Ca	211	mg/l	04/02/2017	Y Cov	WAS049
Iron , Total as Fe	28.9	mg/l	04/02/2017	Y Cov	WAS049
Manganese , Total as Mn	1.45	mg/l	04/02/2017	Y Cov	WAS049
Potassium , Total as K	25.5	mg/l	04/02/2017	Y Cov	WAS049
Sodium , Total as Na	59.9	mg/l	04/02/2017	Y Cov	WAS049
pH	6.9	pH units	01/02/2017	Y Cov	WAS039
Conductivity- Electrical 20C	1520	uS/cm	01/02/2017	Y Cov	WAS039
Alkalinity as CaCO3	830	mg/l	14/02/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	21.3	mg/l	02/02/2017	N Cov	WAS036
Chloride as Cl	66.9	mg/l	01/02/2017	N Cov	WAS036
Sulphate as SO4	59.2	mg/l	01/02/2017	N Cov	WAS036
BOD + ATU (5 day)	2	mg/l	06/02/2017	Y Cov	WAS001
COD (Total)	74.0	mg/l	05/02/2017	Y Cov	WAS040
TOC (Filtered)	14.8	mg/l	02/02/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	04/02/2017	N Cov	WAS018

Analyst Comments for 15846183:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).  
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed: *A I Horobin*

Name: **A. Horobin**

Date: **17 February 2017**

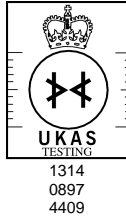
Title: **Organic Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Page 2 of 8

# Certificate of Analysis



Report Number: **COV/1357918/2017**

Issue **1**

Laboratory Number: **15846184**

Sample **2** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **EMW05**

Sample Matrix: **Ground Water**

Sample Date/Time: **30 January 2017**

Sample Received: **31 January 2017**

Analysis Complete: **17 February 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	3.8	mg/l	01/02/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.0050	mg/l	03/02/2017	Y Cov	WAS060
Calcium , Total as Ca	171	mg/l	04/02/2017	Y Cov	WAS049
Iron , Total as Fe	4.36	mg/l	04/02/2017	Y Cov	WAS049
Manganese , Total as Mn	0.664	mg/l	04/02/2017	Y Cov	WAS049
Potassium , Total as K	2.73	mg/l	04/02/2017	Y Cov	WAS049
Sodium , Total as Na	14.4	mg/l	04/02/2017	Y Cov	WAS049
pH	7.1	pH units	01/02/2017	Y Cov	WAS039
Conductivity- Electrical 20C	725	uS/cm	01/02/2017	Y Cov	WAS039
Alkalinity as CaCO3	446	mg/l	14/02/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.91	mg/l	02/02/2017	Y Cov	WAS067
Chloride as Cl	19.4	mg/l	01/02/2017	N Cov	WAS036
Sulphate as SO4	8.5	mg/l	01/02/2017	N Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	06/02/2017	Y Cov	WAS001
COD (Total)	42.0	mg/l	05/02/2017	Y Cov	WAS040
TOC (Filtered)	2.8	mg/l	02/02/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	04/02/2017	N Cov	WAS018

Analyst Comments for 15846184:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).  
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed: *A I Horobin*

Name: **A. Horobin**

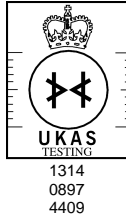
Date: **17 February 2017**

Title: **Organic Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1357918/2017**

Issue **1**

Laboratory Number: **15846185**

Sample **3** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **EMW06**

Sample Matrix: **Ground Water**

Sample Date/Time: **30 January 2017**

Sample Received: **31 January 2017**

Analysis Complete: **17 February 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	36.1	mg/l	01/02/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.0021	mg/l	03/02/2017	Y Cov	WAS060
Calcium , Total as Ca	123	mg/l	04/02/2017	Y Cov	WAS049
Iron , Total as Fe	1.21	mg/l	04/02/2017	Y Cov	WAS049
Manganese , Total as Mn	0.249	mg/l	04/02/2017	Y Cov	WAS049
Potassium , Total as K	1.16	mg/l	04/02/2017	Y Cov	WAS049
Sodium , Total as Na	2.54	mg/l	04/02/2017	Y Cov	WAS049
pH	7.3	pH units	01/02/2017	Y Cov	WAS039
Conductivity- Electrical 20C	547	uS/cm	01/02/2017	Y Cov	WAS039
Alkalinity as CaCO3	332	mg/l	14/02/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	01/02/2017	Y Cov	WAS067
Chloride as Cl	7.1	mg/l	01/02/2017	N Cov	WAS036
Sulphate as SO4	12.5	mg/l	01/02/2017	N Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	06/02/2017	Y Cov	WAS001
COD (Total)	20.0	mg/l	05/02/2017	Y Cov	WAS040
TOC (Filtered)	<0.7	mg/l	02/02/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	04/02/2017	N Cov	WAS018

Analyst Comments for 15846185:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).  
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed: *A I Horobin*

Name: **A. Horobin**

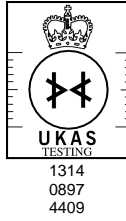
Date: **17 February 2017**

Title: **Organic Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1357918/2017**

Issue **1**

Laboratory Number: **15846186**

Sample **4** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **EMW08**

Sample Matrix: **Ground Water**

Sample Date/Time: **30 January 2017**

Sample Received: **31 January 2017**

Analysis Complete: **17 February 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	01/02/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.0030	mg/l	03/02/2017	Y Cov	WAS060
Calcium , Total as Ca	124	mg/l	04/02/2017	Y Cov	WAS049
Iron , Total as Fe	3.77	mg/l	04/02/2017	Y Cov	WAS049
Manganese , Total as Mn	0.764	mg/l	04/02/2017	Y Cov	WAS049
Potassium , Total as K	0.37	mg/l	04/02/2017	Y Cov	WAS049
Sodium , Total as Na	4.20	mg/l	04/02/2017	Y Cov	WAS049
pH	7.2	pH units	01/02/2017	Y Cov	WAS039
Conductivity- Electrical 20C	570	uS/cm	01/02/2017	Y Cov	WAS039
Alkalinity as CaCO3	333	mg/l	14/02/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.11	mg/l	01/02/2017	Y Cov	WAS067
Chloride as Cl	9.7	mg/l	01/02/2017	N Cov	WAS036
Sulphate as SO4	4.8	mg/l	01/02/2017	N Cov	WAS036
BOD + ATU (5 day)	1	mg/l	06/02/2017	Y Cov	WAS001
COD (Total)	37.0	mg/l	05/02/2017	Y Cov	WAS040
TOC (Filtered)	1.2	mg/l	02/02/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	04/02/2017	N Cov	WAS018

Analyst Comments for 15846186:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).  
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed: *A I Horobin*

Name: **A. Horobin**

Date: **17 February 2017**

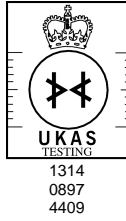
Title: **Organic Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Page 5 of 8

# Certificate of Analysis



Report Number: **COV/1357918/2017**

Issue **1**

Laboratory Number: **15846187**

Sample **5** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **EMW20**

Sample Matrix: **Ground Water**

Sample Date/Time: **30 January 2017**

Sample Received: **31 January 2017**

Analysis Complete: **17 February 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	01/02/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.0030	mg/l	03/02/2017	Y Cov	WAS060
Calcium , Total as Ca	108	mg/l	04/02/2017	Y Cov	WAS049
Iron , Total as Fe	5.80	mg/l	04/02/2017	Y Cov	WAS049
Manganese , Total as Mn	1.04	mg/l	04/02/2017	Y Cov	WAS049
Potassium , Total as K	0.89	mg/l	04/02/2017	Y Cov	WAS049
Sodium , Total as Na	8.99	mg/l	04/02/2017	Y Cov	WAS049
pH	7.3	pH units	01/02/2017	Y Cov	WAS039
Conductivity- Electrical 20C	565	uS/cm	01/02/2017	Y Cov	WAS039
Alkalinity as CaCO3	493	mg/l	15/02/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.79	mg/l	01/02/2017	Y Cov	WAS067
Chloride as Cl	19.6	mg/l	01/02/2017	N Cov	WAS036
Sulphate as SO4	<4.4	mg/l	01/02/2017	N Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	06/02/2017	Y Cov	WAS001
COD (Total)	15.0	mg/l	05/02/2017	Y Cov	WAS040
TOC (Filtered)	1.6	mg/l	02/02/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	04/02/2017	N Cov	WAS018

Analyst Comments for 15846187:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).  
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed: *A I Horobin*

Name: **A. Horobin**

Date: **17 February 2017**

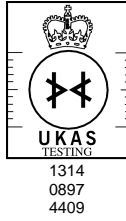
Title: **Organic Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Page 6 of 8

# Certificate of Analysis



Report Number: **COV/1357918/2017**

Issue **1**

Laboratory Number: **15846188**

Sample **6** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **EMW19**

Sample Matrix: **Ground Water**

Sample Date/Time: **31 January 2017**

Sample Received: **31 January 2017**

Analysis Complete: **17 February 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	01/02/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.015	mg/l	03/02/2017	Y Cov	WAS060
Calcium , Total as Ca	121	mg/l	04/02/2017	Y Cov	WAS049
Iron , Total as Fe	10.8	mg/l	04/02/2017	Y Cov	WAS049
Manganese , Total as Mn	1.11	mg/l	04/02/2017	Y Cov	WAS049
Potassium , Total as K	4.82	mg/l	04/02/2017	Y Cov	WAS049
Sodium , Total as Na	14.7	mg/l	04/02/2017	Y Cov	WAS049
pH	7.6	pH units	02/02/2017	Y Cov	WAS039
Conductivity- Electrical 20C	691	uS/cm	02/02/2017	Y Cov	WAS039
Alkalinity as CaCO3	346	mg/l	01/02/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	2.21	mg/l	02/02/2017	Y Cov	WAS067
Chloride as Cl	23.1	mg/l	01/02/2017	N Cov	WAS036
Sulphate as SO4	54.8	mg/l	01/02/2017	N Cov	WAS036
BOD + ATU (5 day)	1	mg/l	07/02/2017	Y Cov	WAS001
COD (Total)	16.0	mg/l	06/02/2017	Y Cov	WAS040
TOC (Filtered)	2.8	mg/l	02/02/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	04/02/2017	N Cov	WAS018

Analyst Comments for 15846188:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).  
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed: *A I Horobin*

Name: **A. Horobin**

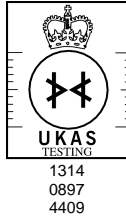
Date: **17 February 2017**

Title: **Organic Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1357918/2017**

Issue **1**

Laboratory Number: **15846189**

Sample **7** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH42**

Sample Matrix: **Ground Water**

Sample Date/Time: **31 January 2017**

Sample Received: **31 January 2017**

Analysis Complete: **17 February 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	01/02/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.011	mg/l	03/02/2017	Y Cov	WAS060
Calcium , Total as Ca	214	mg/l	04/02/2017	Y Cov	WAS049
Iron , Total as Fe	5.32	mg/l	04/02/2017	Y Cov	WAS049
Manganese , Total as Mn	4.46	mg/l	04/02/2017	Y Cov	WAS049
Potassium , Total as K	17.8	mg/l	04/02/2017	Y Cov	WAS049
Sodium , Total as Na	26.1	mg/l	04/02/2017	Y Cov	WAS049
pH	7.6	pH units	02/02/2017	Y Cov	WAS039
Conductivity- Electrical 20C	1150	uS/cm	02/02/2017	Y Cov	WAS039
Alkalinity as CaCO3	312	mg/l	01/02/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	3.31	mg/l	02/02/2017	Y Cov	WAS067
Chloride as Cl	23.2	mg/l	01/02/2017	N Cov	WAS036
Sulphate as SO4	391	mg/l	01/02/2017	N Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	07/02/2017	Y Cov	WAS001
COD (Total)	42.0	mg/l	06/02/2017	Y Cov	WAS040
TOC (Filtered)	7.6	mg/l	02/02/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	04/02/2017	N Cov	WAS018

Analyst Comments for 15846189:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).  
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed: *A I Horobin*

Name: **A. Horobin**

Date: **17 February 2017**

Title: **Organic Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Page 8 of 8

**ALS Environmental Ltd**  
Torrington Avenue  
Coventry  
CV4 9GU

T: +44 (0)24 7642 1213  
F: +44 (0)24 7685 6575  
[www.alsenvironmental.co.uk](http://www.alsenvironmental.co.uk)

**Mr Downes**  
**SKM Ireland c/o Jacobs**  
**Engineering Ireland**  
**Jacobs**  
**Merrion House**  
**Merrion Road**  
**Dublin 4 South Dublin**

14 March 2017

**Test Report: COV/1358307/2017**

Dear Mr Downes

Analysis of your sample(s) submitted on 01 February 2017 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

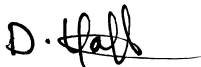
Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:



Name: D. Hoffman

Title: Inorganic Team Leader





# Report Summary



1314  
0897  
4409



**Mr Ultan Downes  
SKM Ireland c/o Jacobs  
Engineering Ireland  
Jacobs  
Merrion House  
Merrion Road  
Dublin 4  
South Dublin**

Date of Issue: **14 March 2017**

Report Number: **COV/1358307/2017**

Issue **3**

This issue replaces  
all previous issues

**Job Description:** Kerdiffstown Landfill

Number of Samples  
included in this report **4**

Job Received: **01 February 2017**

Number of Test Results  
included in this report **68**

Analysis Commenced: **02 February 2017**

Signed:

Name: **D. Hoffman**

Date: **14 March 2017**

Title: **Inorganic Team Leader**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.

Information on the methods of analysis and performance characteristics are available on request.

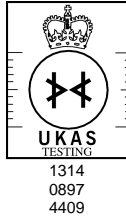
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

(c) ALS Environmental Ltd 2017. All rights reserved. We, ALS Environmental Ltd, are the owner of all copyright in this report. You must not copy, reproduce, amend or adapt this report, its contents or any format in which it is delivered without our prior written agreement. If you copy, reproduce, amend, or adapt this report in any way without our agreement you will be liable for any damage or loss to us. In the event of a dispute the copy of the report held by us shall be the reference copy.

# Certificate of Analysis



Report Number: **COV/1358307/2017**

Issue **3**

Laboratory Number: **15849161**

Sample **1** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **EMW15**

Sample Matrix: **Ground Water**

Sample Date/Time: **31 January 2017**

Sample Received: **01 February 2017**

Analysis Complete: **14 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	02/02/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.028	mg/l	03/02/2017	Y Cov	WAS060
Alkalinity Total	430	mg/l	14/03/2017	Y S	SUBCON
Calcium , Total as Ca	184	mg/l	04/02/2017	Y Cov	WAS049
Iron , Total as Fe	14.4	mg/l	04/02/2017	Y Cov	WAS049
Manganese , Total as Mn	4.57	mg/l	04/02/2017	Y Cov	WAS049
Potassium , Total as K	25.7	mg/l	04/02/2017	Y Cov	WAS049
Sodium , Total as Na	39.8	mg/l	04/02/2017	Y Cov	WAS049
pH	7.2	pH units	03/02/2017	Y Cov	WAS039
Conductivity- Electrical 20C	1180	uS/cm	03/02/2017	Y Cov	WAS039
Ammoniacal Nitrogen as N (LL)	10.8	mg/l	02/02/2017	Y Cov	WAS067
Chloride as Cl	38.4	mg/l	02/02/2017	N Cov	WAS036
Sulphate as SO4	171	mg/l	02/02/2017	N Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	07/02/2017	Y Cov	WAS001
COD (Total)	37.0	mg/l	06/02/2017	Y Cov	WAS040
TOC (Filtered)	6.6	mg/l	03/02/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	04/02/2017	N Cov	WAS018

**Analyst Comments for 15849161:**


This sample has been analysed for pH outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

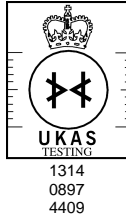
Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:  Name: **D. Hoffman** Date: **14 March 2017**  
Title: **Inorganic Team Leader**

# Certificate of Analysis



Report Number: **COV/1358307/2017**

Issue **3**

Laboratory Number: **15849162**

Sample **2** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **EMW16**

Sample Matrix: **Ground Water**

Sample Date/Time: **31 January 2017**

Sample Received: **01 February 2017**

Analysis Complete: **14 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	02/02/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.0030	mg/l	03/02/2017	Y Cov	WAS060
Alkalinity Total	820	mg/l	14/03/2017	Y S	SUBCON
Calcium , Total as Ca	353	mg/l	04/02/2017	Y Cov	WAS049
Iron , Total as Fe	1.63	mg/l	04/02/2017	Y Cov	WAS049
Manganese , Total as Mn	4.23	mg/l	04/02/2017	Y Cov	WAS049
Potassium , Total as K	20.8	mg/l	04/02/2017	Y Cov	WAS049
Sodium , Total as Na	124	mg/l	04/02/2017	Y Cov	WAS049
pH	6.8	pH units	03/02/2017	Y Cov	WAS039
Conductivity- Electrical 20C	2230	uS/cm	03/02/2017	Y Cov	WAS039
Ammoniacal Nitrogen as N (LL)	6.64	mg/l	02/02/2017	Y Cov	WAS067
Chloride as Cl	161	mg/l	02/02/2017	N Cov	WAS036
Sulphate as SO4	405	mg/l	02/02/2017	N Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	07/02/2017	Y Cov	WAS001
COD (Total)	87.0	mg/l	06/02/2017	Y Cov	WAS040
TOC (Filtered)	19.9	mg/l	03/02/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	04/02/2017	N Cov	WAS018

**Analyst Comments for 15849162:**

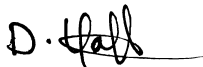
This sample has been analysed for pH outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

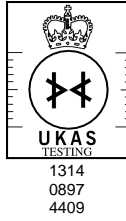
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:  Name: **D. Hoffman** Date: **14 March 2017**  
Title: **Inorganic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1358307/2017**

Issue **3**

Laboratory Number: **15849163**

Sample **3** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **EMW28**

Sample Matrix: **Ground Water**

Sample Date/Time: **31 January 2017**

Sample Received: **01 February 2017**

Analysis Complete: **14 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	02/02/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.045	mg/l	03/02/2017	Y Cov	WAS060
Alkalinity Total	Analyst Com	mg/l	09/03/2017	Y S	SUBCON
Calcium , Total as Ca	163	mg/l	04/02/2017	Y Cov	WAS049
Iron , Total as Fe	18.2	mg/l	04/02/2017	Y Cov	WAS049
Manganese , Total as Mn	1.08	mg/l	04/02/2017	Y Cov	WAS049
Potassium , Total as K	0.73	mg/l	04/02/2017	Y Cov	WAS049
Sodium , Total as Na	6.53	mg/l	04/02/2017	Y Cov	WAS049
pH	7.0	pH units	03/02/2017	Y Cov	WAS039
Conductivity- Electrical 20C	702	uS/cm	03/02/2017	Y Cov	WAS039
Ammoniacal Nitrogen as N (LL)	0.50	mg/l	02/02/2017	Y Cov	WAS067
Chloride as Cl	19.9	mg/l	02/02/2017	N Cov	WAS036
Sulphate as SO4	11.3	mg/l	02/02/2017	N Cov	WAS036
BOD + ATU (5 day)	2	mg/l	07/02/2017	Y Cov	WAS001
COD (Total)	121	mg/l	06/02/2017	Y Cov	WAS040
TOC (Filtered)	6.5	mg/l	03/02/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	04/02/2017	N Cov	WAS018

### Analyst Comments for 15849163:

This sample has been analysed for pH outside recommended stability times. It is therefore possible that the results provided may be compromised. Due to an AQC failure for the Total Alkalinity analysis, there was insufficient sample leftover to repeat the analysis due to the volume of sample supplied

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **D. Hoffman**

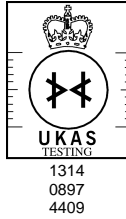
Date: **14 March 2017**

Title: **Inorganic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1358307/2017**

Issue **3**

Laboratory Number: **15849164**

Sample **4** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **EMW29**

Sample Matrix: **Ground Water**

Sample Date/Time: **31 January 2017**

Sample Received: **01 February 2017**

Analysis Complete: **14 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	10.7	mg/l	02/02/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	<0.0010	mg/l	03/02/2017	Y Cov	WAS060
Alkalinity Total	Analyst Com	mg/l	09/03/2017	Y S	SUBCON
Calcium , Total as Ca	185	mg/l	04/02/2017	Y Cov	WAS049
Iron , Total as Fe	0.26	mg/l	04/02/2017	Y Cov	WAS049
Manganese , Total as Mn	0.051	mg/l	04/02/2017	Y Cov	WAS049
Potassium , Total as K	0.99	mg/l	04/02/2017	Y Cov	WAS049
Sodium , Total as Na	15.3	mg/l	04/02/2017	Y Cov	WAS049
pH	7.1	pH units	03/02/2017	Y Cov	WAS039
Conductivity- Electrical 20C	909	uS/cm	03/02/2017	Y Cov	WAS039
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	02/02/2017	Y Cov	WAS067
Chloride as Cl	25.2	mg/l	02/02/2017	N Cov	WAS036
Sulphate as SO4	100	mg/l	02/02/2017	N Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	07/02/2017	Y Cov	WAS001
COD (Total)	15.0	mg/l	06/02/2017	Y Cov	WAS040
TOC (Filtered)	2.7	mg/l	03/02/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	04/02/2017	N Cov	WAS018

## Analyst Comments for 15849164:

This sample has been analysed for pH outside recommended stability times. It is therefore possible that the results provided may be compromised. Due to an AQC failure for the Total Alkalinity analysis, there was insufficient sample leftover to repeat the analysis due to the volume of sample supplied

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **D. Hoffman**

Date: **14 March 2017**

Title: **Inorganic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

**ALS Environmental Ltd**  
Torrington Avenue  
Coventry  
CV4 9GU

T: +44 (0)24 7642 1213  
F: +44 (0)24 7685 6575  
[www.alsenvironmental.co.uk](http://www.alsenvironmental.co.uk)

**Mr Downes**  
**SKM Ireland c/o Jacobs**  
**Engineering Ireland**  
**Jacobs**  
**Merrion House**  
**Merrion Road**  
**Dublin 4 South Dublin**

09 March 2017

**Test Report: COV/1364167/2017**

Dear Mr Downes

Analysis of your sample(s) submitted on 20 February 2017 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed: 

Name: C. Law

Title: Inorganics Operations Manager



# Report Summary



1314  
0897  
4409



**Mr Ultan Downes**  
**SKM Ireland c/o Jacobs**  
**Engineering Ireland**  
**Jacobs**  
**Merrion House**  
**Merrion Road**  
**Dublin 4**  
**South Dublin**

Date of Issue: **09 March 2017**

Report Number: **COV/1364167/2017**

Issue **1**

This issue replaces  
all previous issues

**Job Description:** Kerdiffstown Landfill

**Job Location:** 32EW5604 KLRP

Number of Samples  
included in this report **6**

Job Received: **20 February 2017**

Number of Test Results  
included in this report **102**

Analysis Commenced: **21 February 2017**

Signed:

Name: **C. Law**

Date: **09 March 2017**

Title: **Inorganics Operations Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.

Information on the methods of analysis and performance characteristics are available on request.

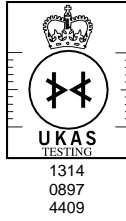
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

(c) ALS Environmental Ltd 2017. All rights reserved. We, ALS Environmental Ltd, are the owner of all copyright in this report. You must not copy, reproduce, amend or adapt this report, its contents or any format in which it is delivered without our prior written agreement. If you copy, reproduce, amend, or adapt this report in any way without our agreement you will be liable for any damage or loss to us. In the event of a dispute the copy of the report held by us shall be the reference copy.

# Certificate of Analysis



Report Number: **COV/1364167/2017**

Issue **1**

Laboratory Number: **15894211**

Sample **1** of **6**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **EMW03**

Sample Matrix: **Ground Water**

Sample Date/Time: **20 February 2017**

Sample Received: **20 February 2017**

Analysis Complete: **09 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	15.9	mg/l	22/02/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.021	mg/l	02/03/2017	Y Cov	WAS060
Calcium , Total as Ca	213	mg/l	02/03/2017	Y Cov	WAS049
Iron , Total as Fe	55.1	mg/l	02/03/2017	Y Cov	WAS049
Manganese , Total as Mn	1.53	mg/l	02/03/2017	Y Cov	WAS049
Potassium , Total as K	19.8	mg/l	02/03/2017	Y Cov	WAS049
Sodium , Total as Na	45.1	mg/l	02/03/2017	Y Cov	WAS049
pH	6.9	pH units	22/02/2017	Y Cov	WAS039
Conductivity- Electrical 20C	1430	uS/cm	22/02/2017	Y Cov	WAS039
Alkalinity as CaCO3	687	mg/l	07/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	17.7	mg/l	22/02/2017	N Cov	WAS036
Chloride as Cl	55.8	mg/l	22/02/2017	N Cov	WAS036
Sulphate as SO4	50.8	mg/l	22/02/2017	N Cov	WAS036
BOD + ATU (5 day)	4	mg/l	27/02/2017	Y Cov	WAS001
COD (Total)	113	mg/l	24/02/2017	Y Cov	WAS040
TOC (Filtered)	10.6	mg/l	23/02/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	22/02/2017	N Cov	WAS018

## Analyst Comments for 15894211:

This sample has been analysed for Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **C. Law**

Date: **09 March 2017**

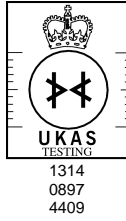
Title: **Inorganics Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575



# Certificate of Analysis



Report Number: **COV/1364167/2017**

Issue **1**

Laboratory Number: **15894212**

Sample **2** of **6**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **EMW06**

Sample Matrix: **Ground Water**

Sample Date/Time: **20 February 2017**

Sample Received: **20 February 2017**

Analysis Complete: **09 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	22/02/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.0022	mg/l	02/03/2017	Y Cov	WAS060
Calcium , Total as Ca	130	mg/l	02/03/2017	Y Cov	WAS049
Iron , Total as Fe	1.85	mg/l	02/03/2017	Y Cov	WAS049
Manganese , Total as Mn	0.356	mg/l	02/03/2017	Y Cov	WAS049
Potassium , Total as K	1.33	mg/l	02/03/2017	Y Cov	WAS049
Sodium , Total as Na	3.01	mg/l	02/03/2017	Y Cov	WAS049
pH	7.3	pH units	22/02/2017	Y Cov	WAS039
Conductivity- Electrical 20C	580	uS/cm	22/02/2017	Y Cov	WAS039
Alkalinity as CaCO3	332	mg/l	22/02/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	21/02/2017	Y Cov	WAS067
Chloride as Cl	9.9	mg/l	22/02/2017	N Cov	WAS036
Sulphate as SO4	7.9	mg/l	22/02/2017	N Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	27/02/2017	Y Cov	WAS001
COD (Total)	29.0	mg/l	24/02/2017	Y Cov	WAS040
TOC (Filtered)	1.4	mg/l	23/02/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	22/02/2017	N Cov	WAS018

## Analyst Comments for 15894212:

This sample has been analysed for Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **C. Law**

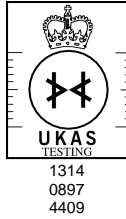
Date: **09 March 2017**

Title: **Inorganics Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1364167/2017**

Issue **1**

Laboratory Number: **15894213**

Sample **3** of **6**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **EMW08**

Sample Matrix: **Ground Water**

Sample Date/Time: **20 February 2017**

Sample Received: **20 February 2017**

Analysis Complete: **09 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	22/02/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.0033	mg/l	02/03/2017	Y Cov	WAS060
Calcium , Total as Ca	129	mg/l	02/03/2017	Y Cov	WAS049
Iron , Total as Fe	4.30	mg/l	02/03/2017	Y Cov	WAS049
Manganese , Total as Mn	0.795	mg/l	02/03/2017	Y Cov	WAS049
Potassium , Total as K	0.48	mg/l	02/03/2017	Y Cov	WAS049
Sodium , Total as Na	4.31	mg/l	02/03/2017	Y Cov	WAS049
pH	7.2	pH units	22/02/2017	Y Cov	WAS039
Conductivity- Electrical 20C	600	uS/cm	22/02/2017	Y Cov	WAS039
Alkalinity as CaCO3	334	mg/l	22/02/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.11	mg/l	21/02/2017	Y Cov	WAS067
Chloride as Cl	8.3	mg/l	22/02/2017	N Cov	WAS036
Sulphate as SO4	<4.4	mg/l	22/02/2017	N Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	27/02/2017	Y Cov	WAS001
COD (Total)	13.0	mg/l	24/02/2017	Y Cov	WAS040
TOC (Filtered)	1.8	mg/l	23/02/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	22/02/2017	N Cov	WAS018

## Analyst Comments for 15894213:

This sample has been analysed for Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **C. Law**

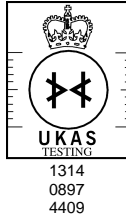
Date: **09 March 2017**

Title: **Inorganics Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1364167/2017**

Issue **1**

Laboratory Number: **15894214**

Sample **4** of **6**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **EMW11**

Sample Matrix: **Ground Water**

Sample Date/Time: **20 February 2017**

Sample Received: **20 February 2017**

Analysis Complete: **09 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	57.2	mg/l	22/02/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	<0.0010	mg/l	02/03/2017	Y Cov	WAS060
Calcium , Total as Ca	380	mg/l	02/03/2017	Y Cov	WAS049
Iron , Total as Fe	0.68	mg/l	02/03/2017	Y Cov	WAS049
Manganese , Total as Mn	0.075	mg/l	02/03/2017	Y Cov	WAS049
Potassium , Total as K	47.7	mg/l	02/03/2017	Y Cov	WAS049
Sodium , Total as Na	71.5	mg/l	02/03/2017	Y Cov	WAS049
pH	7.0	pH units	22/02/2017	Y Cov	WAS039
Conductivity- Electrical 20C	2000	uS/cm	22/02/2017	Y Cov	WAS039
Alkalinity as CaCO3	494	mg/l	07/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	21/02/2017	Y Cov	WAS067
Chloride as Cl	48.5	mg/l	22/02/2017	N Cov	WAS036
Sulphate as SO4	775	mg/l	22/02/2017	N Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	27/02/2017	Y Cov	WAS001
COD (Total)	52.0	mg/l	24/02/2017	Y Cov	WAS040
TOC (Filtered)	9.0	mg/l	23/02/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	22/02/2017	N Cov	WAS018

**Analyst Comments for 15894214:**

This sample has been analysed for Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **C. Law**

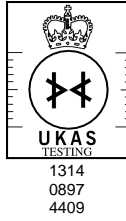
Date: **09 March 2017**

Title: **Inorganics Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1364167/2017**

Issue **1**

Laboratory Number: **15894215**

Sample **5** of **6**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **EMW12**

Sample Matrix: **Ground Water**

Sample Date/Time: **20 February 2017**

Sample Received: **20 February 2017**

Analysis Complete: **09 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	28.4	mg/l	22/02/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	<0.0010	mg/l	02/03/2017	Y Cov	WAS060
Calcium , Total as Ca	213	mg/l	02/03/2017	Y Cov	WAS049
Iron , Total as Fe	<0.23	mg/l	02/03/2017	Y Cov	WAS049
Manganese , Total as Mn	0.008	mg/l	02/03/2017	Y Cov	WAS049
Potassium , Total as K	4.65	mg/l	02/03/2017	Y Cov	WAS049
Sodium , Total as Na	25.2	mg/l	02/03/2017	Y Cov	WAS049
pH	7.3	pH units	22/02/2017	Y Cov	WAS039
Conductivity- Electrical 20C	1060	uS/cm	22/02/2017	Y Cov	WAS039
Alkalinity as CaCO3	261	mg/l	22/02/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	21/02/2017	Y Cov	WAS067
Chloride as Cl	30.0	mg/l	22/02/2017	N Cov	WAS036
Sulphate as SO4	330	mg/l	22/02/2017	N Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	27/02/2017	Y Cov	WAS001
COD (Total)	<11.0	mg/l	24/02/2017	Y Cov	WAS040
TOC (Filtered)	2.4	mg/l	23/02/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	22/02/2017	N Cov	WAS018

## Analyst Comments for 15894215:

This sample has been analysed for Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **C. Law**

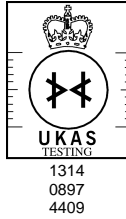
Date: **09 March 2017**

Title: **Inorganics Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1364167/2017**

Issue **1**

Laboratory Number: **15894216**

Sample **6** of **6**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **EMW19**

Sample Matrix: **Ground Water**

Sample Date/Time: **20 February 2017**

Sample Received: **20 February 2017**

Analysis Complete: **09 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	22/02/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.012	mg/l	02/03/2017	Y Cov	WAS060
Calcium , Total as Ca	119	mg/l	02/03/2017	Y Cov	WAS049
Iron , Total as Fe	9.14	mg/l	02/03/2017	Y Cov	WAS049
Manganese , Total as Mn	1.08	mg/l	02/03/2017	Y Cov	WAS049
Potassium , Total as K	4.44	mg/l	02/03/2017	Y Cov	WAS049
Sodium , Total as Na	14.2	mg/l	02/03/2017	Y Cov	WAS049
pH	7.2	pH units	22/02/2017	Y Cov	WAS039
Conductivity- Electrical 20C	664	uS/cm	22/02/2017	Y Cov	WAS039
Alkalinity as CaCO3	320	mg/l	22/02/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	1.94	mg/l	21/02/2017	Y Cov	WAS067
Chloride as Cl	21.5	mg/l	22/02/2017	N Cov	WAS036
Sulphate as SO4	34.6	mg/l	22/02/2017	N Cov	WAS036
BOD + ATU (5 day)	2	mg/l	27/02/2017	Y Cov	WAS001
COD (Total)	13.0	mg/l	24/02/2017	Y Cov	WAS040
TOC (Filtered)	2.8	mg/l	23/02/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	22/02/2017	N Cov	WAS018

## Analyst Comments for 15894216:

This sample has been analysed for Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **C. Law**

Date: **09 March 2017**

Title: **Inorganics Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

**ALS Environmental Ltd**  
Torrington Avenue  
Coventry  
CV4 9GU

T: +44 (0)24 7642 1213  
F: +44 (0)24 7685 6575  
[www.alsenvironmental.co.uk](http://www.alsenvironmental.co.uk)

**Mr Downes**  
**SKM Ireland c/o Jacobs**  
**Engineering Ireland**  
**Jacobs**  
**Merrion House**  
**Merrion Road**  
**Dublin 4 South Dublin**

09 March 2017

**Test Report: COV/1364548/2017**

Dear Mr Downes

Analysis of your sample(s) submitted on 21 February 2017 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:



Name: A. Zunzunegui

Title: Organic Team Leader



# Report Summary



1314  
0897  
4409



**Mr Ultan Downes**  
**SKM Ireland c/o Jacobs**  
**Engineering Ireland**  
**Jacobs**  
**Merrion House**  
**Merrion Road**  
**Dublin 4**  
**South Dublin**

Date of Issue: **09 March 2017**

Report Number: **COV/1364548/2017**

Issue **1**

This issue replaces  
all previous issues

**Job Description:** Kerdiffstown Landfill

Number of Samples  
included in this report **7**

Job Received: **21 February 2017**

Number of Test Results  
included in this report **119**

Analysis Commenced: **22 February 2017**

Signed:

Name: **A. Zunzunegui**

Date: **09 March 2017**

Title: **Organic Team Leader**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.

Information on the methods of analysis and performance characteristics are available on request.

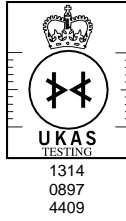
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

(c) ALS Environmental Ltd 2017. All rights reserved. We, ALS Environmental Ltd, are the owner of all copyright in this report. You must not copy, reproduce, amend or adapt this report, its contents or any format in which it is delivered without our prior written agreement. If you copy, reproduce, amend, or adapt this report in any way without our agreement you will be liable for any damage or loss to us. In the event of a dispute the copy of the report held by us shall be the reference copy.

# Certificate of Analysis



Report Number: **COV/1364548/2017**

Issue **1**

Laboratory Number: **15897357**

Sample **1** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **EMW05**

Sample Matrix: **Ground Water**

Sample Date/Time: **20 February 2017**

Sample Received: **21 February 2017**

Analysis Complete: **09 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	22/02/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.0036	mg/l	06/03/2017	Y Cov	WAS060
Calcium , Total as Ca	152	mg/l	03/03/2017	Y Cov	WAS049
Iron , Total as Fe	4.21	mg/l	03/03/2017	Y Cov	WAS049
Manganese , Total as Mn	0.765	mg/l	03/03/2017	Y Cov	WAS049
Potassium , Total as K	1.91	mg/l	03/03/2017	Y Cov	WAS049
Sodium , Total as Na	12.5	mg/l	03/03/2017	Y Cov	WAS049
pH	7.5	pH units	22/02/2017	Y Cov	WAS039
Conductivity- Electrical 20C	679	uS/cm	22/02/2017	Y Cov	WAS039
Alkalinity as CaCO3	376	mg/l	07/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.66	mg/l	22/02/2017	Y Cov	WAS067
Chloride as Cl	15.0	mg/l	22/02/2017	N Cov	WAS036
Sulphate as SO4	8.3	mg/l	22/02/2017	N Cov	WAS036
BOD + ATU (5 day)	2	mg/l	27/02/2017	Y Cov	WAS001
COD (Total)	30.0	mg/l	24/02/2017	Y Cov	WAS040
TOC (Filtered)	2.1	mg/l	23/02/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	28/02/2017	N Cov	WAS018

## Analyst Comments for 15897357:

This sample has been analysed for Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **A. Zunzunegui**

Date: **09 March 2017**

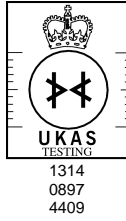
Title: **Organic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575



# Certificate of Analysis



Report Number: **COV/1364548/2017**

Issue **1**

Laboratory Number: **15897358**

Sample **2** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **EMW13**

Sample Matrix: **Ground Water**

Sample Date/Time: **20 February 2017**

Sample Received: **21 February 2017**

Analysis Complete: **09 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	4.8	mg/l	22/02/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.011	mg/l	06/03/2017	Y Cov	WAS060
Calcium , Total as Ca	191	mg/l	03/03/2017	Y Cov	WAS049
Iron , Total as Fe	10.4	mg/l	03/03/2017	Y Cov	WAS049
Manganese , Total as Mn	0.889	mg/l	03/03/2017	Y Cov	WAS049
Potassium , Total as K	93.2	mg/l	03/03/2017	Y Cov	WAS049
Sodium , Total as Na	234	mg/l	03/03/2017	Y Cov	WAS049
pH	7.0	pH units	22/02/2017	Y Cov	WAS039
Conductivity- Electrical 20C	2990	uS/cm	22/02/2017	Y Cov	WAS039
Alkalinity as CaCO3	1580	mg/l	07/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	1.86	mg/l	22/02/2017	Y Cov	WAS067
Chloride as Cl	234	mg/l	22/02/2017	N Cov	WAS036
Sulphate as SO4	37.4	mg/l	22/02/2017	N Cov	WAS036
BOD + ATU (5 day)	8	mg/l	27/02/2017	Y Cov	WAS001
COD (Total)	371	mg/l	24/02/2017	Y Cov	WAS040
TOC (Filtered)	92.6	mg/l	23/02/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	28/02/2017	N Cov	WAS018

## Analyst Comments for 15897358:

This sample has been analysed for Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **A. Zunzunegui**

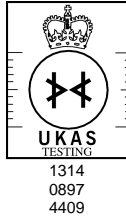
Date: **09 March 2017**

Title: **Organic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1364548/2017**

Issue **1**

Laboratory Number: **15897359**

Sample **3** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **EMW15**

Sample Matrix: **Ground Water**

Sample Date/Time: **20 February 2017**

Sample Received: **21 February 2017**

Analysis Complete: **09 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	22/02/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.026	mg/l	06/03/2017	Y Cov	WAS060
Calcium , Total as Ca	157	mg/l	03/03/2017	Y Cov	WAS049
Iron , Total as Fe	12.5	mg/l	03/03/2017	Y Cov	WAS049
Manganese , Total as Mn	3.79	mg/l	03/03/2017	Y Cov	WAS049
Potassium , Total as K	19.0	mg/l	03/03/2017	Y Cov	WAS049
Sodium , Total as Na	32.2	mg/l	03/03/2017	Y Cov	WAS049
pH	7.5	pH units	22/02/2017	Y Cov	WAS039
Conductivity- Electrical 20C	995	uS/cm	22/02/2017	Y Cov	WAS039
Alkalinity as CaCO3	434	mg/l	07/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	8.70	mg/l	22/02/2017	Y Cov	WAS067
Chloride as Cl	32.7	mg/l	22/02/2017	N Cov	WAS036
Sulphate as SO4	125	mg/l	22/02/2017	N Cov	WAS036
BOD + ATU (5 day)	2	mg/l	27/02/2017	Y Cov	WAS001
COD (Total)	33.0	mg/l	24/02/2017	Y Cov	WAS040
TOC (Filtered)	7.1	mg/l	23/02/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	28/02/2017	N Cov	WAS018

## Analyst Comments for 15897359:

This sample has been analysed for Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **A. Zunzunegui**

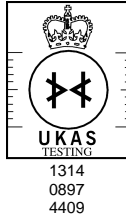
Date: **09 March 2017**

Title: **Organic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1364548/2017**

Issue **1**

Laboratory Number: **15897360**

Sample **4** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **EMW16**

Sample Matrix: **Ground Water**

Sample Date/Time: **20 February 2017**

Sample Received: **21 February 2017**

Analysis Complete: **09 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	22/02/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.0038	mg/l	06/03/2017	Y Cov	WAS060
Calcium , Total as Ca	348	mg/l	03/03/2017	Y Cov	WAS049
Iron , Total as Fe	3.19	mg/l	03/03/2017	Y Cov	WAS049
Manganese , Total as Mn	4.03	mg/l	03/03/2017	Y Cov	WAS049
Potassium , Total as K	15.5	mg/l	03/03/2017	Y Cov	WAS049
Sodium , Total as Na	111	mg/l	03/03/2017	Y Cov	WAS049
pH	6.8	pH units	22/02/2017	Y Cov	WAS039
Conductivity- Electrical 20C	1910	uS/cm	22/02/2017	Y Cov	WAS039
Alkalinity as CaCO3	792	mg/l	07/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	5.98	mg/l	22/02/2017	Y Cov	WAS067
Chloride as Cl	157	mg/l	22/02/2017	N Cov	WAS036
Sulphate as SO4	398	mg/l	22/02/2017	N Cov	WAS036
BOD + ATU (5 day)	1	mg/l	27/02/2017	Y Cov	WAS001
COD (Total)	110	mg/l	24/02/2017	Y Cov	WAS040
TOC (Filtered)	16.2	mg/l	23/02/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	28/02/2017	N Cov	WAS018

## Analyst Comments for 15897360:

This sample has been analysed for Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **A. Zunzunegui**

Date: **09 March 2017**

Title: **Organic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1364548/2017**

Issue **1**

Laboratory Number: **15897361**

Sample **5** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **EMW20**

Sample Matrix: **Ground Water**

Sample Date/Time: **20 February 2017**

Sample Received: **21 February 2017**

Analysis Complete: **09 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	22/02/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.0031	mg/l	06/03/2017	Y Cov	WAS060
Calcium , Total as Ca	113	mg/l	03/03/2017	Y Cov	WAS049
Iron , Total as Fe	6.16	mg/l	03/03/2017	Y Cov	WAS049
Manganese , Total as Mn	1.09	mg/l	03/03/2017	Y Cov	WAS049
Potassium , Total as K	0.85	mg/l	03/03/2017	Y Cov	WAS049
Sodium , Total as Na	9.17	mg/l	03/03/2017	Y Cov	WAS049
pH	7.5	pH units	22/02/2017	Y Cov	WAS039
Conductivity- Electrical 20C	583	uS/cm	22/02/2017	Y Cov	WAS039
Alkalinity as CaCO3	302	mg/l	22/02/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.78	mg/l	22/02/2017	Y Cov	WAS067
Chloride as Cl	20.6	mg/l	22/02/2017	N Cov	WAS036
Sulphate as SO4	4.9	mg/l	22/02/2017	N Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	27/02/2017	Y Cov	WAS001
COD (Total)	12.0	mg/l	24/02/2017	Y Cov	WAS040
TOC (Filtered)	1.1	mg/l	23/02/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	28/02/2017	N Cov	WAS018

## Analyst Comments for 15897361:

This sample has been analysed for Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **A. Zunzunegui**

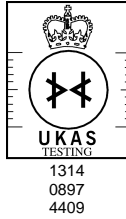
Date: **09 March 2017**

Title: **Organic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1364548/2017**

Issue **1**

Laboratory Number: **15897362**

Sample **6** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **EMW28**

Sample Matrix: **Ground Water**

Sample Date/Time: **21 February 2017**

Sample Received: **21 February 2017**

Analysis Complete: **09 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	22/02/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.051	mg/l	06/03/2017	Y Cov	WAS060
Calcium , Total as Ca	248	mg/l	06/03/2017	Y Cov	WAS049
Iron , Total as Fe	29.6	mg/l	06/03/2017	Y Cov	WAS049
Manganese , Total as Mn	1.83	mg/l	06/03/2017	Y Cov	WAS049
Potassium , Total as K	<1.80	mg/l	06/03/2017	Y Cov	WAS049
Sodium , Total as Na	7.06	mg/l	06/03/2017	Y Cov	WAS049
pH	6.9	pH units	23/02/2017	Y Cov	WAS039
Conductivity- Electrical 20C	749	uS/cm	23/02/2017	Y Cov	WAS039
Alkalinity as CaCO3	463	mg/l	07/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.61	mg/l	23/02/2017	Y Cov	WAS067
Chloride as Cl	21.5	mg/l	22/02/2017	N Cov	WAS036
Sulphate as SO4	<4.4	mg/l	22/02/2017	N Cov	WAS036
BOD + ATU (5 day)	1	mg/l	28/02/2017	Y Cov	WAS001
COD (Total)	184	mg/l	27/02/2017	Y Cov	WAS040
TOC (Filtered)	6.1	mg/l	27/02/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	03/03/2017	N Cov	WAS018

## Analyst Comments for 15897362:

This sample has been analysed for Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised. {/\*\*}The reporting limit has been raised for metals due to interference with the internal standard{\*/}

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **A. Zunzunegui**

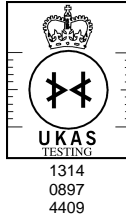
Date: **09 March 2017**

Title: **Organic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1364548/2017**

Issue **1**

Laboratory Number: **15897363**

Sample **7** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **EMW29**

Sample Matrix: **Ground Water**

Sample Date/Time: **21 February 2017**

Sample Received: **21 February 2017**

Analysis Complete: **09 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	8.7	mg/l	22/02/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	<0.0010	mg/l	06/03/2017	Y Cov	WAS060
Calcium , Total as Ca	195	mg/l	03/03/2017	Y Cov	WAS049
Iron , Total as Fe	0.60	mg/l	03/03/2017	Y Cov	WAS049
Manganese , Total as Mn	0.110	mg/l	03/03/2017	Y Cov	WAS049
Potassium , Total as K	0.89	mg/l	03/03/2017	Y Cov	WAS049
Sodium , Total as Na	15.4	mg/l	03/03/2017	Y Cov	WAS049
pH	7.1	pH units	23/02/2017	Y Cov	WAS039
Conductivity- Electrical 20C	983	uS/cm	23/02/2017	Y Cov	WAS039
Alkalinity as CaCO3	425	mg/l	07/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	23/02/2017	Y Cov	WAS067
Chloride as Cl	25.3	mg/l	22/02/2017	N Cov	WAS036
Sulphate as SO4	116	mg/l	22/02/2017	N Cov	WAS036
BOD + ATU (5 day)	1	mg/l	28/02/2017	Y Cov	WAS001
COD (Total)	16.0	mg/l	27/02/2017	Y Cov	WAS040
TOC (Filtered)	3.1	mg/l	27/02/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	03/03/2017	N Cov	WAS018

## Analyst Comments for 15897363:

This sample has been analysed for Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **A. Zunzunegui**

Date: **09 March 2017**

Title: **Organic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

ALS Environmental Ltd  
Torrington Avenue  
Coventry  
CV4 9GU

T: +44 (0)24 7642 1213  
F: +44 (0)24 7685 6575  
www.alsenvironmental.co.uk

**Mr Downes**  
**SKM Ireland c/o Jacobs**  
**Engineering Ireland**  
**Jacobs**  
**Merrion House**  
**Merrion Road**  
**Dublin 4 South Dublin**

13 March 2017

**Test Report: COV/1364975/2017**

Dear Mr Downes

Analysis of your sample(s) submitted on 22 February 2017 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed: 

Name: P. Pepper

Title: Organic Team Leader



# Report Summary



1314  
0897  
4409



**Mr Ultan Downes**  
**SKM Ireland c/o Jacobs**  
**Engineering Ireland**  
**Jacobs**  
**Merrion House**  
**Merrion Road**  
**Dublin 4**  
**South Dublin**

Date of Issue: **13 March 2017**

Report Number: **COV/1364975/2017**

Issue **1**

This issue replaces  
all previous issues

**Job Description:** Kerdiffstown Landfill

**Job Location:** 32EW5604 KLRP

Number of Samples  
included in this report **2**

Job Received: **22 February 2017**

Number of Test Results  
included in this report **34**

Analysis Commenced: **23 February 2017**

Signed:

Name: **P. Pepper**

Date: **13 March 2017**

Title: **Organic Team Leader**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested.

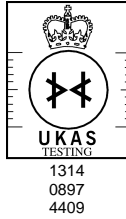
Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

(c) ALS Environmental Ltd 2017. All rights reserved. We, ALS Environmental Ltd, are the owner of all copyright in this report. You must not copy, reproduce, amend or adapt this report, its contents or any format in which it is delivered without our prior written agreement. If you copy, reproduce, amend, or adapt this report in any way without our agreement you will be liable for any damage or loss to us. In the event of a dispute the copy of the report held by us shall be the reference copy.



# Certificate of Analysis



Report Number: **COV/1364975/2017**

Issue **1**

Laboratory Number: **15900725**

Sample **1** of **2**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH26**

Sample Matrix: **Ground Water**

Sample Date/Time: **21 February 2017**

Sample Received: **22 February 2017**

Analysis Complete: **13 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	23/02/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.029	mg/l	06/03/2017	Y Cov	WAS060
Calcium , Total as Ca	124	mg/l	02/03/2017	Y Cov	WAS049
Iron , Total as Fe	5.58	mg/l	02/03/2017	Y Cov	WAS049
Manganese , Total as Mn	1.68	mg/l	02/03/2017	Y Cov	WAS049
Potassium , Total as K	35.8	mg/l	02/03/2017	Y Cov	WAS049
Sodium , Total as Na	197	mg/l	02/03/2017	Y Cov	WAS049
pH	7.2	pH units	07/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	3390	uS/cm	07/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	1550	mg/l	09/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	138	mg/l	24/02/2017	N Cov	WAS036
Chloride as Cl	406	mg/l	23/02/2017	N Cov	WAS036
Sulphate as SO4	5.9	mg/l	23/02/2017	N Cov	WAS036
BOD + ATU (5 day)	8	mg/l	28/02/2017	Y Cov	WAS001
COD (Total)	487	mg/l	27/02/2017	Y Cov	WAS040
TOC (Filtered)	104	mg/l	27/02/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	04/03/2017	N Cov	WAS018

## Analyst Comments for 15900725:

This sample has been analysed for pH, Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **P. Pepper**

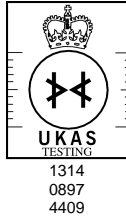
Date: **13 March 2017**

Title: **Organic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1364975/2017**

Issue **1**

Laboratory Number: **15900726**

Sample **2** of **2**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH42**

Sample Matrix: **Ground Water**

Sample Date/Time: **21 February 2017**

Sample Received: **22 February 2017**

Analysis Complete: **13 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	23/02/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.013	mg/l	06/03/2017	Y Cov	WAS060
Calcium , Total as Ca	248	mg/l	02/03/2017	Y Cov	WAS049
Iron , Total as Fe	7.58	mg/l	02/03/2017	Y Cov	WAS049
Manganese , Total as Mn	5.64	mg/l	02/03/2017	Y Cov	WAS049
Potassium , Total as K	16.0	mg/l	02/03/2017	Y Cov	WAS049
Sodium , Total as Na	23.8	mg/l	02/03/2017	Y Cov	WAS049
pH	7.5	pH units	07/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	1250	uS/cm	07/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	415	mg/l	09/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	3.45	mg/l	23/02/2017	Y Cov	WAS067
Chloride as Cl	26.6	mg/l	23/02/2017	N Cov	WAS036
Sulphate as SO4	458	mg/l	23/02/2017	N Cov	WAS036
BOD + ATU (5 day)	4	mg/l	28/02/2017	Y Cov	WAS001
COD (Total)	104	mg/l	27/02/2017	Y Cov	WAS040
TOC (Filtered)	8.6	mg/l	27/02/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	04/03/2017	N Cov	WAS018

## Analyst Comments for 15900726:

This sample has been analysed for pH, Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **P. Pepper**

Date: **13 March 2017**

Title: **Organic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

ALS Environmental Ltd  
Torrington Avenue  
Coventry  
CV4 9GU

T: +44 (0)24 7642 1213  
F: +44 (0)24 7685 6575  
www.alsenvironmental.co.uk

**Mr Downes**  
**SKM Ireland c/o Jacobs**  
**Engineering Ireland**  
**Jacobs**  
**Merrion House**  
**Merrion Road**  
**Dublin 4 South Dublin**

13 March 2017

**Test Report: COV/1364978/2017**

Dear Mr Downes

Analysis of your sample(s) submitted on 22 February 2017 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:



Name: P. Pepper

Title: Organic Team Leader



# Report Summary



**Mr Ultan Downes  
SKM Ireland c/o Jacobs  
Engineering Ireland  
Jacobs  
Merrion House  
Merrion Road  
Dublin 4  
South Dublin**

Date of Issue: **13 March 2017**

Report Number: **COV/1364978/2017**

Issue **1**

This issue replaces  
all previous issues

**Job Description:** Kerdiffstown Landfill

**Job Location:** 32EW5604 KLRP

Number of Samples  
included in this report **4**

Job Received: **22 February 2017**

Number of Test Results  
included in this report **1120**

Analysis Commenced: **23 February 2017**

Signed:

Name: **P. Pepper**

Date: **13 March 2017**

Title: **Organic Team Leader**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.

Information on the methods of analysis and performance characteristics are available on request.

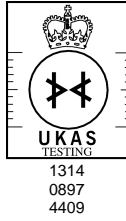
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

(c) ALS Environmental Ltd 2017. All rights reserved. We, ALS Environmental Ltd, are the owner of all copyright in this report. You must not copy, reproduce, amend or adapt this report, its contents or any format in which it is delivered without our prior written agreement. If you copy, reproduce, amend, or adapt this report in any way without our agreement you will be liable for any damage or loss to us. In the event of a dispute the copy of the report held by us shall be the reference copy.

# Certificate of Analysis



Report Number: **COV/1364978/2017**

Issue **1**

Laboratory Number: **15900756**

Sample **1** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BB01**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **22 February 2017**

Analysis Complete: **13 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron, Total	Analyst Com	mg/l	07/03/2017	N Cov	WAS043
Nitrate as NO3	<3.1	mg/l	23/02/2017	N Cov	WAS036
Antimony Ultra Low Total as Sb	<0.0012	mg/l	06/03/2017	Y Cov	WAS060
Selenium Ultra Low Total as Se	<0.0008	mg/l	06/03/2017	Y Cov	WAS060
Arsenic, Ultra Low Total as As	0.012	mg/l	06/03/2017	Y Cov	WAS060
Fluoride	0.081	mg/l	27/02/2017	Y S	SUBCON
Aluminium, Total as Al	1.0	mg/l	03/03/2017	Y Cov	WAS049
Barium, Total as Ba	0.151	mg/l	02/03/2017	Y Cov	WAS049
Beryllium, Total as Be	<0.0021	mg/l	02/03/2017	Y Cov	WAS049
Boron, Total as B	0.29	mg/l	02/03/2017	Y Cov	WAS049
Cadmium , Total as Cd	<0.0006	mg/l	02/03/2017	Y Cov	WAS049
Calcium , Total as Ca	136	mg/l	02/03/2017	Y Cov	WAS049
Chromium , Total as Cr	0.004	mg/l	02/03/2017	Y Cov	WAS049
Copper, Ultra-low Total as Cu	6.1	ug/l	06/03/2017	Y Cov	WAS060
Iron , Total as Fe	11.8	mg/l	02/03/2017	Y Cov	WAS049
Ferrous Iron	Analyst Com	mg/l	07/03/2017	N Cov	WAS043
Ferric Iron	Analyst Com	mg/l	07/03/2017	N Cov	WAS043
Lead , Total as Pb	0.008	mg/l	02/03/2017	Y Cov	WAS049
Magnesium, Total as Mg	11.3	mg/l	02/03/2017	Y Cov	WAS049
Manganese , Total as Mn	1.05	mg/l	02/03/2017	Y Cov	WAS049
Mercury, Total as Hg	<0.00010	mg/l	28/02/2017	N Cov	WAS013
Nickel, Total as Ni	0.012	mg/l	02/03/2017	Y Cov	WAS049
Potassium , Total as K	4.17	mg/l	02/03/2017	Y Cov	WAS049
Sodium , Total as Na	14.6	mg/l	02/03/2017	Y Cov	WAS049
Vanadium , Total as V	0.004	mg/l	02/03/2017	Y Cov	WAS049
Zinc, Total as Zn	0.03	mg/l	02/03/2017	Y Cov	WAS049
pH	7.2	pH units	24/02/2017	Y Cov	WAS039
Conductivity- Electrical 20C	722	uS/cm	24/02/2017	Y Cov	WAS039
Alkalinity as CaCO3	360	mg/l	07/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	1.93	mg/l	24/02/2017	Y Cov	WAS067
Chloride as Cl	20.5	mg/l	23/02/2017	N Cov	WAS036
Nitrite as N	<0.08	mg/l	23/02/2017	N Cov	WAS036

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1364978/2017**

Issue **1**

Laboratory Number: **15900756**

Sample **1** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BB01**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **22 February 2017**

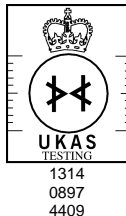
Analysis Complete: **13 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Phosphates , Total as P	0.84	mg/l	02/03/2017	Y Cov	WAS049
Sulphate as SO4	19.4	mg/l	23/02/2017	N Cov	WAS036
BOD + ATU (5 day)	2	mg/l	01/03/2017	Y Cov	WAS001
COD (Total)	47.0	mg/l	28/02/2017	Y Cov	WAS040
TOC (Filtered)	2.5	mg/l	27/02/2017	Y Cov	WAS005
Cyanide, Free as CN	<0.008	mg/l	24/02/2017	N Cov	WAS018
Cyanide, Total as CN	<0.009	mg/l	04/03/2017	N Cov	WAS018
Sulphide as S	<0.020	mg/l	03/03/2017	N Cov	WAS033
Formaldehyde	0.067	mg/l	28/02/2017	N Cov	WAS030
1,2,3-Trichlorobenzene	<10	ng/l	01/03/2017	Y Cov	GEO47
1,2,4-Trichlorobenzene	<10	ng/l	01/03/2017	Y Cov	GEO47
1,3,5-Trichlorobenzene	<10	ng/l	01/03/2017	N Cov	GEO47
SVOC with TICs	Y	ug/l	02/03/2017	N Cov	GEO40
Aldrin	<4	ng/l	01/03/2017	Y Cov	GEO47
alpha-Endosulphan	<4	ng/l	01/03/2017	Y Cov	GEO47
alpha-HCH	<3	ng/l	01/03/2017	Y Cov	GEO47
beta-Endosulphan	<4	ng/l	01/03/2017	Y Cov	GEO47
beta-HCH	<3	ng/l	01/03/2017	Y Cov	GEO47
alpha-Chlordane	<3	ng/l	01/03/2017	Y Cov	GEO47
Dichlobenil	<2	ng/l	01/03/2017	Y Cov	GEO47
Dieldrin	<4	ng/l	01/03/2017	Y Cov	GEO47
Endrin	<4	ng/l	01/03/2017	Y Cov	GEO47
gamma-HCH	<2.7	ng/l	01/03/2017	Y Cov	GEO47
Heptachlor Epoxide	<4	ng/l	01/03/2017	Y Cov	GEO47
Hexachlorobenzene	<2	ng/l	01/03/2017	Y Cov	GEO47
Hexachlorobutadiene	<7	ng/l	01/03/2017	N Cov	GEO47
Isodrin	<4	ng/l	01/03/2017	Y Cov	GEO47
o,p - DDE	<2	ng/l	01/03/2017	Y Cov	GEO47
p,p - DDE	<2	ng/l	01/03/2017	Y Cov	GEO47
o,p - TDE	<2	ng/l	01/03/2017	Y Cov	GEO47
p,p - TDE	<2	ng/l	01/03/2017	Y Cov	GEO47
o,p - DDT	<2	ng/l	01/03/2017	Y Cov	GEO47
p,p - DDT	<4	ng/l	01/03/2017	Y Cov	GEO47

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1364978/2017**

Issue **1**

Laboratory Number: **15900756**

Sample **1** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BB01**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **22 February 2017**

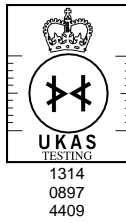
Analysis Complete: **13 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Tecnazene	<10	ng/l	01/03/2017	Y Cov	GEO47
gamma-Chlordane	<4	ng/l	01/03/2017	Y Cov	GEO47
Triallate	<10	ng/l	01/03/2017	Y Cov	GEO47
Trifluralin	<30	ng/l	01/03/2017	Y Cov	GEO47
Azinphos-ethyl	<0.004	ug/l	01/03/2017	Y Cov	GEO47
Azinphos-methyl	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Carbophenothion	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Chlorfenvinphos	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Chlorpyrifos	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Diazinon	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Dichlorvos	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Dimethoate	<0.020	ug/l	01/03/2017	Y Cov	GEO47
Fenitrothion	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Fenthion	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Malathion	<0.004	ug/l	01/03/2017	Y Cov	GEO47
Mevinphos	<0.020	ug/l	01/03/2017	Y Cov	GEO47
Parathion-ethyl	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Parathion-methyl	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Phorate	<0.004	ug/l	01/03/2017	Y Cov	GEO47
Phosalone	<0.004	ug/l	01/03/2017	Y Cov	GEO47
Pirimiphos-methyl	<0.005	ug/l	01/03/2017	Y Cov	GEO47
Propetamphos	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Triazophos	<0.002	ug/l	01/03/2017	Y Cov	GEO47
2,3,6 - TBA	<0.05	ug/l	09/03/2017	Y Cov	GEO20
2,4 - D	<0.05	ug/l	09/03/2017	Y Cov	GEO20
2,4 - DB	<0.05	ug/l	09/03/2017	Y Cov	GEO20
2,4,5 - T	<0.05	ug/l	09/03/2017	Y Cov	GEO20
Benazolin	<0.05	ug/l	09/03/2017	Y Cov	GEO20
Bentazone	<0.05	ug/l	09/03/2017	Y Cov	GEO20
Chlopyralid	<0.05	ug/l	09/03/2017	Y Cov	GEO20
Bromoxynil	<0.05	ug/l	09/03/2017	Y Cov	GEO20
Dicamba	<0.05	ug/l	09/03/2017	Y Cov	GEO20
Dichlorprop	<0.05	ug/l	09/03/2017	Y Cov	GEO20

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1364978/2017**

Issue **1**

Laboratory Number: **15900756**

Sample **1** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BB01**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **22 February 2017**

Analysis Complete: **13 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Fenoprop	<0.05	ug/l	09/03/2017	Y Cov	GEO20
loxynil	<0.05	ug/l	09/03/2017	Y Cov	GEO20
MCPA	<0.05	ug/l	09/03/2017	Y Cov	GEO20
MCPB	<0.05	ug/l	09/03/2017	Y Cov	GEO20
Triclopyr	<0.05	ug/l	09/03/2017	Y Cov	GEO20
Mecoprop	0.10	ug/l	09/03/2017	Y Cov	GEO20
Catechol	<0.10	ug/l	28/02/2017	N Cov	338
Cresol, Total	<0.10	ug/l	28/02/2017	N Cov	338
Xylenol, Total	<0.10	ug/l	28/02/2017	N Cov	338
Naphthol	<0.10	ug/l	28/02/2017	N Cov	338
Phenol	<0.10	ug/l	28/02/2017	N Cov	338
Trimethylphenol, Total	<0.10	ug/l	28/02/2017	N Cov	338
Phenols, Total	<0.50	ug/l	28/02/2017	N Cov	338
Aliphatic VPH >C5 - C6	<10	ug/l	07/03/2017	Y Cov	GEO45
Aliphatic VPH >C6 - C8	<10	ug/l	07/03/2017	Y Cov	GEO45
Aliphatic VPH >C8 - 10	<10	ug/l	07/03/2017	Y Cov	GEO45
Aliphatic VPH >C5 - C10	<10	ug/l	07/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C7	<10	ug/l	07/03/2017	Y Cov	GEO45
Aromatic VPH >C7 - C8	<10	ug/l	07/03/2017	Y Cov	GEO45
Aromatic VPH >C8 - C10	<10	ug/l	07/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C10	<10	ug/l	07/03/2017	Y Cov	GEO45
VPH >C5 - C10	<10	ug/l	07/03/2017	Y Cov	GEO45
Aliphatic EPH >C10 - C12	<10	ug/l	01/03/2017	N Cov	GEO46
Aliphatic EPH >C12 - C16	<10	ug/l	01/03/2017	N Cov	GEO46
Aliphatic EPH >C16 - C35	<10	ug/l	01/03/2017	N Cov	GEO46
Aliphatic EPH >C35 - C44	<10	ug/l	01/03/2017	N Cov	GEO46
Aliphatic EPH >C10 - C44	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C12	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C12 - C16	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C16 - C21	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C21 - C35	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C35 - C44	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C44	<10	ug/l	01/03/2017	N Cov	GEO46

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575



# Certificate of Analysis



Report Number: **COV/1364978/2017**

Issue **1**

Laboratory Number: **15900756**

Sample **1** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BB01**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **22 February 2017**

Analysis Complete: **13 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
EPH >C10 - C44	<10	ug/l	01/03/2017	N Cov	GEO46
Aliphatic VPH/EPH >C5 - C44	<10	ug/l	07/03/2017	N Cov	GEO45/GEO4
Aromatic VPH/EPH >C5 - C44	<10	ug/l	07/03/2017	N Cov	GEO45/GEO4
VPH/EPH >C5 - C44	<10	ug/l	07/03/2017	N Cov	GEO45/GEO4
Acenaphthene	<0.04	ug/l	27/02/2017	Y Cov	GEO19
Acenaphthylene	<0.04	ug/l	27/02/2017	Y Cov	GEO19
Anthracene	<0.04	ug/l	27/02/2017	Y Cov	GEO19
Benzo (a) anthracene	<0.04	ug/l	27/02/2017	Y Cov	GEO19
Benzo (g,h,i) perylene	<0.04	ug/l	27/02/2017	Y Cov	GEO19
Benzo (a) pyrene	<0.04	ug/l	27/02/2017	Y Cov	GEO19
Benzo (b) fluoranthene	<0.04	ug/l	27/02/2017	Y Cov	GEO19
Benzo (k) fluoranthene	<0.04	ug/l	27/02/2017	Y Cov	GEO19
Chrysene	<0.04	ug/l	27/02/2017	Y Cov	GEO19
Dibenz (a,h) anthracene	<0.04	ug/l	27/02/2017	Y Cov	GEO19
Fluoranthene	<0.04	ug/l	27/02/2017	Y Cov	GEO19
Fluorene	<0.04	ug/l	27/02/2017	Y Cov	GEO19
Indeno (1,2,3) cd pyrene	<0.04	ug/l	27/02/2017	Y Cov	GEO19
Naphthalene	<0.04	ug/l	27/02/2017	Y Cov	GEO19
Phenanthrene	<0.04	ug/l	27/02/2017	Y Cov	GEO19
Pyrene	<0.04	ug/l	27/02/2017	Y Cov	GEO19
PAH, Total	<0.04	ug/l	27/02/2017	N Cov	GEO19
VOC	Y	ug/l	01/03/2017	N Cov	GEO32
Dichlorodifluoromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Chloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Chloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Bromomethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Trichlorofluoromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1-Dichloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Dichloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1-Dichloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
cis-1,2-Dichloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
2,2-Dichloropropane	<1.0	ug/l	01/03/2017	N Cov	GEO32
Chloroform	<1.0	ug/l	01/03/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1364978/2017**

Issue **1**

Laboratory Number: **15900756**

Sample **1** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BB01**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **22 February 2017**

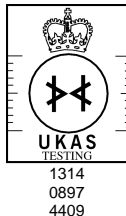
Analysis Complete: **13 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Bromochloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1,1-Trichloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1-Dichloropropene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dichloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Benzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dichloropropane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Trichloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Bromodichloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Dibromomethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
cis-1,3-Dichloropropene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Toluene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
trans-1,3-Dichloropropene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1,2-Trichloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Carbon Tetrachloride	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Vinyl Chloride	<0.5	ug/l	01/03/2017	Y Cov	GEO32
1,3-Dichloropropane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Tetrachloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Dibromochloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dibromoethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Chlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1,1,2-Tetrachloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Ethyl Benzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
m&p-Xylene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
o-Xylene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Styrene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Bromoform	<1.0	ug/l	01/03/2017	Y Cov	GEO32
trans-1,2-Dichloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Isopropylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1,2,2-Tetrachloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2,3-Trichloropropane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
n-Propylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Bromobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
2-Chlorotoluene	<1.0	ug/l	01/03/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1364978/2017**

Issue **1**

Laboratory Number: **15900756**

Sample **1** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BB01**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **22 February 2017**

Analysis Complete: **13 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
1,3,5-Trimethylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
4-Chlorotoluene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
tert-Butylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2,4-Trimethylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
sec-Butylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
p-Isopropyltoluene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,3-Dichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,4-Dichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
n-Butylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dibromo-3-chloropropane	<2.0	ug/l	01/03/2017	Y Cov	GEO32
1,2,4-Trichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Hexachlorobutadiene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Naphthalene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2,3-Trichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
MTBE	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Dibromofluoromethane	98.2	%Recovery	01/03/2017	N Cov	GEO32
Toluene-d8	98.7	%Recovery	01/03/2017	N Cov	GEO32
4-Bromofluorobenzene	96.6	%Recovery	01/03/2017	N Cov	GEO32
SVOC	Y	ug/l	27/02/2017	N Cov	GEO40
Phenol	14.9	ug/l	27/02/2017	Y Cov	GEO40
Bis(2-chloroethyl)ether	<1.0	ug/l	27/02/2017	Y Cov	GEO40
2-Chlorophenol	<1.0	ug/l	27/02/2017	Y Cov	GEO40
1,3-Dichlorobenzene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
1,4-Dichlorobenzene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
2-Methylphenol	<1.0	ug/l	27/02/2017	Y Cov	GEO40
3&4-Methylphenol	<1.0	ug/l	27/02/2017	N Cov	GEO40
Dibenzofuran	<1.0	ug/l	27/02/2017	N Cov	GEO40
1,2-Dichlorobenzene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Bis(2-chloroisopropyl)ether	<1.0	ug/l	27/02/2017	Y Cov	GEO40
n-Nitrosodi-n-propylamine	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Hexachloroethane	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Nitrobenzene	<1.0	ug/l	27/02/2017	Y Cov	GEO40

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1364978/2017**

Issue **1**

Laboratory Number: **15900756**

Sample **1** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BB01**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **22 February 2017**

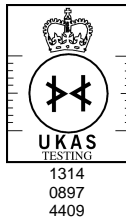
Analysis Complete: **13 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Isophorone	<1.0	ug/l	27/02/2017	Y Cov	GEO40
2,4-Dimethylphenol	<1.0	ug/l	27/02/2017	Y Cov	GEO40
2-Nitrophenol	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Bis(2-chloroethoxy)methane	<1.0	ug/l	27/02/2017	Y Cov	GEO40
2,4-Dichlorophenol	<1.0	ug/l	27/02/2017	Y Cov	GEO40
1,2,4-Trichlorobenzene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Naphthalene	<2.0	ug/l	27/02/2017	Y Cov	GEO40
Hexachlorobutadiene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
4-Chloro-3-methylphenol	<1.0	ug/l	27/02/2017	Y Cov	GEO40
2-Methylnaphthalene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
2,4,6-Trichlorophenol	<1.0	ug/l	27/02/2017	Y Cov	GEO40
2,4,5-Trichlorophenol	<1.0	ug/l	27/02/2017	Y Cov	GEO40
2-Chloronaphthalene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Dimethylphthalate	<1.0	ug/l	27/02/2017	Y Cov	GEO40
2,6-Dinitrotoluene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Acenaphthylene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Acenaphthene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
2,4-Dinitrotoluene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Diethylphthalate	<1.0	ug/l	27/02/2017	Y Cov	GEO40
4-Nitrophenol	<5.0	ug/l	27/02/2017	Y Cov	GEO40
4-Chlorophenyl phenyl ether	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Fluorene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Diphenylamine	<1.0	ug/l	27/02/2017	N Cov	GEO40
4-Bromophenyl Phenyl Ether	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Hexachlorobenzene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Pentachlorophenol	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Phenanthrene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Anthracene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
di-n-Butylphthalate	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Fluoranthene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Pyrene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Benzyl Butyl Phthalate	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Benzo(a)anthracene	<1.0	ug/l	27/02/2017	Y Cov	GEO40

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1364978/2017**

Issue **1**

Laboratory Number: **15900756**

Sample **1** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BB01**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **22 February 2017**

Analysis Complete: **13 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Chrysene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Bis(2-ethylhexyl)phthalate	<5.0	ug/l	27/02/2017	Y Cov	GEO40
Di-n-octylphthalate	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Benzo(b)fluoranthene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Benzo(k)fluoranthene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Benzo(a)pyrene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Indeno(1,2,3-c,d)pyrene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Dibenz(a,h)anthracene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Benzo(g,h,i)perylene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
2-Fluorophenol	88.3	%Recovery	27/02/2017	N Cov	GEO40
Phenol-d6	72.5	%Recovery	27/02/2017	N Cov	GEO40
Nitrobenzene-d5	83.5	%Recovery	27/02/2017	N Cov	GEO40
2-Fluorobiphenyl	81.9	%Recovery	27/02/2017	N Cov	GEO40
2,4,6-Tribromophenol	85.3	%Recovery	27/02/2017	N Cov	GEO40
Terphenyl-d14	91.3	%Recovery	27/02/2017	N Cov	GEO40
Nitrite as NO2	<0.28	mg/l	27/02/2017	N Cov	WAS036
Fluoroxypyr	<0.05	ug/l	09/03/2017	Y Cov	GEO20

## Analyst Comments for 15900756:

This sample has been analysed for BOD + ATU (5 day), Sodium Total as Na, Boron, Total as B outside recommended stability times. It is therefore possible that the results provided may be compromised. Reporting limits raised for PAH due to nature of sample matrix. GEO40 SVOC Waters: See attached SVOC -TIC Report.

. {\*/} Sample re-fixed with mercury fixatives unknowingly. Unable to test for Irons as the results will be compromised.

{\*/}

GEO45 VPH Waters: Headspace present in the sample container due to rework, therefore, the results provided may be compromised. This sample has been analysed for Acid Herbs outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry (CV4 9GU), Che = Chester (CH4 9EP), Ott = Otterbourne (SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge (BA14 0XD), Wak = Wakefield (WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected. For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **P. Pepper**

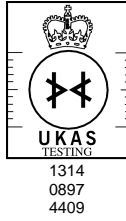
Date: **13 March 2017**

Title: **Organic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel: +44 (0)24 7642 1213 Fax: +44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1364978/2017**

Issue **1**

Laboratory Number: **15900757**

Sample **2** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RCBB01**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **22 February 2017**

Analysis Complete: **13 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron, Total	Analyst Com	mg/l	07/03/2017	N Cov	WAS043
Nitrate as NO3	<3.1	mg/l	23/02/2017	N Cov	WAS036
Antimony Ultra Low Total as Sb	<0.0012	mg/l	06/03/2017	Y Cov	WAS060
Selenium Ultra Low Total as Se	<0.0008	mg/l	06/03/2017	Y Cov	WAS060
Arsenic, Ultra Low Total as As	0.024	mg/l	06/03/2017	Y Cov	WAS060
Fluoride	0.072	mg/l	27/02/2017	Y S	SUBCON
Aluminium, Total as Al	0.8	mg/l	03/03/2017	Y Cov	WAS049
Barium, Total as Ba	0.250	mg/l	02/03/2017	Y Cov	WAS049
Beryllium, Total as Be	<0.0021	mg/l	02/03/2017	Y Cov	WAS049
Boron, Total as B	<0.23	mg/l	02/03/2017	Y Cov	WAS049
Cadmium , Total as Cd	<0.0006	mg/l	02/03/2017	Y Cov	WAS049
Calcium , Total as Ca	132	mg/l	02/03/2017	Y Cov	WAS049
Chromium , Total as Cr	0.003	mg/l	02/03/2017	Y Cov	WAS049
Copper, Ultra-low Total as Cu	5.5	ug/l	06/03/2017	Y Cov	WAS060
Iron , Total as Fe	19.9	mg/l	02/03/2017	Y Cov	WAS049
Ferrous Iron	Analyst Com	mg/l	07/03/2017	N Cov	WAS043
Ferric Iron	Analyst Com	mg/l	07/03/2017	N Cov	WAS043
Lead , Total as Pb	<0.006	mg/l	02/03/2017	Y Cov	WAS049
Magnesium, Total as Mg	11.6	mg/l	02/03/2017	Y Cov	WAS049
Manganese , Total as Mn	1.32	mg/l	02/03/2017	Y Cov	WAS049
Mercury, Total as Hg	<0.00010	mg/l	28/02/2017	N Cov	WAS013
Nickel, Total as Ni	0.010	mg/l	02/03/2017	Y Cov	WAS049
Potassium , Total as K	3.02	mg/l	02/03/2017	Y Cov	WAS049
Sodium , Total as Na	15.1	mg/l	02/03/2017	Y Cov	WAS049
Vanadium , Total as V	0.004	mg/l	02/03/2017	Y Cov	WAS049
Zinc, Total as Zn	0.04	mg/l	02/03/2017	Y Cov	WAS049
pH	7.2	pH units	24/02/2017	Y Cov	WAS039
Conductivity- Electrical 20C	796	uS/cm	24/02/2017	Y Cov	WAS039
Alkalinity as CaCO3	355	mg/l	07/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	1.97	mg/l	24/02/2017	Y Cov	WAS067
Chloride as Cl	23.8	mg/l	23/02/2017	N Cov	WAS036
Nitrite as N	<0.08	mg/l	23/02/2017	N Cov	WAS036

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1364978/2017**

Issue **1**

Laboratory Number: **15900757**

Sample **2** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RCBB01**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **22 February 2017**

Analysis Complete: **13 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Phosphates , Total as P	1.5	mg/l	02/03/2017	Y Cov	WAS049
Sulphate as SO4	44.5	mg/l	23/02/2017	N Cov	WAS036
BOD + ATU (5 day)	2	mg/l	01/03/2017	Y Cov	WAS001
COD (Total)	52.0	mg/l	28/02/2017	Y Cov	WAS040
TOC (Filtered)	3.5	mg/l	27/02/2017	Y Cov	WAS005
Cyanide, Free as CN	<0.008	mg/l	24/02/2017	N Cov	WAS018
Cyanide, Total as CN	<0.009	mg/l	04/03/2017	N Cov	WAS018
Sulphide as S	0.026	mg/l	03/03/2017	N Cov	WAS033
Formaldehyde	0.129	mg/l	28/02/2017	N Cov	WAS030
1,2,3-Trichlorobenzene	<10	ng/l	01/03/2017	Y Cov	GEO47
1,2,4-Trichlorobenzene	<10	ng/l	01/03/2017	Y Cov	GEO47
1,3,5-Trichlorobenzene	<10	ng/l	01/03/2017	N Cov	GEO47
SVOC with TICs	Y	ug/l	02/03/2017	N Cov	GEO40
Aldrin	<4	ng/l	01/03/2017	Y Cov	GEO47
alpha-Endosulphan	<4	ng/l	01/03/2017	Y Cov	GEO47
alpha-HCH	<3	ng/l	01/03/2017	Y Cov	GEO47
beta-Endosulphan	<4	ng/l	01/03/2017	Y Cov	GEO47
beta-HCH	<3	ng/l	01/03/2017	Y Cov	GEO47
alpha-Chlordane	<3	ng/l	01/03/2017	Y Cov	GEO47
Dichlobenil	<2	ng/l	01/03/2017	Y Cov	GEO47
Dieldrin	<4	ng/l	01/03/2017	Y Cov	GEO47
Endrin	<4	ng/l	01/03/2017	Y Cov	GEO47
gamma-HCH	<2.7	ng/l	01/03/2017	Y Cov	GEO47
Heptachlor Epoxide	<4	ng/l	01/03/2017	Y Cov	GEO47
Hexachlorobenzene	<2	ng/l	01/03/2017	Y Cov	GEO47
Hexachlorobutadiene	<7	ng/l	01/03/2017	N Cov	GEO47
Isodrin	<4	ng/l	01/03/2017	Y Cov	GEO47
o,p - DDE	<2	ng/l	01/03/2017	Y Cov	GEO47
p,p - DDE	<2	ng/l	01/03/2017	Y Cov	GEO47
o,p - TDE	<2	ng/l	01/03/2017	Y Cov	GEO47
p,p - TDE	<2	ng/l	01/03/2017	Y Cov	GEO47
o,p - DDT	<2	ng/l	01/03/2017	Y Cov	GEO47
p,p - DDT	<4	ng/l	01/03/2017	Y Cov	GEO47

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1364978/2017**

Issue **1**

Laboratory Number: **15900757**

Sample **2** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RCBB01**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **22 February 2017**

Analysis Complete: **13 March 2017**

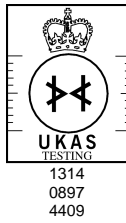
Test Description	Result	Units	Analysis Date	Accreditation	Method
Tecnazene	<10	ng/l	01/03/2017	Y Cov	GEO47
gamma-Chlordane	<4	ng/l	01/03/2017	Y Cov	GEO47
Triallate	<10	ng/l	01/03/2017	Y Cov	GEO47
Trifluralin	<30	ng/l	01/03/2017	Y Cov	GEO47
Azinphos-ethyl	<0.004	ug/l	01/03/2017	Y Cov	GEO47
Azinphos-methyl	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Carbophenothion	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Chlorfenvinphos	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Chlorpyrifos	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Diazinon	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Dichlorvos	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Dimethoate	<0.020	ug/l	01/03/2017	Y Cov	GEO47
Fenitrothion	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Fenthion	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Malathion	<0.004	ug/l	01/03/2017	Y Cov	GEO47
Mevinphos	<0.020	ug/l	01/03/2017	Y Cov	GEO47
Parathion-ethyl	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Parathion-methyl	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Phorate	<0.004	ug/l	01/03/2017	Y Cov	GEO47
Phosalone	<0.004	ug/l	01/03/2017	Y Cov	GEO47
Pirimiphos-methyl	<0.005	ug/l	01/03/2017	Y Cov	GEO47
Propetamphos	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Triazophos	<0.002	ug/l	01/03/2017	Y Cov	GEO47
2,3,6 - TBA	<0.05	ug/l	09/03/2017	Y Cov	GEO20
2,4 - D	<0.05	ug/l	09/03/2017	Y Cov	GEO20
2,4 - DB	<0.05	ug/l	09/03/2017	Y Cov	GEO20
2,4,5 - T	<0.05	ug/l	09/03/2017	Y Cov	GEO20
Benazolin	<0.05	ug/l	09/03/2017	Y Cov	GEO20
Bentazone	<0.05	ug/l	09/03/2017	Y Cov	GEO20
Chlopyralid	<0.05	ug/l	09/03/2017	Y Cov	GEO20
Bromoxynil	<0.05	ug/l	09/03/2017	Y Cov	GEO20
Dicamba	<0.05	ug/l	09/03/2017	Y Cov	GEO20
Dichlorprop	<0.05	ug/l	09/03/2017	Y Cov	GEO20

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575



# Certificate of Analysis



Report Number: **COV/1364978/2017**

Issue **1**

Laboratory Number: **15900757**

Sample **2** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RCBB01**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **22 February 2017**

Analysis Complete: **13 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Fenoprop	<0.05	ug/l	09/03/2017	Y Cov	GEO20
loxynil	<0.05	ug/l	09/03/2017	Y Cov	GEO20
MCPA	<0.05	ug/l	09/03/2017	Y Cov	GEO20
MCPB	<0.05	ug/l	09/03/2017	Y Cov	GEO20
Triclopyr	<0.05	ug/l	09/03/2017	Y Cov	GEO20
Mecoprop	0.12	ug/l	09/03/2017	Y Cov	GEO20
Catechol	<0.10	ug/l	28/02/2017	N Cov	338
Cresol, Total	<0.10	ug/l	28/02/2017	N Cov	338
Xylenol, Total	<0.10	ug/l	28/02/2017	N Cov	338
Naphthol	<0.10	ug/l	28/02/2017	N Cov	338
Phenol	<0.10	ug/l	28/02/2017	N Cov	338
Trimethylphenol, Total	<0.10	ug/l	28/02/2017	N Cov	338
Phenols, Total	<0.50	ug/l	28/02/2017	N Cov	338
Aliphatic VPH >C5 - C6	<10	ug/l	07/03/2017	Y Cov	GEO45
Aliphatic VPH >C6 - C8	<10	ug/l	07/03/2017	Y Cov	GEO45
Aliphatic VPH >C8 - 10	<10	ug/l	07/03/2017	Y Cov	GEO45
Aliphatic VPH >C5 - C10	<10	ug/l	07/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C7	<10	ug/l	07/03/2017	Y Cov	GEO45
Aromatic VPH >C7 - C8	<10	ug/l	07/03/2017	Y Cov	GEO45
Aromatic VPH >C8 - C10	<10	ug/l	07/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C10	<10	ug/l	07/03/2017	Y Cov	GEO45
VPH >C5 - C10	<10	ug/l	07/03/2017	Y Cov	GEO45
Aliphatic EPH >C10 - C12	<10	ug/l	01/03/2017	N Cov	GEO46
Aliphatic EPH >C12 - C16	<10	ug/l	01/03/2017	N Cov	GEO46
Aliphatic EPH >C16 - C35	<10	ug/l	01/03/2017	N Cov	GEO46
Aliphatic EPH >C35 - C44	<10	ug/l	01/03/2017	N Cov	GEO46
Aliphatic EPH >C10 - C44	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C12	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C12 - C16	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C16 - C21	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C21 - C35	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C35 - C44	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C44	<10	ug/l	01/03/2017	N Cov	GEO46

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1364978/2017**

Issue **1**

Laboratory Number: **15900757**

Sample **2** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RCBB01**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **22 February 2017**

Analysis Complete: **13 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
EPH >C10 - C44	<10	ug/l	01/03/2017	N Cov	GEO46
Aliphatic VPH/EPH >C5 - C44	<10	ug/l	07/03/2017	N Cov	GEO45/GEO4
Aromatic VPH/EPH >C5 - C44	<10	ug/l	07/03/2017	N Cov	GEO45/GEO4
VPH/EPH >C5 - C44	<10	ug/l	07/03/2017	N Cov	GEO45/GEO4
Acenaphthene	<0.04	ug/l	27/02/2017	Y Cov	GEO19
Acenaphthylene	<0.04	ug/l	27/02/2017	Y Cov	GEO19
Anthracene	<0.04	ug/l	27/02/2017	Y Cov	GEO19
Benzo (a) anthracene	<0.04	ug/l	27/02/2017	Y Cov	GEO19
Benzo (g,h,i) perylene	<0.04	ug/l	27/02/2017	Y Cov	GEO19
Benzo (a) pyrene	<0.04	ug/l	27/02/2017	Y Cov	GEO19
Benzo (b) fluoranthene	<0.04	ug/l	27/02/2017	Y Cov	GEO19
Benzo (k) fluoranthene	<0.04	ug/l	27/02/2017	Y Cov	GEO19
Chrysene	<0.04	ug/l	27/02/2017	Y Cov	GEO19
Dibenz (a,h) anthracene	<0.04	ug/l	27/02/2017	Y Cov	GEO19
Fluoranthene	0.359	ug/l	27/02/2017	Y Cov	GEO19
Fluorene	<0.04	ug/l	27/02/2017	Y Cov	GEO19
Indeno (1,2,3) cd pyrene	<0.04	ug/l	27/02/2017	Y Cov	GEO19
Naphthalene	<0.04	ug/l	27/02/2017	Y Cov	GEO19
Phenanthrene	0.195	ug/l	27/02/2017	Y Cov	GEO19
Pyrene	0.111	ug/l	27/02/2017	Y Cov	GEO19
PAH, Total	0.665	ug/l	27/02/2017	N Cov	GEO19
VOC	Y	ug/l	01/03/2017	N Cov	GEO32
Dichlorodifluoromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Chloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Chloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Bromomethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Trichlorofluoromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1-Dichloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Dichloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1-Dichloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
cis-1,2-Dichloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
2,2-Dichloropropane	<1.0	ug/l	01/03/2017	N Cov	GEO32
Chloroform	<1.0	ug/l	01/03/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1364978/2017**

Issue **1**

Laboratory Number: **15900757**

Sample **2** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RCBB01**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **22 February 2017**

Analysis Complete: **13 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Bromochloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1,1-Trichloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1-Dichloropropene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dichloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Benzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dichloropropane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Trichloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Bromodichloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Dibromomethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
cis-1,3-Dichloropropene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Toluene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
trans-1,3-Dichloropropene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1,2-Trichloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Carbon Tetrachloride	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Vinyl Chloride	<0.5	ug/l	01/03/2017	Y Cov	GEO32
1,3-Dichloropropane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Tetrachloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Dibromochloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dibromoethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Chlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1,1,2-Tetrachloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Ethyl Benzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
m&p-Xylene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
o-Xylene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Styrene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Bromoform	<1.0	ug/l	01/03/2017	Y Cov	GEO32
trans-1,2-Dichloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Isopropylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1,2,2-Tetrachloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2,3-Trichloropropane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
n-Propylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Bromobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
2-Chlorotoluene	<1.0	ug/l	01/03/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1364978/2017**

Issue **1**

Laboratory Number: **15900757**

Sample **2** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RCBB01**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **22 February 2017**

Analysis Complete: **13 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
1,3,5-Trimethylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
4-Chlorotoluene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
tert-Butylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2,4-Trimethylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
sec-Butylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
p-Isopropyltoluene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,3-Dichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,4-Dichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
n-Butylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dibromo-3-chloropropane	<2.0	ug/l	01/03/2017	Y Cov	GEO32
1,2,4-Trichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Hexachlorobutadiene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Naphthalene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2,3-Trichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
MTBE	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Dibromofluoromethane	100.8	%Recovery	01/03/2017	N Cov	GEO32
Toluene-d8	100.2	%Recovery	01/03/2017	N Cov	GEO32
4-Bromofluorobenzene	97.0	%Recovery	01/03/2017	N Cov	GEO32
SVOC	Y	ug/l	27/02/2017	N Cov	GEO40
Phenol	7.7	ug/l	27/02/2017	Y Cov	GEO40
Bis(2-chloroethyl)ether	<1.0	ug/l	27/02/2017	Y Cov	GEO40
2-Chlorophenol	<1.0	ug/l	27/02/2017	Y Cov	GEO40
1,3-Dichlorobenzene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
1,4-Dichlorobenzene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
2-Methylphenol	<1.0	ug/l	27/02/2017	Y Cov	GEO40
3&4-Methylphenol	<1.0	ug/l	27/02/2017	N Cov	GEO40
Dibenzofuran	<1.0	ug/l	27/02/2017	N Cov	GEO40
1,2-Dichlorobenzene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Bis(2-chloroisopropyl)ether	<1.0	ug/l	27/02/2017	Y Cov	GEO40
n-Nitrosodi-n-propylamine	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Hexachloroethane	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Nitrobenzene	<1.0	ug/l	27/02/2017	Y Cov	GEO40

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1364978/2017**

Issue **1**

Laboratory Number: **15900757**

Sample **2** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RCBB01**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **22 February 2017**

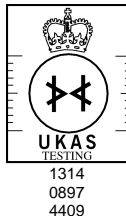
Analysis Complete: **13 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Isophorone	<1.0	ug/l	27/02/2017	Y Cov	GEO40
2,4-Dimethylphenol	<1.0	ug/l	27/02/2017	Y Cov	GEO40
2-Nitrophenol	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Bis(2-chloroethoxy)methane	<1.0	ug/l	27/02/2017	Y Cov	GEO40
2,4-Dichlorophenol	<1.0	ug/l	27/02/2017	Y Cov	GEO40
1,2,4-Trichlorobenzene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Naphthalene	<2.0	ug/l	27/02/2017	Y Cov	GEO40
Hexachlorobutadiene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
4-Chloro-3-methylphenol	<1.0	ug/l	27/02/2017	Y Cov	GEO40
2-Methylnaphthalene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
2,4,6-Trichlorophenol	<1.0	ug/l	27/02/2017	Y Cov	GEO40
2,4,5-Trichlorophenol	<1.0	ug/l	27/02/2017	Y Cov	GEO40
2-Chloronaphthalene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Dimethylphthalate	<1.0	ug/l	27/02/2017	Y Cov	GEO40
2,6-Dinitrotoluene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Acenaphthylene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Acenaphthene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
2,4-Dinitrotoluene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Diethylphthalate	<1.0	ug/l	27/02/2017	Y Cov	GEO40
4-Nitrophenol	<5.0	ug/l	27/02/2017	Y Cov	GEO40
4-Chlorophenyl phenyl ether	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Fluorene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Diphenylamine	<1.0	ug/l	27/02/2017	N Cov	GEO40
4-Bromophenyl Phenyl Ether	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Hexachlorobenzene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Pentachlorophenol	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Phenanthrene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Anthracene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
di-n-Butylphthalate	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Fluoranthene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Pyrene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Benzyl Butyl Phthalate	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Benzo(a)anthracene	<1.0	ug/l	27/02/2017	Y Cov	GEO40

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1364978/2017**

Issue **1**

Laboratory Number: **15900757**

Sample **2** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RCBB01**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **22 February 2017**

Analysis Complete: **13 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Chrysene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Bis(2-ethylhexyl)phthalate	<5.0	ug/l	27/02/2017	Y Cov	GEO40
Di-n-octylphthalate	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Benzo(b)fluoranthene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Benzo(k)fluoranthene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Benzo(a)pyrene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Indeno(1,2,3-c,d)pyrene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Dibenz(a,h)anthracene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
Benzo(g,h,i)perylene	<1.0	ug/l	27/02/2017	Y Cov	GEO40
2-Fluorophenol	90.0	%Recovery	27/02/2017	N Cov	GEO40
Phenol-d6	72.0	%Recovery	27/02/2017	N Cov	GEO40
Nitrobenzene-d5	82.5	%Recovery	27/02/2017	N Cov	GEO40
2-Fluorobiphenyl	82.0	%Recovery	27/02/2017	N Cov	GEO40
2,4,6-Tribromophenol	85.7	%Recovery	27/02/2017	N Cov	GEO40
Terphenyl-d14	94.8	%Recovery	27/02/2017	N Cov	GEO40
Nitrite as NO2	<0.28	mg/l	27/02/2017	N Cov	WAS036
Fluoroxypyr	<0.05	ug/l	09/03/2017	Y Cov	GEO20

## Analyst Comments for 15900757:

This sample has been analysed for BOD + ATU (5 day), Sodium Total as Na, Boron, Total as B outside recommended stability times. It is therefore possible that the results provided may be compromised. Reporting limits raised for PAH due to nature of sample matrix. GEO40 SVOC Waters: See attached SVOC -TIC Report.

. {\*/}Sample re-fixed with mercury fixatives unknowingly. Unable to test for Irons as the results will be compromised.

{\*/}

GEO45 VPH Waters: Headspace present in the sample container due to rework, therefore, the results provided may be compromised. This sample has been analysed for Acid Herbs outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected. For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **P. Pepper**

Date: **13 March 2017**

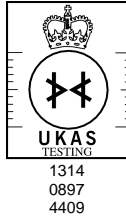
Title: **Organic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Page 19 of 37

# Certificate of Analysis



Report Number: **COV/1364978/2017**

Issue **1**

Laboratory Number: **15900758**

Sample **3** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BB04**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **22 February 2017**

Analysis Complete: **13 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron, Total	Analyst Com	mg/l	07/03/2017	N Cov	WAS043
Nitrate as NO3	<3.1	mg/l	23/02/2017	N Cov	WAS036
Antimony Ultra Low Total as Sb	<0.0012	mg/l	06/03/2017	Y Cov	WAS060
Selenium Ultra Low Total as Se	<0.0008	mg/l	06/03/2017	Y Cov	WAS060
Arsenic, Ultra Low Total as As	0.0016	mg/l	06/03/2017	Y Cov	WAS060
Fluoride	0.093	mg/l	27/02/2017	Y S	SUBCON
Aluminium, Total as Al	1.1	mg/l	03/03/2017	Y Cov	WAS049
Barium, Total as Ba	0.047	mg/l	02/03/2017	Y Cov	WAS049
Beryllium, Total as Be	<0.0021	mg/l	02/03/2017	Y Cov	WAS049
Boron, Total as B	<0.23	mg/l	02/03/2017	Y Cov	WAS049
Cadmium , Total as Cd	<0.0006	mg/l	02/03/2017	Y Cov	WAS049
Calcium , Total as Ca	120	mg/l	02/03/2017	Y Cov	WAS049
Chromium , Total as Cr	0.005	mg/l	02/03/2017	Y Cov	WAS049
Copper, Ultra-low Total as Cu	12	ug/l	06/03/2017	Y Cov	WAS060
Iron , Total as Fe	1.34	mg/l	02/03/2017	Y Cov	WAS049
Ferrous Iron	Analyst Com	mg/l	07/03/2017	N Cov	WAS043
Ferric Iron	Analyst Com	mg/l	07/03/2017	N Cov	WAS043
Lead , Total as Pb	<0.006	mg/l	02/03/2017	Y Cov	WAS049
Magnesium, Total as Mg	14.4	mg/l	02/03/2017	Y Cov	WAS049
Manganese , Total as Mn	1.07	mg/l	02/03/2017	Y Cov	WAS049
Mercury, Total as Hg	<0.00010	mg/l	28/02/2017	N Cov	WAS013
Nickel, Total as Ni	0.008	mg/l	02/03/2017	Y Cov	WAS049
Potassium , Total as K	2.57	mg/l	02/03/2017	Y Cov	WAS049
Sodium , Total as Na	24.5	mg/l	02/03/2017	Y Cov	WAS049
Vanadium , Total as V	<0.004	mg/l	02/03/2017	Y Cov	WAS049
Zinc, Total as Zn	<0.018	mg/l	02/03/2017	Y Cov	WAS049
pH	7.3	pH units	24/02/2017	Y Cov	WAS039
Conductivity- Electrical 20C	780	uS/cm	24/02/2017	Y Cov	WAS039
Alkalinity as CaCO3	354	mg/l	07/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.32	mg/l	24/02/2017	Y Cov	WAS067
Chloride as Cl	31.6	mg/l	23/02/2017	N Cov	WAS036
Nitrite as N	<0.08	mg/l	23/02/2017	N Cov	WAS036

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1364978/2017**

Issue **1**

Laboratory Number: **15900758**

Sample **3** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BB04**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **22 February 2017**

Analysis Complete: **13 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Phosphates , Total as P	0.29	mg/l	02/03/2017	Y Cov	WAS049
Sulphate as SO4	36.7	mg/l	23/02/2017	N Cov	WAS036
BOD + ATU (5 day)	1	mg/l	01/03/2017	Y Cov	WAS001
COD (Total)	32.0	mg/l	28/02/2017	Y Cov	WAS040
TOC (Filtered)	1.9	mg/l	27/02/2017	Y Cov	WAS005
Cyanide, Free as CN	<0.008	mg/l	24/02/2017	N Cov	WAS018
Cyanide, Total as CN	<0.009	mg/l	04/03/2017	N Cov	WAS018
Sulphide as S	<0.020	mg/l	03/03/2017	N Cov	WAS033
Formaldehyde	<0.029	mg/l	28/02/2017	N Cov	WAS030
1,2,3-Trichlorobenzene	<10	ng/l	01/03/2017	Y Cov	GEO47
1,2,4-Trichlorobenzene	<10	ng/l	01/03/2017	Y Cov	GEO47
1,3,5-Trichlorobenzene	<10	ng/l	01/03/2017	N Cov	GEO47
SVOC with TICs	Y	ug/l	02/03/2017	N Cov	GEO40
Aldrin	<4	ng/l	01/03/2017	Y Cov	GEO47
alpha-Endosulphan	<4	ng/l	01/03/2017	Y Cov	GEO47
alpha-HCH	<3	ng/l	01/03/2017	Y Cov	GEO47
beta-Endosulphan	<4	ng/l	01/03/2017	Y Cov	GEO47
beta-HCH	<3	ng/l	01/03/2017	Y Cov	GEO47
alpha-Chlordane	<3	ng/l	01/03/2017	Y Cov	GEO47
Dichlobenil	<2	ng/l	01/03/2017	Y Cov	GEO47
Dieldrin	<4	ng/l	01/03/2017	Y Cov	GEO47
Endrin	<4	ng/l	01/03/2017	Y Cov	GEO47
gamma-HCH	<2.7	ng/l	01/03/2017	Y Cov	GEO47
Heptachlor Epoxide	<4	ng/l	01/03/2017	Y Cov	GEO47
Hexachlorobenzene	<2	ng/l	01/03/2017	Y Cov	GEO47
Hexachlorobutadiene	<7	ng/l	01/03/2017	N Cov	GEO47
Isodrin	<4	ng/l	01/03/2017	Y Cov	GEO47
o,p - DDE	<2	ng/l	01/03/2017	Y Cov	GEO47
p,p - DDE	<2	ng/l	01/03/2017	Y Cov	GEO47
o,p - TDE	<2	ng/l	01/03/2017	Y Cov	GEO47
p,p - TDE	<2	ng/l	01/03/2017	Y Cov	GEO47
o,p - DDT	<2	ng/l	01/03/2017	Y Cov	GEO47
p,p - DDT	<4	ng/l	01/03/2017	Y Cov	GEO47

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575



# Certificate of Analysis



Report Number: **COV/1364978/2017**

Issue **1**

Laboratory Number: **15900758**

Sample **3** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BB04**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **22 February 2017**

Analysis Complete: **13 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Tecnazene	<10	ng/l	01/03/2017	Y Cov	GEO47
gamma-Chlordane	<4	ng/l	01/03/2017	Y Cov	GEO47
Triallate	<10	ng/l	01/03/2017	Y Cov	GEO47
Trifluralin	<30	ng/l	01/03/2017	Y Cov	GEO47
Azinphos-ethyl	<0.004	ug/l	01/03/2017	Y Cov	GEO47
Azinphos-methyl	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Carbophenothion	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Chlorfenvinphos	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Chlorpyrifos	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Diazinon	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Dichlorvos	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Dimethoate	<0.020	ug/l	01/03/2017	Y Cov	GEO47
Fenitrothion	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Fenthion	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Malathion	<0.004	ug/l	01/03/2017	Y Cov	GEO47
Mevinphos	<0.020	ug/l	01/03/2017	Y Cov	GEO47
Parathion-ethyl	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Parathion-methyl	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Phorate	<0.004	ug/l	01/03/2017	Y Cov	GEO47
Phosalone	<0.004	ug/l	01/03/2017	Y Cov	GEO47
Pirimiphos-methyl	<0.005	ug/l	01/03/2017	Y Cov	GEO47
Propetamphos	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Triazophos	<0.002	ug/l	01/03/2017	Y Cov	GEO47
2,3,6 - TBA	<0.05	ug/l	09/03/2017	Y Cov	GEO20
2,4 - D	<0.05	ug/l	09/03/2017	Y Cov	GEO20
2,4 - DB	<0.05	ug/l	09/03/2017	Y Cov	GEO20
2,4,5 - T	<0.05	ug/l	09/03/2017	Y Cov	GEO20
Benazolin	<0.05	ug/l	09/03/2017	Y Cov	GEO20
Bentazone	<0.05	ug/l	09/03/2017	Y Cov	GEO20
Chlopyralid	<0.05	ug/l	09/03/2017	Y Cov	GEO20
Bromoxynil	<0.05	ug/l	09/03/2017	Y Cov	GEO20
Dicamba	<0.05	ug/l	09/03/2017	Y Cov	GEO20
Dichlorprop	<0.05	ug/l	09/03/2017	Y Cov	GEO20

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1364978/2017**

Issue **1**

Laboratory Number: **15900758**

Sample **3** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BB04**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **22 February 2017**

Analysis Complete: **13 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Fenoprop	<0.05	ug/l	09/03/2017	Y Cov	GEO20
loxynil	<0.05	ug/l	09/03/2017	Y Cov	GEO20
MCPA	<0.05	ug/l	09/03/2017	Y Cov	GEO20
MCPB	<0.05	ug/l	09/03/2017	Y Cov	GEO20
Triclopyr	<0.05	ug/l	09/03/2017	Y Cov	GEO20
Mecoprop	<0.04	ug/l	09/03/2017	Y Cov	GEO20
Catechol	<0.10	ug/l	28/02/2017	N Cov	338
Cresol, Total	<0.10	ug/l	28/02/2017	N Cov	338
Xylenol, Total	<0.10	ug/l	28/02/2017	N Cov	338
Naphthol	<0.10	ug/l	28/02/2017	N Cov	338
Phenol	<0.10	ug/l	28/02/2017	N Cov	338
Trimethylphenol, Total	<0.10	ug/l	28/02/2017	N Cov	338
Phenols, Total	<0.50	ug/l	28/02/2017	N Cov	338
Aliphatic VPH >C5 - C6	<10	ug/l	07/03/2017	Y Cov	GEO45
Aliphatic VPH >C6 - C8	<10	ug/l	07/03/2017	Y Cov	GEO45
Aliphatic VPH >C8 - 10	<10	ug/l	07/03/2017	Y Cov	GEO45
Aliphatic VPH >C5 - C10	<10	ug/l	07/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C7	<10	ug/l	07/03/2017	Y Cov	GEO45
Aromatic VPH >C7 - C8	<10	ug/l	07/03/2017	Y Cov	GEO45
Aromatic VPH >C8 - C10	<10	ug/l	07/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C10	<10	ug/l	07/03/2017	Y Cov	GEO45
VPH >C5 - C10	<10	ug/l	07/03/2017	Y Cov	GEO45
Aliphatic EPH >C10 - C12	<10	ug/l	01/03/2017	N Cov	GEO46
Aliphatic EPH >C12 - C16	<10	ug/l	01/03/2017	N Cov	GEO46
Aliphatic EPH >C16 - C35	<10	ug/l	01/03/2017	N Cov	GEO46
Aliphatic EPH >C35 - C44	<10	ug/l	01/03/2017	N Cov	GEO46
Aliphatic EPH >C10 - C44	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C12	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C12 - C16	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C16 - C21	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C21 - C35	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C35 - C44	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C44	<10	ug/l	01/03/2017	N Cov	GEO46

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1364978/2017**  
 Laboratory Number: **15900758**

Issue **1**  
 Sample **3** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**  
 Sample Point Description:  
 Sample Description: **BB04**  
 Sample Matrix: **Ground Water**  
 Sample Date/Time: **22 February 2017**  
 Sample Received: **22 February 2017**  
 Analysis Complete: **13 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
EPH >C10 - C44	<10	ug/l	01/03/2017	N Cov	GEO46
Aliphatic VPH/EPH >C5 - C44	<10	ug/l	07/03/2017	N Cov	GEO45/GEO4
Aromatic VPH/EPH >C5 - C44	<10	ug/l	07/03/2017	N Cov	GEO45/GEO4
VPH/EPH >C5 - C44	<10	ug/l	07/03/2017	N Cov	GEO45/GEO4
Acenaphthene	<0.02	ug/l	27/02/2017	Y Cov	GEO19
Acenaphthylene	<0.02	ug/l	27/02/2017	Y Cov	GEO19
Anthracene	<0.02	ug/l	27/02/2017	Y Cov	GEO19
Benzo (a) anthracene	<0.02	ug/l	27/02/2017	Y Cov	GEO19
Benzo (g,h,i) perylene	<0.02	ug/l	27/02/2017	Y Cov	GEO19
Benzo (a) pyrene	<0.02	ug/l	27/02/2017	Y Cov	GEO19
Benzo (b) fluoranthene	<0.02	ug/l	27/02/2017	Y Cov	GEO19
Benzo (k) fluoranthene	<0.02	ug/l	27/02/2017	Y Cov	GEO19
Chrysene	<0.02	ug/l	27/02/2017	Y Cov	GEO19
Dibenz (a,h) anthracene	<0.02	ug/l	27/02/2017	Y Cov	GEO19
Fluoranthene	0.030	ug/l	27/02/2017	Y Cov	GEO19
Fluorene	<0.02	ug/l	27/02/2017	Y Cov	GEO19
Indeno (1,2,3) cd pyrene	<0.02	ug/l	27/02/2017	Y Cov	GEO19
Naphthalene	<0.02	ug/l	27/02/2017	Y Cov	GEO19
Phenanthrene	0.024	ug/l	27/02/2017	Y Cov	GEO19
Pyrene	<0.02	ug/l	27/02/2017	Y Cov	GEO19
PAH, Total	0.054	ug/l	27/02/2017	N Cov	GEO19
VOC	Y	ug/l	01/03/2017	N Cov	GEO32
Dichlorodifluoromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Chloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Chloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Bromomethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Trichlorofluoromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1-Dichloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Dichloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1-Dichloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
cis-1,2-Dichloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
2,2-Dichloropropane	<1.0	ug/l	01/03/2017	N Cov	GEO32
Chloroform	<1.0	ug/l	01/03/2017	Y Cov	GEO32

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU  
 Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1364978/2017**

Issue **1**

Laboratory Number: **15900758**

Sample **3** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BB04**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **22 February 2017**

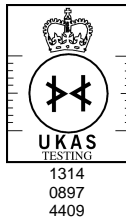
Analysis Complete: **13 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Bromochloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1,1-Trichloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1-Dichloropropene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dichloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Benzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dichloropropane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Trichloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Bromodichloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Dibromomethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
cis-1,3-Dichloropropene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Toluene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
trans-1,3-Dichloropropene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1,2-Trichloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Carbon Tetrachloride	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Vinyl Chloride	<0.5	ug/l	01/03/2017	Y Cov	GEO32
1,3-Dichloropropane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Tetrachloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Dibromochloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dibromoethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Chlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1,1,2-Tetrachloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Ethyl Benzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
m&p-Xylene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
o-Xylene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Styrene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Bromoform	<1.0	ug/l	01/03/2017	Y Cov	GEO32
trans-1,2-Dichloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Isopropylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1,2,2-Tetrachloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2,3-Trichloropropane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
n-Propylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Bromobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
2-Chlorotoluene	<1.0	ug/l	01/03/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1364978/2017**

Issue **1**

Laboratory Number: **15900758**

Sample **3** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BB04**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **22 February 2017**

Analysis Complete: **13 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
1,3,5-Trimethylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
4-Chlorotoluene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
tert-Butylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2,4-Trimethylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
sec-Butylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
p-Isopropyltoluene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,3-Dichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,4-Dichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
n-Butylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dibromo-3-chloropropane	<2.0	ug/l	01/03/2017	Y Cov	GEO32
1,2,4-Trichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Hexachlorobutadiene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Naphthalene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2,3-Trichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
MTBE	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Dibromofluoromethane	99.0	%Recovery	01/03/2017	N Cov	GEO32
Toluene-d8	100.1	%Recovery	01/03/2017	N Cov	GEO32
4-Bromofluorobenzene	96.8	%Recovery	01/03/2017	N Cov	GEO32
SVOC	Y	ug/l	02/03/2017	N Cov	GEO40
Phenol	4.1	ug/l	02/03/2017	Y Cov	GEO40
Bis(2-chloroethyl)ether	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Chlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
1,3-Dichlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
1,4-Dichlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Methylphenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
3&4-Methylphenol	<1.0	ug/l	02/03/2017	N Cov	GEO40
Dibenzofuran	<1.0	ug/l	02/03/2017	N Cov	GEO40
1,2-Dichlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Bis(2-chloroisopropyl)ether	<1.0	ug/l	02/03/2017	Y Cov	GEO40
n-Nitrosodi-n-propylamine	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Hexachloroethane	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Nitrobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1364978/2017**

Issue **1**

Laboratory Number: **15900758**

Sample **3** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BB04**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **22 February 2017**

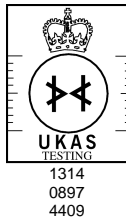
Analysis Complete: **13 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Isophorone	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4-Dimethylphenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Nitrophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Bis(2-chloroethoxy)methane	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4-Dichlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
1,2,4-Trichlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Naphthalene	<2.0	ug/l	02/03/2017	Y Cov	GEO40
Hexachlorobutadiene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
4-Chloro-3-methylphenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Methylnaphthalene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4,6-Trichlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4,5-Trichlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Chloronaphthalene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Dimethylphthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,6-Dinitrotoluene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Acenaphthylene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Acenaphthene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4-Dinitrotoluene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Diethylphthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
4-Nitrophenol	<5.0	ug/l	02/03/2017	Y Cov	GEO40
4-Chlorophenyl phenyl ether	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Fluorene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Diphenylamine	<1.0	ug/l	02/03/2017	N Cov	GEO40
4-Bromophenyl Phenyl Ether	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Hexachlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Pentachlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Phenanthrene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Anthracene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
di-n-Butylphthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Fluoranthene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Pyrene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzyl Butyl Phthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(a)anthracene	<1.0	ug/l	02/03/2017	Y Cov	GEO40

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1364978/2017**

Issue **1**

Laboratory Number: **15900758**

Sample **3** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BB04**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **22 February 2017**

Analysis Complete: **13 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Chrysene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Bis(2-ethylhexyl)phthalate	<5.0	ug/l	02/03/2017	Y Cov	GEO40
Di-n-octylphthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(b)fluoranthene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(k)fluoranthene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(a)pyrene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Indeno(1,2,3-c,d)pyrene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Dibenz(a,h)anthracene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(g,h,i)perylene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Fluorophenol	91.9	%Recovery	02/03/2017	N Cov	GEO40
Phenol-d6	77.4	%Recovery	02/03/2017	N Cov	GEO40
Nitrobenzene-d5	92.5	%Recovery	02/03/2017	N Cov	GEO40
2-Fluorobiphenyl	95.5	%Recovery	02/03/2017	N Cov	GEO40
2,4,6-Tribromophenol	85.4	%Recovery	02/03/2017	N Cov	GEO40
Terphenyl-d14	90.1	%Recovery	02/03/2017	N Cov	GEO40
Nitrite as NO2	<0.28	mg/l	27/02/2017	N Cov	WAS036
Fluoroxypyr	<0.05	ug/l	09/03/2017	Y Cov	GEO20

## Analyst Comments for 15900758:

This sample has been analysed for BOD + ATU (5 day), Sodium Total as Na, Boron, Total as B outside recommended stability times. It is therefore possible that the results provided may be compromised. Reporting limits raised for PAH due to nature of sample matrix. GEO40 SVOC Waters: See attached SVOC -TIC Report.

{/\*} Sample re-fixed with mercury fixatives unknowingly. Unable to test for Irons as the results will be compromised.

{\*/}

GEO45 VPH Waters: Headspace present in the sample container due to rework, therefore, the results provided may be compromised. This sample has been analysed for Acid Herbs outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry (CV4 9GU), Che = Chester (CH4 9EP), Ott = Otterbourne (SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge (BA14 0XD), Wak = Wakefield (WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **P. Pepper**

Date: **13 March 2017**

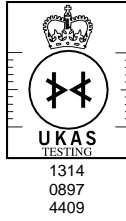
Title: **Organic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Page 28 of 37

# Certificate of Analysis



Report Number: **COV/1364978/2017**

Issue **1**

Laboratory Number: **15900759**

Sample **4** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH68**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **22 February 2017**

Analysis Complete: **13 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron, Total	Analyst Com	mg/l	07/03/2017	N Cov	WAS043
Nitrate as NO3	18.0	mg/l	23/02/2017	N Cov	WAS036
Antimony Ultra Low Total as Sb	<0.0012	mg/l	06/03/2017	Y Cov	WAS060
Selenium Ultra Low Total as Se	<0.0008	mg/l	06/03/2017	Y Cov	WAS060
Arsenic, Ultra Low Total as As	0.0037	mg/l	06/03/2017	Y Cov	WAS060
Fluoride	0.027	mg/l	27/02/2017	Y S	SUBCON
Aluminium, Total as Al	1.5	mg/l	03/03/2017	Y Cov	WAS049
Barium, Total as Ba	0.045	mg/l	02/03/2017	Y Cov	WAS049
Beryllium, Total as Be	<0.0021	mg/l	02/03/2017	Y Cov	WAS049
Boron, Total as B	<0.23	mg/l	02/03/2017	Y Cov	WAS049
Cadmium , Total as Cd	<0.0006	mg/l	02/03/2017	Y Cov	WAS049
Calcium , Total as Ca	202	mg/l	02/03/2017	Y Cov	WAS049
Chromium , Total as Cr	0.003	mg/l	02/03/2017	Y Cov	WAS049
Copper, Ultra-low Total as Cu	8.5	ug/l	06/03/2017	Y Cov	WAS060
Iron , Total as Fe	1.91	mg/l	02/03/2017	Y Cov	WAS049
Ferrous Iron	Analyst Com	mg/l	07/03/2017	N Cov	WAS043
Ferric Iron	Analyst Com	mg/l	07/03/2017	N Cov	WAS043
Lead , Total as Pb	0.008	mg/l	02/03/2017	Y Cov	WAS049
Magnesium, Total as Mg	16.2	mg/l	02/03/2017	Y Cov	WAS049
Manganese , Total as Mn	0.679	mg/l	02/03/2017	Y Cov	WAS049
Mercury, Total as Hg	<0.00010	mg/l	28/02/2017	N Cov	WAS013
Nickel, Total as Ni	0.017	mg/l	02/03/2017	Y Cov	WAS049
Potassium , Total as K	17.7	mg/l	02/03/2017	Y Cov	WAS049
Sodium , Total as Na	18.6	mg/l	02/03/2017	Y Cov	WAS049
Vanadium , Total as V	<0.004	mg/l	02/03/2017	Y Cov	WAS049
Zinc, Total as Zn	0.05	mg/l	02/03/2017	Y Cov	WAS049
pH	6.9	pH units	24/02/2017	Y Cov	WAS039
Conductivity- Electrical 20C	1300	uS/cm	24/02/2017	Y Cov	WAS039
Alkalinity as CaCO3	573	mg/l	09/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	24/02/2017	Y Cov	WAS067
Chloride as Cl	22.7	mg/l	23/02/2017	N Cov	WAS036
Nitrite as N	<0.08	mg/l	23/02/2017	N Cov	WAS036

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575



# Certificate of Analysis



Report Number: **COV/1364978/2017**

Issue **1**

Laboratory Number: **15900759**

Sample **4** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH68**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **22 February 2017**

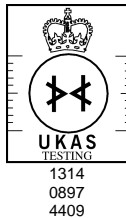
Analysis Complete: **13 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Phosphates , Total as P	0.32	mg/l	02/03/2017	Y Cov	WAS049
Sulphate as SO4	221	mg/l	23/02/2017	N Cov	WAS036
BOD + ATU (5 day)	2	mg/l	01/03/2017	Y Cov	WAS001
COD (Total)	44.0	mg/l	28/02/2017	Y Cov	WAS040
TOC (Filtered)	2.4	mg/l	27/02/2017	Y Cov	WAS005
Cyanide, Free as CN	<0.008	mg/l	24/02/2017	N Cov	WAS018
Cyanide, Total as CN	<0.009	mg/l	04/03/2017	N Cov	WAS018
Sulphide as S	0.025	mg/l	03/03/2017	N Cov	WAS033
Formaldehyde	<0.029	mg/l	28/02/2017	N Cov	WAS030
1,2,3-Trichlorobenzene	<10	ng/l	01/03/2017	Y Cov	GEO47
1,2,4-Trichlorobenzene	<10	ng/l	01/03/2017	Y Cov	GEO47
1,3,5-Trichlorobenzene	<10	ng/l	01/03/2017	N Cov	GEO47
SVOC with TICs	Y	ug/l	02/03/2017	N Cov	GEO40
Aldrin	<4	ng/l	01/03/2017	Y Cov	GEO47
alpha-Endosulphan	<4	ng/l	01/03/2017	Y Cov	GEO47
alpha-HCH	<3	ng/l	01/03/2017	Y Cov	GEO47
beta-Endosulphan	<4	ng/l	01/03/2017	Y Cov	GEO47
beta-HCH	<3	ng/l	01/03/2017	Y Cov	GEO47
alpha-Chlordane	<3	ng/l	01/03/2017	Y Cov	GEO47
Dichlobenil	<2	ng/l	01/03/2017	Y Cov	GEO47
Dieldrin	<4	ng/l	01/03/2017	Y Cov	GEO47
Endrin	<4	ng/l	01/03/2017	Y Cov	GEO47
gamma-HCH	<2.7	ng/l	01/03/2017	Y Cov	GEO47
Heptachlor Epoxide	<4	ng/l	01/03/2017	Y Cov	GEO47
Hexachlorobenzene	<2	ng/l	01/03/2017	Y Cov	GEO47
Hexachlorobutadiene	<7	ng/l	01/03/2017	N Cov	GEO47
Isodrin	<4	ng/l	01/03/2017	Y Cov	GEO47
o,p - DDE	<2	ng/l	01/03/2017	Y Cov	GEO47
p,p - DDE	<2	ng/l	01/03/2017	Y Cov	GEO47
o,p - TDE	<2	ng/l	01/03/2017	Y Cov	GEO47
p,p - TDE	<2	ng/l	01/03/2017	Y Cov	GEO47
o,p - DDT	<2	ng/l	01/03/2017	Y Cov	GEO47
p,p - DDT	<4	ng/l	01/03/2017	Y Cov	GEO47

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1364978/2017**

Issue **1**

Laboratory Number: **15900759**

Sample **4** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH68**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **22 February 2017**

Analysis Complete: **13 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Tecnazene	<10	ng/l	01/03/2017	Y Cov	GEO47
gamma-Chlordane	<4	ng/l	01/03/2017	Y Cov	GEO47
Triallate	<10	ng/l	01/03/2017	Y Cov	GEO47
Trifluralin	<30	ng/l	01/03/2017	Y Cov	GEO47
Azinphos-ethyl	<0.004	ug/l	01/03/2017	Y Cov	GEO47
Azinphos-methyl	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Carbophenothion	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Chlorfenvinphos	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Chlorpyrifos	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Diazinon	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Dichlorvos	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Dimethoate	<0.020	ug/l	01/03/2017	Y Cov	GEO47
Fenitrothion	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Fenthion	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Malathion	<0.004	ug/l	01/03/2017	Y Cov	GEO47
Mevinphos	<0.020	ug/l	01/03/2017	Y Cov	GEO47
Parathion-ethyl	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Parathion-methyl	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Phorate	<0.004	ug/l	01/03/2017	Y Cov	GEO47
Phosalone	<0.004	ug/l	01/03/2017	Y Cov	GEO47
Pirimiphos-methyl	<0.005	ug/l	01/03/2017	Y Cov	GEO47
Propetamphos	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Triazophos	<0.002	ug/l	01/03/2017	Y Cov	GEO47
2,3,6 - TBA	<0.05	ug/l	09/03/2017	Y Cov	GEO20
2,4 - D	<0.05	ug/l	09/03/2017	Y Cov	GEO20
2,4 - DB	<0.05	ug/l	09/03/2017	Y Cov	GEO20
2,4,5 - T	<0.05	ug/l	09/03/2017	Y Cov	GEO20
Benazolin	<0.05	ug/l	09/03/2017	Y Cov	GEO20
Bentazone	<0.05	ug/l	09/03/2017	Y Cov	GEO20
Chlopyralid	<0.05	ug/l	09/03/2017	Y Cov	GEO20
Bromoxynil	<0.05	ug/l	09/03/2017	Y Cov	GEO20
Dicamba	<0.05	ug/l	09/03/2017	Y Cov	GEO20
Dichlorprop	<0.05	ug/l	09/03/2017	Y Cov	GEO20

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1364978/2017**  
 Laboratory Number: **15900759**

Issue **1**  
 Sample **4** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**  
 Sample Point Description:  
 Sample Description: **BH68**  
 Sample Matrix: **Ground Water**  
 Sample Date/Time: **22 February 2017**  
 Sample Received: **22 February 2017**  
 Analysis Complete: **13 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Fenoprop	<0.05	ug/l	09/03/2017	Y Cov	GEO20
loxynil	<0.05	ug/l	09/03/2017	Y Cov	GEO20
MCPA	<0.05	ug/l	09/03/2017	Y Cov	GEO20
MCPB	<0.05	ug/l	09/03/2017	Y Cov	GEO20
Triclopyr	<0.05	ug/l	09/03/2017	Y Cov	GEO20
Mecoprop	<0.04	ug/l	09/03/2017	Y Cov	GEO20
Catechol	<0.10	ug/l	28/02/2017	N Cov	338
Cresol, Total	<0.10	ug/l	28/02/2017	N Cov	338
Xylenol, Total	<0.10	ug/l	28/02/2017	N Cov	338
Naphthol	<0.10	ug/l	28/02/2017	N Cov	338
Phenol	<0.10	ug/l	28/02/2017	N Cov	338
Trimethylphenol, Total	13	ug/l	28/02/2017	N Cov	338
Phenols, Total	13	ug/l	28/02/2017	N Cov	338
Aliphatic VPH >C5 - C6	<10	ug/l	07/03/2017	Y Cov	GEO45
Aliphatic VPH >C6 - C8	<10	ug/l	07/03/2017	Y Cov	GEO45
Aliphatic VPH >C8 - 10	<10	ug/l	07/03/2017	Y Cov	GEO45
Aliphatic VPH >C5 - C10	<10	ug/l	07/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C7	<10	ug/l	07/03/2017	Y Cov	GEO45
Aromatic VPH >C7 - C8	<10	ug/l	07/03/2017	Y Cov	GEO45
Aromatic VPH >C8 - C10	<10	ug/l	07/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C10	<10	ug/l	07/03/2017	Y Cov	GEO45
VPH >C5 - C10	<10	ug/l	07/03/2017	Y Cov	GEO45
Aliphatic EPH >C10 - C12	<10	ug/l	01/03/2017	N Cov	GEO46
Aliphatic EPH >C12 - C16	<10	ug/l	01/03/2017	N Cov	GEO46
Aliphatic EPH >C16 - C35	<10	ug/l	01/03/2017	N Cov	GEO46
Aliphatic EPH >C35 - C44	<10	ug/l	01/03/2017	N Cov	GEO46
Aliphatic EPH >C10 - C44	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C12	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C12 - C16	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C16 - C21	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C21 - C35	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C35 - C44	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C44	<10	ug/l	01/03/2017	N Cov	GEO46

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU  
 Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1364978/2017**

Issue **1**

Laboratory Number: **15900759**

Sample **4** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH68**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **22 February 2017**

Analysis Complete: **13 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
EPH >C10 - C44	<10	ug/l	01/03/2017	N Cov	GEO46
Aliphatic VPH/EPH >C5 - C44	<10	ug/l	07/03/2017	N Cov	GEO45/GEO4
Aromatic VPH/EPH >C5 - C44	<10	ug/l	07/03/2017	N Cov	GEO45/GEO4
VPH/EPH >C5 - C44	<10	ug/l	07/03/2017	N Cov	GEO45/GEO4
Acenaphthene	<0.02	ug/l	27/02/2017	Y Cov	GEO19
Acenaphthylene	<0.02	ug/l	27/02/2017	Y Cov	GEO19
Anthracene	<0.02	ug/l	27/02/2017	Y Cov	GEO19
Benzo (a) anthracene	<0.02	ug/l	27/02/2017	Y Cov	GEO19
Benzo (g,h,i) perylene	<0.02	ug/l	27/02/2017	Y Cov	GEO19
Benzo (a) pyrene	<0.02	ug/l	27/02/2017	Y Cov	GEO19
Benzo (b) fluoranthene	<0.02	ug/l	27/02/2017	Y Cov	GEO19
Benzo (k) fluoranthene	<0.02	ug/l	27/02/2017	Y Cov	GEO19
Chrysene	<0.02	ug/l	27/02/2017	Y Cov	GEO19
Dibenz (a,h) anthracene	<0.02	ug/l	27/02/2017	Y Cov	GEO19
Fluoranthene	<0.02	ug/l	27/02/2017	Y Cov	GEO19
Fluorene	<0.02	ug/l	27/02/2017	Y Cov	GEO19
Indeno (1,2,3) cd pyrene	<0.02	ug/l	27/02/2017	Y Cov	GEO19
Naphthalene	<0.02	ug/l	27/02/2017	Y Cov	GEO19
Phenanthrene	<0.02	ug/l	27/02/2017	Y Cov	GEO19
Pyrene	<0.02	ug/l	27/02/2017	Y Cov	GEO19
PAH, Total	<0.02	ug/l	27/02/2017	N Cov	GEO19
VOC	Y	ug/l	01/03/2017	N Cov	GEO32
Dichlorodifluoromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Chloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Chloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Bromomethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Trichlorofluoromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1-Dichloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Dichloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1-Dichloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
cis-1,2-Dichloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
2,2-Dichloropropane	<1.0	ug/l	01/03/2017	N Cov	GEO32
Chloroform	<1.0	ug/l	01/03/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1364978/2017**

Issue **1**

Laboratory Number: **15900759**

Sample **4** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH68**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **22 February 2017**

Analysis Complete: **13 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Bromochloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1,1-Trichloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1-Dichloropropene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dichloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Benzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dichloropropane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Trichloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Bromodichloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Dibromomethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
cis-1,3-Dichloropropene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Toluene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
trans-1,3-Dichloropropene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1,2-Trichloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Carbon Tetrachloride	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Vinyl Chloride	<0.5	ug/l	01/03/2017	Y Cov	GEO32
1,3-Dichloropropane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Tetrachloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Dibromochloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dibromoethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Chlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1,1,2-Tetrachloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Ethyl Benzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
m&p-Xylene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
o-Xylene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Styrene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Bromoform	<1.0	ug/l	01/03/2017	Y Cov	GEO32
trans-1,2-Dichloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Isopropylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1,2,2-Tetrachloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2,3-Trichloropropane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
n-Propylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Bromobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
2-Chlorotoluene	<1.0	ug/l	01/03/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1364978/2017**

Issue **1**

Laboratory Number: **15900759**

Sample **4** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH68**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **22 February 2017**

Analysis Complete: **13 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
1,3,5-Trimethylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
4-Chlorotoluene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
tert-Butylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2,4-Trimethylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
sec-Butylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
p-Isopropyltoluene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,3-Dichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,4-Dichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
n-Butylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dibromo-3-chloropropane	<2.0	ug/l	01/03/2017	Y Cov	GEO32
1,2,4-Trichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Hexachlorobutadiene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Naphthalene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2,3-Trichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
MTBE	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Dibromofluoromethane	99.8	%Recovery	01/03/2017	N Cov	GEO32
Toluene-d8	99.0	%Recovery	01/03/2017	N Cov	GEO32
4-Bromofluorobenzene	96.4	%Recovery	01/03/2017	N Cov	GEO32
SVOC	Y	ug/l	02/03/2017	N Cov	GEO40
Phenol	5.7	ug/l	02/03/2017	Y Cov	GEO40
Bis(2-chloroethyl)ether	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Chlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
1,3-Dichlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
1,4-Dichlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Methylphenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
3&4-Methylphenol	<1.0	ug/l	02/03/2017	N Cov	GEO40
Dibenzofuran	<1.0	ug/l	02/03/2017	N Cov	GEO40
1,2-Dichlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Bis(2-chloroisopropyl)ether	<1.0	ug/l	02/03/2017	Y Cov	GEO40
n-Nitrosodi-n-propylamine	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Hexachloroethane	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Nitrobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1364978/2017**

Issue **1**

Laboratory Number: **15900759**

Sample **4** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH68**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **22 February 2017**

Analysis Complete: **13 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Isophorone	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4-Dimethylphenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Nitrophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Bis(2-chloroethoxy)methane	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4-Dichlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
1,2,4-Trichlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Naphthalene	<2.0	ug/l	02/03/2017	Y Cov	GEO40
Hexachlorobutadiene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
4-Chloro-3-methylphenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Methylnaphthalene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4,6-Trichlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4,5-Trichlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Chloronaphthalene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Dimethylphthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,6-Dinitrotoluene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Acenaphthylene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Acenaphthene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4-Dinitrotoluene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Diethylphthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
4-Nitrophenol	<5.0	ug/l	02/03/2017	Y Cov	GEO40
4-Chlorophenyl phenyl ether	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Fluorene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Diphenylamine	<1.0	ug/l	02/03/2017	N Cov	GEO40
4-Bromophenyl Phenyl Ether	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Hexachlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Pentachlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Phenanthrene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Anthracene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
di-n-Butylphthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Fluoranthene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Pyrene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzyl Butyl Phthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(a)anthracene	<1.0	ug/l	02/03/2017	Y Cov	GEO40

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1364978/2017**

Issue **1**

Laboratory Number: **15900759**

Sample **4** of **4**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH68**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **22 February 2017**

Analysis Complete: **13 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Chrysene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Bis(2-ethylhexyl)phthalate	<5.0	ug/l	02/03/2017	Y Cov	GEO40
Di-n-octylphthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(b)fluoranthene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(k)fluoranthene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(a)pyrene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Indeno(1,2,3-c,d)pyrene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Dibenz(a,h)anthracene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(g,h,i)perylene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Fluorophenol	94.4	%Recovery	02/03/2017	N Cov	GEO40
Phenol-d6	78.4	%Recovery	02/03/2017	N Cov	GEO40
Nitrobenzene-d5	91.9	%Recovery	02/03/2017	N Cov	GEO40
2-Fluorobiphenyl	93.2	%Recovery	02/03/2017	N Cov	GEO40
2,4,6-Tribromophenol	87.1	%Recovery	02/03/2017	N Cov	GEO40
Terphenyl-d14	87.9	%Recovery	02/03/2017	N Cov	GEO40
Nitrite as NO2	<0.28	mg/l	27/02/2017	N Cov	WAS036
Fluoroxypyr	<0.05	ug/l	09/03/2017	Y Cov	GEO20

## Analyst Comments for 15900759:

This sample has been analysed for BOD + ATU (5 day), Sodium Total as Na, Boron, Total as B outside recommended stability times. It is therefore possible that the results provided may be compromised. Reporting limits raised for PAH due to nature of sample matrix. GEO40 SVOC Waters: See attached SVOC -TIC Report.

{/\*}Sample re-fixed with mercury fixatives unknowingly. Unable to test for Irons as the results will be compromised.

{\*/}

GEO45 VPH Waters: Headspace present in the sample container due to rework, therefore, the results provided may be compromised. This sample has been analysed for Acid Herbs outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **P. Pepper**

Date: **13 March 2017**

Title: **Organic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575



**ALS Environmental Ltd**  
Torrington Avenue  
Coventry  
CV4 9GU

T: +44 (0)24 7642 1213  
F: +44 (0)24 7685 6575  
[www.alsenvironmental.co.uk](http://www.alsenvironmental.co.uk)

**Mr Downes**  
**SKM Ireland c/o Jacobs**  
**Engineering Ireland**  
**Jacobs**  
**Merrion House**  
**Merrion Road**  
**Dublin 4 South Dublin**

16 March 2017

**Test Report: COV/1365420/2017**

Dear Mr Downes

Analysis of your sample(s) submitted on 23 February 2017 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed: 

Name: C. Law

Title: Inorganics Operations Manager



# Report Summary



1314  
0897  
4409



**Mr Ultan Downes  
SKM Ireland c/o Jacobs  
Engineering Ireland  
Jacobs  
Merrion House  
Merrion Road  
Dublin 4  
South Dublin**

Date of Issue: **16 March 2017**

Report Number: **COV/1365420/2017**

Issue **1**

This issue replaces  
all previous issues

**Job Description:** Kerdiffstown Landfill

**Job Location:** 32EW5604 KLRP

Number of Samples  
included in this report **3**

Job Received: **23 February 2017**

Number of Test Results  
included in this report **840**

Analysis Commenced: **24 February 2017**

Signed:

Name: **C. Law**

Date: **16 March 2017**

Title: **Inorganics Operations Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.

Information on the methods of analysis and performance characteristics are available on request.

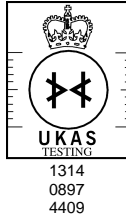
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

(c) ALS Environmental Ltd 2017. All rights reserved. We, ALS Environmental Ltd, are the owner of all copyright in this report. You must not copy, reproduce, amend or adapt this report, its contents or any format in which it is delivered without our prior written agreement. If you copy, reproduce, amend, or adapt this report in any way without our agreement you will be liable for any damage or loss to us. In the event of a dispute the copy of the report held by us shall be the reference copy.

# Certificate of Analysis



Report Number: **COV/1365420/2017**

Issue **1**

Laboratory Number: **15904247**

Sample **1** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BB02**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **23 February 2017**

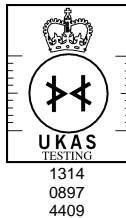
Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron, Total	<0.5	mg/l	01/03/2017	N Cov	WAS043
Nitrate as NO3	6.1	mg/l	24/02/2017	N Cov	WAS036
Antimony Ultra Low Total as Sb	<0.0012	mg/l	02/03/2017	Y Cov	WAS060
Selenium Ultra Low Total as Se	<0.0008	mg/l	02/03/2017	Y Cov	WAS060
Arsenic, Ultra Low Total as As	0.0035	mg/l	02/03/2017	Y Cov	WAS060
Fluoride	0.146	mg/l	01/03/2017	Y S	SUBCON
Aluminium, Total as Al	1.1	mg/l	04/03/2017	Y Cov	WAS049
Barium, Total as Ba	0.038	mg/l	04/03/2017	Y Cov	WAS049
Beryllium, Total as Be	<0.0021	mg/l	04/03/2017	Y Cov	WAS049
Boron, Total as B	<0.23	mg/l	04/03/2017	Y Cov	WAS049
Cadmium , Total as Cd	<0.0006	mg/l	04/03/2017	Y Cov	WAS049
Calcium , Total as Ca	117	mg/l	04/03/2017	Y Cov	WAS049
Chromium , Total as Cr	0.002	mg/l	04/03/2017	Y Cov	WAS049
Copper, Ultra-low Total as Cu	6.6	ug/l	02/03/2017	Y Cov	WAS060
Iron , Total as Fe	1.77	mg/l	04/03/2017	Y Cov	WAS049
Ferrous Iron	<0.5	mg/l	01/03/2017	N Cov	WAS043
Ferric Iron	<0.5	mg/l	01/03/2017	N Cov	WAS043
Lead , Total as Pb	0.011	mg/l	04/03/2017	Y Cov	WAS049
Magnesium, Total as Mg	23.2	mg/l	04/03/2017	Y Cov	WAS049
Manganese , Total as Mn	0.688	mg/l	04/03/2017	Y Cov	WAS049
Mercury, Total as Hg	0.00015	mg/l	01/03/2017	N Cov	WAS013
Nickel, Total as Ni	0.014	mg/l	04/03/2017	Y Cov	WAS049
Potassium , Total as K	1.66	mg/l	04/03/2017	Y Cov	WAS049
Sodium , Total as Na	17.1	mg/l	04/03/2017	Y Cov	WAS049
Vanadium , Total as V	<0.004	mg/l	04/03/2017	Y Cov	WAS049
Zinc, Total as Zn	0.06	mg/l	04/03/2017	Y Cov	WAS049
pH	7.7	pH units	06/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	656	uS/cm	06/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	355	mg/l	07/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	24/02/2017	Y Cov	WAS067
Chloride as Cl	39.7	mg/l	24/02/2017	N Cov	WAS036
Nitrite as N	<0.08	mg/l	24/02/2017	N Cov	WAS036

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1365420/2017**

Issue **1**

Laboratory Number: **15904247**

Sample **1** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BB02**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **23 February 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Phosphates , Total as P	0.38	mg/l	04/03/2017	Y Cov	WAS049
Sulphate as SO4	38.3	mg/l	24/02/2017	N Cov	WAS036
BOD + ATU (5 day)	1	mg/l	01/03/2017	Y Cov	WAS001
COD (Total)	21.0	mg/l	08/03/2017	Y Cov	WAS040
TOC (Filtered)	1.0	mg/l	28/02/2017	Y Cov	WAS005
Cyanide, Free as CN	<0.008	mg/l	02/03/2017	N Cov	WAS018
Cyanide, Total as CN	<0.009	mg/l	02/03/2017	N Cov	WAS018
Sulphide as S	0.022	mg/l	03/03/2017	N Cov	WAS033
Formaldehyde	<0.029	mg/l	28/02/2017	N Cov	WAS030
1,2,3-Trichlorobenzene	<10	ng/l	01/03/2017	Y Cov	GEO47
1,2,4-Trichlorobenzene	<10	ng/l	01/03/2017	Y Cov	GEO47
1,3,5-Trichlorobenzene	<10	ng/l	01/03/2017	N Cov	GEO47
SVOC with TICs	Y	ug/l	02/03/2017	N Cov	GEO40
Aldrin	<4	ng/l	01/03/2017	Y Cov	GEO47
alpha-Endosulphan	<4	ng/l	01/03/2017	Y Cov	GEO47
alpha-HCH	<3	ng/l	01/03/2017	Y Cov	GEO47
beta-Endosulphan	<4	ng/l	01/03/2017	Y Cov	GEO47
beta-HCH	<3	ng/l	01/03/2017	Y Cov	GEO47
alpha-Chlordane	<3	ng/l	01/03/2017	Y Cov	GEO47
Dichlobenil	<2	ng/l	01/03/2017	Y Cov	GEO47
Dieldrin	<4	ng/l	01/03/2017	Y Cov	GEO47
Endrin	<4	ng/l	01/03/2017	Y Cov	GEO47
gamma-HCH	<2.7	ng/l	01/03/2017	Y Cov	GEO47
Heptachlor Epoxide	<4	ng/l	01/03/2017	Y Cov	GEO47
Hexachlorobenzene	<2	ng/l	01/03/2017	Y Cov	GEO47
Hexachlorobutadiene	<7	ng/l	01/03/2017	N Cov	GEO47
Isodrin	<4	ng/l	01/03/2017	Y Cov	GEO47
o,p - DDE	<2	ng/l	01/03/2017	Y Cov	GEO47
p,p - DDE	<2	ng/l	01/03/2017	Y Cov	GEO47
o,p - TDE	<2	ng/l	01/03/2017	Y Cov	GEO47
p,p - TDE	<2	ng/l	01/03/2017	Y Cov	GEO47
o,p - DDT	<2	ng/l	01/03/2017	Y Cov	GEO47
p,p - DDT	<4	ng/l	01/03/2017	Y Cov	GEO47

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1365420/2017**

Issue **1**

Laboratory Number: **15904247**

Sample **1** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BB02**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **23 February 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Tecnazene	<10	ng/l	01/03/2017	Y Cov	GEO47
gamma-Chlordane	<4	ng/l	01/03/2017	Y Cov	GEO47
Triallate	<10	ng/l	01/03/2017	Y Cov	GEO47
Trifluralin	<30	ng/l	01/03/2017	Y Cov	GEO47
Azinphos-ethyl	<0.004	ug/l	01/03/2017	Y Cov	GEO47
Azinphos-methyl	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Carbophenothion	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Chlorfenvinphos	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Chlorpyrifos	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Diazinon	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Dichlorvos	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Dimethoate	<0.020	ug/l	01/03/2017	Y Cov	GEO47
Fenitrothion	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Fenthion	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Malathion	<0.004	ug/l	01/03/2017	Y Cov	GEO47
Mevinphos	<0.020	ug/l	01/03/2017	Y Cov	GEO47
Parathion-ethyl	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Parathion-methyl	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Phorate	<0.004	ug/l	01/03/2017	Y Cov	GEO47
Phosalone	<0.004	ug/l	01/03/2017	Y Cov	GEO47
Pirimiphos-methyl	<0.005	ug/l	01/03/2017	Y Cov	GEO47
Propetamphos	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Triazophos	<0.002	ug/l	01/03/2017	Y Cov	GEO47
2,3,6 - TBA	<0.10	ug/l	16/03/2017	Y Cov	GEO20
2,4 - D	<0.10	ug/l	16/03/2017	Y Cov	GEO20
2,4 - DB	<0.10	ug/l	16/03/2017	Y Cov	GEO20
2,4,5 - T	<0.10	ug/l	16/03/2017	Y Cov	GEO20
Benazolin	<0.10	ug/l	16/03/2017	Y Cov	GEO20
Bentazone	<0.10	ug/l	16/03/2017	Y Cov	GEO20
Chlopyralid	<0.10	ug/l	16/03/2017	Y Cov	GEO20
Bromoxynil	<0.10	ug/l	16/03/2017	Y Cov	GEO20
Dicamba	<0.10	ug/l	16/03/2017	Y Cov	GEO20
Dichlorprop	<0.10	ug/l	16/03/2017	Y Cov	GEO20

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1365420/2017**

Issue **1**

Laboratory Number: **15904247**

Sample **1** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BB02**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **23 February 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Fenoprop	<0.10	ug/l	16/03/2017	Y Cov	GEO20
loxynil	<0.10	ug/l	16/03/2017	Y Cov	GEO20
MCPA	<0.10	ug/l	16/03/2017	Y Cov	GEO20
MCPB	<0.10	ug/l	16/03/2017	Y Cov	GEO20
Triclopyr	<0.10	ug/l	16/03/2017	Y Cov	GEO20
Mecoprop	<0.08	ug/l	16/03/2017	Y Cov	GEO20
Catechol	<0.10	ug/l	28/02/2017	N Cov	338
Cresol, Total	<0.10	ug/l	28/02/2017	N Cov	338
Xylenol, Total	<0.10	ug/l	28/02/2017	N Cov	338
Naphthol	<0.10	ug/l	28/02/2017	N Cov	338
Phenol	<0.10	ug/l	28/02/2017	N Cov	338
Trimethylphenol, Total	<0.10	ug/l	28/02/2017	N Cov	338
Phenols, Total	<0.50	ug/l	28/02/2017	N Cov	338
Aliphatic VPH >C5 - C6	<10	ug/l	08/03/2017	Y Cov	GEO45
Aliphatic VPH >C6 - C8	<10	ug/l	08/03/2017	Y Cov	GEO45
Aliphatic VPH >C8 - 10	<10	ug/l	08/03/2017	Y Cov	GEO45
Aliphatic VPH >C5 - C10	<10	ug/l	08/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C7	<10	ug/l	08/03/2017	Y Cov	GEO45
Aromatic VPH >C7 - C8	<10	ug/l	08/03/2017	Y Cov	GEO45
Aromatic VPH >C8 - C10	<10	ug/l	08/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C10	<10	ug/l	08/03/2017	Y Cov	GEO45
VPH >C5 - C10	<10	ug/l	08/03/2017	Y Cov	GEO45
Aliphatic EPH >C10 - C12	<10	ug/l	01/03/2017	N Cov	GEO46
Aliphatic EPH >C12 - C16	<10	ug/l	01/03/2017	N Cov	GEO46
Aliphatic EPH >C16 - C35	<10	ug/l	01/03/2017	N Cov	GEO46
Aliphatic EPH >C35 - C44	<10	ug/l	01/03/2017	N Cov	GEO46
Aliphatic EPH >C10 - C44	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C12	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C12 - C16	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C16 - C21	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C21 - C35	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C35 - C44	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C44	<10	ug/l	01/03/2017	N Cov	GEO46

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1365420/2017**

Issue **1**

Laboratory Number: **15904247**

Sample **1** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BB02**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **23 February 2017**

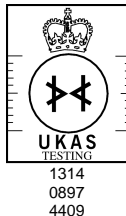
Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
EPH >C10 - C44	<10	ug/l	01/03/2017	N Cov	GEO46
Aliphatic VPH/EPH >C5 - C44	<10	ug/l	08/03/2017	N Cov	GEO45/GEO4
Aromatic VPH/EPH >C5 - C44	<10	ug/l	08/03/2017	N Cov	GEO45/GEO4
VPH/EPH >C5 - C44	<10	ug/l	08/03/2017	N Cov	GEO45/GEO4
Acenaphthene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Acenaphthylene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Anthracene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Benzo (a) anthracene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Benzo (g,h,i) perylene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Benzo (a) pyrene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Benzo (b) fluoranthene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Benzo (k) fluoranthene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Chrysene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Dibenz (a,h) anthracene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Fluoranthene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Fluorene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Indeno (1,2,3) cd pyrene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Naphthalene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Phenanthrene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Pyrene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
PAH, Total	<0.01	ug/l	01/03/2017	N Cov	GEO19
VOC	Y	ug/l	01/03/2017	N Cov	GEO32
Dichlorodifluoromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Chloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Chloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Bromomethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Trichlorofluoromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1-Dichloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Dichloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1-Dichloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
cis-1,2-Dichloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
2,2-Dichloropropane	<1.0	ug/l	01/03/2017	N Cov	GEO32
Chloroform	<1.0	ug/l	01/03/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1365420/2017**

Issue **1**

Laboratory Number: **15904247**

Sample **1** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BB02**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **23 February 2017**

Analysis Complete: **16 March 2017**

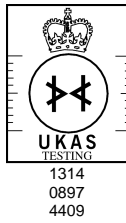
Test Description	Result	Units	Analysis Date	Accreditation	Method
Bromochloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1,1-Trichloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1-Dichloropropene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dichloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Benzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dichloropropane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Trichloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Bromodichloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Dibromomethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
cis-1,3-Dichloropropene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Toluene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
trans-1,3-Dichloropropene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1,2-Trichloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Carbon Tetrachloride	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Vinyl Chloride	<0.5	ug/l	01/03/2017	Y Cov	GEO32
1,3-Dichloropropane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Tetrachloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Dibromochloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dibromoethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Chlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1,1,2-Tetrachloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Ethyl Benzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
m&p-Xylene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
o-Xylene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Styrene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Bromoform	<1.0	ug/l	01/03/2017	Y Cov	GEO32
trans-1,2-Dichloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Isopropylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1,2,2-Tetrachloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2,3-Trichloropropane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
n-Propylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Bromobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
2-Chlorotoluene	<1.0	ug/l	01/03/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575



# Certificate of Analysis



Report Number: **COV/1365420/2017**

Issue **1**

Laboratory Number: **15904247**

Sample **1** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BB02**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **23 February 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
1,3,5-Trimethylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
4-Chlorotoluene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
tert-Butylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2,4-Trimethylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
sec-Butylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
p-Isopropyltoluene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,3-Dichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,4-Dichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
n-Butylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dibromo-3-chloropropane	<2.0	ug/l	01/03/2017	Y Cov	GEO32
1,2,4-Trichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Hexachlorobutadiene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Naphthalene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2,3-Trichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
MTBE	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Dibromofluoromethane	98.6	%Recovery	01/03/2017	N Cov	GEO32
Toluene-d8	100.4	%Recovery	01/03/2017	N Cov	GEO32
4-Bromofluorobenzene	96.6	%Recovery	01/03/2017	N Cov	GEO32
SVOC	Y	ug/l	02/03/2017	N Cov	GEO40
Phenol	10.1	ug/l	02/03/2017	Y Cov	GEO40
Bis(2-chloroethyl)ether	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Chlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
1,3-Dichlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
1,4-Dichlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Methylphenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
3&4-Methylphenol	<1.0	ug/l	02/03/2017	N Cov	GEO40
Dibenzofuran	<1.0	ug/l	02/03/2017	N Cov	GEO40
1,2-Dichlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Bis(2-chloroisopropyl)ether	<1.0	ug/l	02/03/2017	Y Cov	GEO40
n-Nitrosodi-n-propylamine	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Hexachloroethane	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Nitrobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1365420/2017**

Issue **1**

Laboratory Number: **15904247**

Sample **1** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BB02**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **23 February 2017**

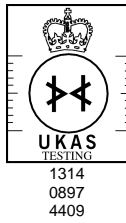
Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Isophorone	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4-Dimethylphenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Nitrophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Bis(2-chloroethoxy)methane	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4-Dichlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
1,2,4-Trichlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Naphthalene	<2.0	ug/l	02/03/2017	Y Cov	GEO40
Hexachlorobutadiene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
4-Chloro-3-methylphenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Methylnaphthalene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4,6-Trichlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4,5-Trichlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Chloronaphthalene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Dimethylphthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,6-Dinitrotoluene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Acenaphthylene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Acenaphthene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4-Dinitrotoluene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Diethylphthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
4-Nitrophenol	<5.0	ug/l	02/03/2017	Y Cov	GEO40
4-Chlorophenyl phenyl ether	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Fluorene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Diphenylamine	<1.0	ug/l	02/03/2017	N Cov	GEO40
4-Bromophenyl Phenyl Ether	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Hexachlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Pentachlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Phenanthrene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Anthracene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
di-n-Butylphthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Fluoranthene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Pyrene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzyl Butyl Phthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(a)anthracene	<1.0	ug/l	02/03/2017	Y Cov	GEO40

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1365420/2017**  
 Laboratory Number: **15904247**

Issue **1**  
 Sample **1** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**  
 Sample Point Description:  
 Sample Description: **BB02**  
 Sample Matrix: **Ground Water**  
 Sample Date/Time: **22 February 2017**  
 Sample Received: **23 February 2017**  
 Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Chrysene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Bis(2-ethylhexyl)phthalate	<5.0	ug/l	02/03/2017	Y Cov	GEO40
Di-n-octylphthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(b)fluoranthene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(k)fluoranthene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(a)pyrene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Indeno(1,2,3-c,d)pyrene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Dibenz(a,h)anthracene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(g,h,i)perylene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Fluorophenol	92.7	%Recovery	02/03/2017	N Cov	GEO40
Phenol-d6	77.4	%Recovery	02/03/2017	N Cov	GEO40
Nitrobenzene-d5	87.4	%Recovery	02/03/2017	N Cov	GEO40
2-Fluorobiphenyl	82.3	%Recovery	02/03/2017	N Cov	GEO40
2,4,6-Tribromophenol	91.0	%Recovery	02/03/2017	N Cov	GEO40
Terphenyl-d14	88.0	%Recovery	02/03/2017	N Cov	GEO40
Nitrite as N02	<0.28	mg/l	27/02/2017	N Cov	WAS036
Fluoroxypyr	<0.10	ug/l	16/03/2017	Y Cov	GEO20


**Analyst Comments for 15904247:**

This sample has been analysed for pH, Sodium Total as Na, COD (Total), Boron, Total as B outside recommended stability times. It is therefore possible that the results provided may be compromised. . {/\*\*} The ferrous iron analysis was not carried out on site and there is the possibility of change in ferrous-ferric ratio between sampling and analysis.{\*\*}GEO40 SVOC Waters: See attached SVOC-TIC Report. Acid Herbicides reporting limits raised due to nature of sample matrix.

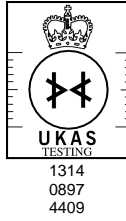
This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG). For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:  Name: **C. Law** Date: **16 March 2017**  
 Title: **Inorganics Operations Manager**

# Certificate of Analysis



Report Number: **COV/1365420/2017**

Issue **1**

Laboratory Number: **15904248**

Sample **2** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM05**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **23 February 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron, Total	0.8	mg/l	01/03/2017	N Cov	WAS043
Nitrate as NO3	<3.1	mg/l	24/02/2017	N Cov	WAS036
Antimony Ultra Low Total as Sb	<0.0012	mg/l	02/03/2017	Y Cov	WAS060
Selenium Ultra Low Total as Se	<0.0008	mg/l	02/03/2017	Y Cov	WAS060
Arsenic, Ultra Low Total as As	0.0021	mg/l	02/03/2017	Y Cov	WAS060
Fluoride	0.088	mg/l	08/03/2017	Y S	SUBCON
Aluminium, Total as Al	<0.1	mg/l	02/03/2017	Y Cov	WAS049
Barium, Total as Ba	0.070	mg/l	02/03/2017	Y Cov	WAS049
Beryllium, Total as Be	<0.0021	mg/l	02/03/2017	Y Cov	WAS049
Boron, Total as B	<0.23	mg/l	02/03/2017	Y Cov	WAS049
Cadmium , Total as Cd	<0.0006	mg/l	02/03/2017	Y Cov	WAS049
Calcium , Total as Ca	107	mg/l	02/03/2017	Y Cov	WAS049
Chromium , Total as Cr	<0.002	mg/l	02/03/2017	Y Cov	WAS049
Copper, Ultra-low Total as Cu	<1.9	ug/l	02/03/2017	Y Cov	WAS060
Iron , Total as Fe	0.77	mg/l	02/03/2017	Y Cov	WAS049
Ferrous Iron	0.7	mg/l	01/03/2017	N Cov	WAS043
Ferric Iron	<0.5	mg/l	01/03/2017	N Cov	WAS043
Lead , Total as Pb	<0.006	mg/l	02/03/2017	Y Cov	WAS049
Magnesium, Total as Mg	9.4	mg/l	02/03/2017	Y Cov	WAS049
Manganese , Total as Mn	0.257	mg/l	02/03/2017	Y Cov	WAS049
Mercury, Total as Hg	<0.00010	mg/l	01/03/2017	N Cov	WAS013
Nickel, Total as Ni	0.005	mg/l	02/03/2017	Y Cov	WAS049
Potassium , Total as K	1.21	mg/l	02/03/2017	Y Cov	WAS049
Sodium , Total as Na	8.51	mg/l	02/03/2017	Y Cov	WAS049
Vanadium , Total as V	<0.004	mg/l	02/03/2017	Y Cov	WAS049
Zinc, Total as Zn	<0.018	mg/l	02/03/2017	Y Cov	WAS049
pH	7.9	pH units	06/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	531	uS/cm	06/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	268	mg/l	07/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	24/02/2017	Y Cov	WAS067
Chloride as Cl	18.4	mg/l	24/02/2017	N Cov	WAS036
Nitrite as N	<0.08	mg/l	24/02/2017	N Cov	WAS036

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1365420/2017**

Issue **1**

Laboratory Number: **15904248**

Sample **2** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM05**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **23 February 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Phosphates , Total as P	<0.120	mg/l	04/03/2017	Y Cov	WAS049
Sulphate as SO4	23.8	mg/l	24/02/2017	N Cov	WAS036
BOD + ATU (5 day)	4	mg/l	01/03/2017	Y Cov	WAS001
COD (Total)	<11.0	mg/l	08/03/2017	Y Cov	WAS040
TOC (Filtered)	1.8	mg/l	28/02/2017	Y Cov	WAS005
Cyanide, Free as CN	<0.008	mg/l	02/03/2017	N Cov	WAS018
Cyanide, Total as CN	<0.009	mg/l	02/03/2017	N Cov	WAS018
Sulphide as S	<0.020	mg/l	03/03/2017	N Cov	WAS033
Formaldehyde	<0.029	mg/l	28/02/2017	N Cov	WAS030
1,2,3-Trichlorobenzene	<10	ng/l	01/03/2017	Y Cov	GEO47
1,2,4-Trichlorobenzene	<10	ng/l	01/03/2017	Y Cov	GEO47
1,3,5-Trichlorobenzene	<10	ng/l	01/03/2017	N Cov	GEO47
SVOC with TICs	Y	ug/l	02/03/2017	N Cov	GEO40
Aldrin	<4	ng/l	01/03/2017	Y Cov	GEO47
alpha-Endosulphan	<4	ng/l	01/03/2017	Y Cov	GEO47
alpha-HCH	<3	ng/l	01/03/2017	Y Cov	GEO47
beta-Endosulphan	<4	ng/l	01/03/2017	Y Cov	GEO47
beta-HCH	<3	ng/l	01/03/2017	Y Cov	GEO47
alpha-Chlordane	<3	ng/l	01/03/2017	Y Cov	GEO47
Dichlobenil	<2	ng/l	01/03/2017	Y Cov	GEO47
Dieldrin	<4	ng/l	01/03/2017	Y Cov	GEO47
Endrin	<4	ng/l	01/03/2017	Y Cov	GEO47
gamma-HCH	<2.7	ng/l	01/03/2017	Y Cov	GEO47
Heptachlor Epoxide	<4	ng/l	01/03/2017	Y Cov	GEO47
Hexachlorobenzene	<2	ng/l	01/03/2017	Y Cov	GEO47
Hexachlorobutadiene	<7	ng/l	01/03/2017	N Cov	GEO47
Isodrin	<4	ng/l	01/03/2017	Y Cov	GEO47
o,p - DDE	<2	ng/l	01/03/2017	Y Cov	GEO47
p,p - DDE	<2	ng/l	01/03/2017	Y Cov	GEO47
o,p - TDE	<2	ng/l	01/03/2017	Y Cov	GEO47
p,p - TDE	<2	ng/l	01/03/2017	Y Cov	GEO47
o,p - DDT	<2	ng/l	01/03/2017	Y Cov	GEO47
p,p - DDT	<4	ng/l	01/03/2017	Y Cov	GEO47

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1365420/2017**

Issue **1**

Laboratory Number: **15904248**

Sample **2** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM05**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **23 February 2017**

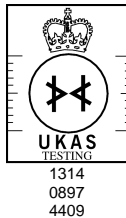
Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Tecnazene	<10	ng/l	01/03/2017	Y Cov	GEO47
gamma-Chlordane	<4	ng/l	01/03/2017	Y Cov	GEO47
Triallate	<10	ng/l	01/03/2017	Y Cov	GEO47
Trifluralin	<30	ng/l	01/03/2017	Y Cov	GEO47
Azinphos-ethyl	<0.004	ug/l	01/03/2017	Y Cov	GEO47
Azinphos-methyl	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Carbophenothion	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Chlorfenvinphos	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Chlorpyrifos	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Diazinon	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Dichlorvos	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Dimethoate	<0.020	ug/l	01/03/2017	Y Cov	GEO47
Fenitrothion	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Fenthion	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Malathion	<0.004	ug/l	01/03/2017	Y Cov	GEO47
Mevinphos	<0.020	ug/l	01/03/2017	Y Cov	GEO47
Parathion-ethyl	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Parathion-methyl	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Phorate	<0.004	ug/l	01/03/2017	Y Cov	GEO47
Phosalone	<0.004	ug/l	01/03/2017	Y Cov	GEO47
Pirimiphos-methyl	<0.005	ug/l	01/03/2017	Y Cov	GEO47
Propetamphos	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Triazophos	<0.002	ug/l	01/03/2017	Y Cov	GEO47
2,3,6 - TBA	<0.10	ug/l	14/03/2017	Y Cov	GEO20
2,4 - D	<0.10	ug/l	14/03/2017	Y Cov	GEO20
2,4 - DB	<0.10	ug/l	14/03/2017	Y Cov	GEO20
2,4,5 - T	<0.10	ug/l	14/03/2017	Y Cov	GEO20
Benazolin	<0.10	ug/l	14/03/2017	Y Cov	GEO20
Bentazone	<0.10	ug/l	16/03/2017	Y Cov	GEO20
Chlopyralid	<0.10	ug/l	14/03/2017	Y Cov	GEO20
Bromoxynil	<0.10	ug/l	14/03/2017	Y Cov	GEO20
Dicamba	<0.10	ug/l	14/03/2017	Y Cov	GEO20
Dichlorprop	<0.10	ug/l	14/03/2017	Y Cov	GEO20

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1365420/2017**  
 Laboratory Number: **15904248**

Issue **1**  
 Sample **2** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**  
 Sample Point Description:  
 Sample Description: **RM05**  
 Sample Matrix: **Ground Water**  
 Sample Date/Time: **22 February 2017**  
 Sample Received: **23 February 2017**  
 Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Fenoprop	<0.10	ug/l	14/03/2017	Y Cov	GEO20
loxynil	<0.10	ug/l	14/03/2017	Y Cov	GEO20
MCPA	<0.10	ug/l	14/03/2017	Y Cov	GEO20
MCPB	<0.10	ug/l	14/03/2017	Y Cov	GEO20
Triclopyr	<0.10	ug/l	14/03/2017	Y Cov	GEO20
Mecoprop	<0.08	ug/l	14/03/2017	Y Cov	GEO20
Catechol	<0.10	ug/l	28/02/2017	N Cov	338
Cresol, Total	<0.10	ug/l	28/02/2017	N Cov	338
Xylenol, Total	<0.10	ug/l	28/02/2017	N Cov	338
Naphthol	0.45	ug/l	28/02/2017	N Cov	338
Phenol	<0.10	ug/l	28/02/2017	N Cov	338
Trimethylphenol, Total	1.4	ug/l	28/02/2017	N Cov	338
Phenols, Total	2.7	ug/l	28/02/2017	N Cov	338
Aliphatic VPH >C5 - C6	<10	ug/l	08/03/2017	Y Cov	GEO45
Aliphatic VPH >C6 - C8	<10	ug/l	08/03/2017	Y Cov	GEO45
Aliphatic VPH >C8 - 10	<10	ug/l	08/03/2017	Y Cov	GEO45
Aliphatic VPH >C5 - C10	<10	ug/l	08/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C7	<10	ug/l	08/03/2017	Y Cov	GEO45
Aromatic VPH >C7 - C8	<10	ug/l	08/03/2017	Y Cov	GEO45
Aromatic VPH >C8 - C10	<10	ug/l	08/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C10	<10	ug/l	08/03/2017	Y Cov	GEO45
VPH >C5 - C10	<10	ug/l	08/03/2017	Y Cov	GEO45
Aliphatic EPH >C10 - C12	<10	ug/l	01/03/2017	N Cov	GEO46
Aliphatic EPH >C12 - C16	<10	ug/l	01/03/2017	N Cov	GEO46
Aliphatic EPH >C16 - C35	<10	ug/l	01/03/2017	N Cov	GEO46
Aliphatic EPH >C35 - C44	<10	ug/l	01/03/2017	N Cov	GEO46
Aliphatic EPH >C10 - C44	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C12	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C12 - C16	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C16 - C21	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C21 - C35	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C35 - C44	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C44	<10	ug/l	01/03/2017	N Cov	GEO46

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU  
 Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1365420/2017**

Issue **1**

Laboratory Number: **15904248**

Sample **2** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM05**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **23 February 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
EPH >C10 - C44	<10	ug/l	01/03/2017	N Cov	GEO46
Aliphatic VPH/EPH >C5 - C44	<10	ug/l	08/03/2017	N Cov	GEO45/GEO4
Aromatic VPH/EPH >C5 - C44	<10	ug/l	08/03/2017	N Cov	GEO45/GEO4
VPH/EPH >C5 - C44	<10	ug/l	08/03/2017	N Cov	GEO45/GEO4
Acenaphthene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Acenaphthylene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Anthracene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Benzo (a) anthracene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Benzo (g,h,i) perylene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Benzo (a) pyrene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Benzo (b) fluoranthene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Benzo (k) fluoranthene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Chrysene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Dibenz (a,h) anthracene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Fluoranthene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Fluorene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Indeno (1,2,3) cd pyrene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Naphthalene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Phenanthrene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Pyrene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
PAH, Total	<0.01	ug/l	01/03/2017	N Cov	GEO19
VOC	Y	ug/l	01/03/2017	N Cov	GEO32
Dichlorodifluoromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Chloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Chloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Bromomethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Trichlorofluoromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1-Dichloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Dichloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1-Dichloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
cis-1,2-Dichloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
2,2-Dichloropropane	<1.0	ug/l	01/03/2017	N Cov	GEO32
Chloroform	<1.0	ug/l	01/03/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575



# Certificate of Analysis



Report Number: **COV/1365420/2017**

Issue **1**

Laboratory Number: **15904248**

Sample **2** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM05**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **23 February 2017**

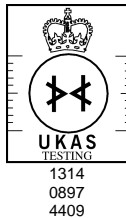
Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Bromochloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1,1-Trichloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1-Dichloropropene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dichloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Benzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dichloropropane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Trichloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Bromodichloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Dibromomethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
cis-1,3-Dichloropropene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Toluene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
trans-1,3-Dichloropropene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1,2-Trichloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Carbon Tetrachloride	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Vinyl Chloride	<0.5	ug/l	01/03/2017	Y Cov	GEO32
1,3-Dichloropropane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Tetrachloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Dibromochloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dibromoethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Chlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1,1,2-Tetrachloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Ethyl Benzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
m&p-Xylene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
o-Xylene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Styrene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Bromoform	<1.0	ug/l	01/03/2017	Y Cov	GEO32
trans-1,2-Dichloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Isopropylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1,2,2-Tetrachloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2,3-Trichloropropane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
n-Propylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Bromobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
2-Chlorotoluene	<1.0	ug/l	01/03/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1365420/2017**

Issue **1**

Laboratory Number: **15904248**

Sample **2** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM05**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **23 February 2017**

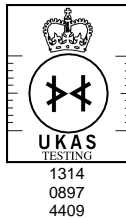
Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
1,3,5-Trimethylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
4-Chlorotoluene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
tert-Butylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2,4-Trimethylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
sec-Butylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
p-Isopropyltoluene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,3-Dichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,4-Dichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
n-Butylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dibromo-3-chloropropane	<2.0	ug/l	01/03/2017	Y Cov	GEO32
1,2,4-Trichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Hexachlorobutadiene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Naphthalene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2,3-Trichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
MTBE	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Dibromofluoromethane	98.2	%Recovery	01/03/2017	N Cov	GEO32
Toluene-d8	99.9	%Recovery	01/03/2017	N Cov	GEO32
4-Bromofluorobenzene	95.1	%Recovery	01/03/2017	N Cov	GEO32
SVOC	Y	ug/l	02/03/2017	N Cov	GEO40
Phenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Bis(2-chloroethyl)ether	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Chlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
1,3-Dichlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
1,4-Dichlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Methylphenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
3&4-Methylphenol	<1.0	ug/l	02/03/2017	N Cov	GEO40
Dibenzofuran	<1.0	ug/l	02/03/2017	N Cov	GEO40
1,2-Dichlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Bis(2-chloroisopropyl)ether	<1.0	ug/l	02/03/2017	Y Cov	GEO40
n-Nitrosodi-n-propylamine	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Hexachloroethane	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Nitrobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1365420/2017**

Issue **1**

Laboratory Number: **15904248**

Sample **2** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM05**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **23 February 2017**

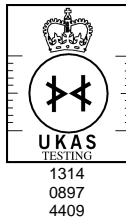
Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Isophorone	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4-Dimethylphenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Nitrophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Bis(2-chloroethoxy)methane	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4-Dichlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
1,2,4-Trichlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Naphthalene	<2.0	ug/l	02/03/2017	Y Cov	GEO40
Hexachlorobutadiene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
4-Chloro-3-methylphenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Methylnaphthalene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4,6-Trichlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4,5-Trichlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Chloronaphthalene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Dimethylphthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,6-Dinitrotoluene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Acenaphthylene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Acenaphthene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4-Dinitrotoluene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Diethylphthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
4-Nitrophenol	<5.0	ug/l	02/03/2017	Y Cov	GEO40
4-Chlorophenyl phenyl ether	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Fluorene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Diphenylamine	<1.0	ug/l	02/03/2017	N Cov	GEO40
4-Bromophenyl Phenyl Ether	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Hexachlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Pentachlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Phenanthrene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Anthracene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
di-n-Butylphthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Fluoranthene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Pyrene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzyl Butyl Phthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(a)anthracene	<1.0	ug/l	02/03/2017	Y Cov	GEO40

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1365420/2017**  
 Laboratory Number: **15904248**

Issue **1**  
 Sample **2** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**  
 Sample Point Description:  
 Sample Description: **RM05**  
 Sample Matrix: **Ground Water**  
 Sample Date/Time: **22 February 2017**  
 Sample Received: **23 February 2017**  
 Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Chrysene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Bis(2-ethylhexyl)phthalate	<5.0	ug/l	02/03/2017	Y Cov	GEO40
Di-n-octylphthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(b)fluoranthene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(k)fluoranthene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(a)pyrene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Indeno(1,2,3-c,d)pyrene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Dibenz(a,h)anthracene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(g,h,i)perylene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Fluorophenol	95.0	%Recovery	02/03/2017	N Cov	GEO40
Phenol-d6	82.2	%Recovery	02/03/2017	N Cov	GEO40
Nitrobenzene-d5	85.8	%Recovery	02/03/2017	N Cov	GEO40
2-Fluorobiphenyl	82.0	%Recovery	02/03/2017	N Cov	GEO40
2,4,6-Tribromophenol	87.7	%Recovery	02/03/2017	N Cov	GEO40
Terphenyl-d14	87.5	%Recovery	02/03/2017	N Cov	GEO40
Nitrite as NO2	<0.28	mg/l	27/02/2017	N Cov	WAS036
Fluoroxypyr	<0.10	ug/l	14/03/2017	Y Cov	GEO20

**Analyst Comments for 15904248:**

This sample has been analysed for pH, COD (Total) outside recommended stability times. It is therefore possible that the results provided may be compromised. . {/\*}The ferrous iron analysis was not carried out on site and there is the possibility of change in ferrous-ferric ratio between sampling and analysis.{\*/}  
 GEO40 SVOC Waters: See attached SVOC-TIC Report.


Acid Herbicides reporting limits raised due to nature of sample matrix.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

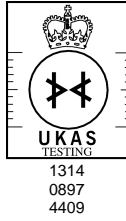
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:  Name: **C. Law** Date: **16 March 2017**  
 Title: **Inorganics Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
 Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1365420/2017**

Issue **1**

Laboratory Number: **15904249**

Sample **3** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB06**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **23 February 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron, Total	4.6	mg/l	01/03/2017	N Cov	WAS043
Nitrate as NO3	12.9	mg/l	24/02/2017	N Cov	WAS036
Antimony Ultra Low Total as Sb	<0.0012	mg/l	02/03/2017	Y Cov	WAS060
Selenium Ultra Low Total as Se	<0.0008	mg/l	02/03/2017	Y Cov	WAS060
Arsenic, Ultra Low Total as As	0.0056	mg/l	02/03/2017	Y Cov	WAS060
Fluoride	0.130	mg/l	01/03/2017	Y S	SUBCON
Aluminium, Total as Al	0.6	mg/l	02/03/2017	Y Cov	WAS049
Barium, Total as Ba	0.109	mg/l	02/03/2017	Y Cov	WAS049
Beryllium, Total as Be	<0.0021	mg/l	02/03/2017	Y Cov	WAS049
Boron, Total as B	<0.23	mg/l	02/03/2017	Y Cov	WAS049
Cadmium , Total as Cd	<0.0006	mg/l	02/03/2017	Y Cov	WAS049
Calcium , Total as Ca	102	mg/l	02/03/2017	Y Cov	WAS049
Chromium , Total as Cr	0.004	mg/l	02/03/2017	Y Cov	WAS049
Copper, Ultra-low Total as Cu	11	ug/l	02/03/2017	Y Cov	WAS060
Iron , Total as Fe	7.15	mg/l	02/03/2017	Y Cov	WAS049
Ferrous Iron	4.7	mg/l	01/03/2017	N Cov	WAS043
Ferric Iron	<0.5	mg/l	01/03/2017	N Cov	WAS043
Lead , Total as Pb	0.014	mg/l	02/03/2017	Y Cov	WAS049
Magnesium, Total as Mg	8.7	mg/l	02/03/2017	Y Cov	WAS049
Manganese , Total as Mn	1.03	mg/l	02/03/2017	Y Cov	WAS049
Mercury, Total as Hg	<0.00010	mg/l	01/03/2017	N Cov	WAS013
Nickel, Total as Ni	0.012	mg/l	02/03/2017	Y Cov	WAS049
Potassium , Total as K	1.29	mg/l	02/03/2017	Y Cov	WAS049
Sodium , Total as Na	8.57	mg/l	02/03/2017	Y Cov	WAS049
Vanadium , Total as V	0.004	mg/l	02/03/2017	Y Cov	WAS049
Zinc, Total as Zn	0.06	mg/l	02/03/2017	Y Cov	WAS049
pH	7.6	pH units	06/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	503	uS/cm	06/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	285	mg/l	07/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.65	mg/l	24/02/2017	Y Cov	WAS067
Chloride as Cl	18.6	mg/l	24/02/2017	N Cov	WAS036
Nitrite as N	<0.08	mg/l	24/02/2017	N Cov	WAS036

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1365420/2017**

Issue **1**

Laboratory Number: **15904249**

Sample **3** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB06**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **23 February 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Phosphates , Total as P	0.67	mg/l	04/03/2017	Y Cov	WAS049
Sulphate as SO4	<4.4	mg/l	24/02/2017	N Cov	WAS036
BOD + ATU (5 day)	5	mg/l	01/03/2017	Y Cov	WAS001
COD (Total)	<11.0	mg/l	08/03/2017	Y Cov	WAS040
TOC (Filtered)	2.1	mg/l	28/02/2017	Y Cov	WAS005
Cyanide, Free as CN	<0.008	mg/l	02/03/2017	N Cov	WAS018
Cyanide, Total as CN	<0.009	mg/l	02/03/2017	N Cov	WAS018
Sulphide as S	0.031	mg/l	03/03/2017	N Cov	WAS033
Formaldehyde	0.088	mg/l	28/02/2017	N Cov	WAS030
1,2,3-Trichlorobenzene	<10	ng/l	01/03/2017	Y Cov	GEO47
1,2,4-Trichlorobenzene	<10	ng/l	01/03/2017	Y Cov	GEO47
1,3,5-Trichlorobenzene	<10	ng/l	01/03/2017	N Cov	GEO47
SVOC with TICs	Y	ug/l	02/03/2017	N Cov	GEO40
Aldrin	<4	ng/l	01/03/2017	Y Cov	GEO47
alpha-Endosulphan	<4	ng/l	01/03/2017	Y Cov	GEO47
alpha-HCH	<3	ng/l	01/03/2017	Y Cov	GEO47
beta-Endosulphan	<4	ng/l	01/03/2017	Y Cov	GEO47
beta-HCH	<3	ng/l	01/03/2017	Y Cov	GEO47
alpha-Chlordane	<3	ng/l	01/03/2017	Y Cov	GEO47
Dichlobenil	<2	ng/l	01/03/2017	Y Cov	GEO47
Dieldrin	<4	ng/l	01/03/2017	Y Cov	GEO47
Endrin	<4	ng/l	01/03/2017	Y Cov	GEO47
gamma-HCH	<2.7	ng/l	01/03/2017	Y Cov	GEO47
Heptachlor Epoxide	<4	ng/l	01/03/2017	Y Cov	GEO47
Hexachlorobenzene	<2	ng/l	01/03/2017	Y Cov	GEO47
Hexachlorobutadiene	<7	ng/l	01/03/2017	N Cov	GEO47
Isodrin	<4	ng/l	01/03/2017	Y Cov	GEO47
o,p - DDE	<2	ng/l	01/03/2017	Y Cov	GEO47
p,p - DDE	<2	ng/l	01/03/2017	Y Cov	GEO47
o,p - TDE	<2	ng/l	01/03/2017	Y Cov	GEO47
p,p - TDE	<2	ng/l	01/03/2017	Y Cov	GEO47
o,p - DDT	<2	ng/l	01/03/2017	Y Cov	GEO47
p,p - DDT	<4	ng/l	01/03/2017	Y Cov	GEO47

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1365420/2017**

Issue **1**

Laboratory Number: **15904249**

Sample **3** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB06**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **23 February 2017**

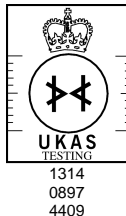
Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Tecnazene	<10	ng/l	01/03/2017	Y Cov	GEO47
gamma-Chlordane	<4	ng/l	01/03/2017	Y Cov	GEO47
Triallate	<10	ng/l	01/03/2017	Y Cov	GEO47
Trifluralin	<30	ng/l	01/03/2017	Y Cov	GEO47
Azinphos-ethyl	<0.004	ug/l	01/03/2017	Y Cov	GEO47
Azinphos-methyl	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Carbophenothion	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Chlorfenvinphos	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Chlorpyrifos	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Diazinon	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Dichlorvos	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Dimethoate	<0.020	ug/l	01/03/2017	Y Cov	GEO47
Fenitrothion	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Fenthion	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Malathion	<0.004	ug/l	01/03/2017	Y Cov	GEO47
Mevinphos	<0.020	ug/l	01/03/2017	Y Cov	GEO47
Parathion-ethyl	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Parathion-methyl	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Phorate	<0.004	ug/l	01/03/2017	Y Cov	GEO47
Phosalone	<0.004	ug/l	01/03/2017	Y Cov	GEO47
Pirimiphos-methyl	<0.005	ug/l	01/03/2017	Y Cov	GEO47
Propetamphos	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Triazophos	<0.002	ug/l	01/03/2017	Y Cov	GEO47
2,3,6 - TBA	<0.10	ug/l	14/03/2017	Y Cov	GEO20
2,4 - D	<0.10	ug/l	14/03/2017	Y Cov	GEO20
2,4 - DB	<0.10	ug/l	14/03/2017	Y Cov	GEO20
2,4,5 - T	<0.10	ug/l	14/03/2017	Y Cov	GEO20
Benazolin	<0.10	ug/l	14/03/2017	Y Cov	GEO20
Bentazone	<0.10	ug/l	16/03/2017	Y Cov	GEO20
Chlopyralid	<0.10	ug/l	14/03/2017	Y Cov	GEO20
Bromoxynil	<0.10	ug/l	14/03/2017	Y Cov	GEO20
Dicamba	<0.10	ug/l	14/03/2017	Y Cov	GEO20
Dichlorprop	<0.10	ug/l	14/03/2017	Y Cov	GEO20

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1365420/2017**

Issue **1**

Laboratory Number: **15904249**

Sample **3** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB06**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **23 February 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Fenoprop	<0.10	ug/l	14/03/2017	Y Cov	GEO20
loxynil	<0.10	ug/l	14/03/2017	Y Cov	GEO20
MCPA	<0.10	ug/l	14/03/2017	Y Cov	GEO20
MCPB	<0.10	ug/l	14/03/2017	Y Cov	GEO20
Triclopyr	<0.10	ug/l	14/03/2017	Y Cov	GEO20
Mecoprop	<0.08	ug/l	14/03/2017	Y Cov	GEO20
Catechol	<0.10	ug/l	28/02/2017	N Cov	338
Cresol, Total	<0.10	ug/l	28/02/2017	N Cov	338
Xylenol, Total	<0.10	ug/l	28/02/2017	N Cov	338
Naphthol	<0.10	ug/l	28/02/2017	N Cov	338
Phenol	<0.10	ug/l	28/02/2017	N Cov	338
Trimethylphenol, Total	<0.10	ug/l	28/02/2017	N Cov	338
Phenols, Total	<0.50	ug/l	28/02/2017	N Cov	338
Aliphatic VPH >C5 - C6	<10	ug/l	08/03/2017	Y Cov	GEO45
Aliphatic VPH >C6 - C8	<10	ug/l	08/03/2017	Y Cov	GEO45
Aliphatic VPH >C8 - 10	<10	ug/l	08/03/2017	Y Cov	GEO45
Aliphatic VPH >C5 - C10	<10	ug/l	08/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C7	<10	ug/l	08/03/2017	Y Cov	GEO45
Aromatic VPH >C7 - C8	<10	ug/l	08/03/2017	Y Cov	GEO45
Aromatic VPH >C8 - C10	<10	ug/l	08/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C10	<10	ug/l	08/03/2017	Y Cov	GEO45
VPH >C5 - C10	<10	ug/l	08/03/2017	Y Cov	GEO45
Aliphatic EPH >C10 - C12	<10	ug/l	01/03/2017	N Cov	GEO46
Aliphatic EPH >C12 - C16	<10	ug/l	01/03/2017	N Cov	GEO46
Aliphatic EPH >C16 - C35	<10	ug/l	01/03/2017	N Cov	GEO46
Aliphatic EPH >C35 - C44	<10	ug/l	01/03/2017	N Cov	GEO46
Aliphatic EPH >C10 - C44	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C12	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C12 - C16	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C16 - C21	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C21 - C35	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C35 - C44	<10	ug/l	01/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C44	<10	ug/l	01/03/2017	N Cov	GEO46

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575



# Certificate of Analysis



Report Number: **COV/1365420/2017**

Issue **1**

Laboratory Number: **15904249**

Sample **3** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB06**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **23 February 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
EPH >C10 - C44	<10	ug/l	01/03/2017	N Cov	GEO46
Aliphatic VPH/EPH >C5 - C44	<10	ug/l	08/03/2017	N Cov	GEO45/GEO4
Aromatic VPH/EPH >C5 - C44	<10	ug/l	08/03/2017	N Cov	GEO45/GEO4
VPH/EPH >C5 - C44	<10	ug/l	08/03/2017	N Cov	GEO45/GEO4
Acenaphthene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Acenaphthylene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Anthracene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Benzo (a) anthracene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Benzo (g,h,i) perylene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Benzo (a) pyrene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Benzo (b) fluoranthene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Benzo (k) fluoranthene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Chrysene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Dibenz (a,h) anthracene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Fluoranthene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Fluorene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Indeno (1,2,3) cd pyrene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Naphthalene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Phenanthrene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
Pyrene	<0.01	ug/l	01/03/2017	Y Cov	GEO19
PAH, Total	<0.01	ug/l	01/03/2017	N Cov	GEO19
VOC	Y	ug/l	01/03/2017	N Cov	GEO32
Dichlorodifluoromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Chloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Chloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Bromomethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Trichlorofluoromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1-Dichloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Dichloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1-Dichloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
cis-1,2-Dichloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
2,2-Dichloropropane	<1.0	ug/l	01/03/2017	N Cov	GEO32
Chloroform	<1.0	ug/l	01/03/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1365420/2017**

Issue **1**

Laboratory Number: **15904249**

Sample **3** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB06**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **23 February 2017**

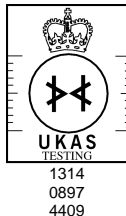
Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Bromochloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1,1-Trichloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1-Dichloropropene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dichloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Benzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dichloropropane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Trichloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Bromodichloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Dibromomethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
cis-1,3-Dichloropropene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Toluene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
trans-1,3-Dichloropropene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1,2-Trichloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Carbon Tetrachloride	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Vinyl Chloride	<0.5	ug/l	01/03/2017	Y Cov	GEO32
1,3-Dichloropropane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Tetrachloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Dibromochloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dibromoethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Chlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1,1,2-Tetrachloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Ethyl Benzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
m&p-Xylene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
o-Xylene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Styrene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Bromoform	<1.0	ug/l	01/03/2017	Y Cov	GEO32
trans-1,2-Dichloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Isopropylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1,2,2-Tetrachloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2,3-Trichloropropane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
n-Propylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Bromobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
2-Chlorotoluene	<1.0	ug/l	01/03/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1365420/2017**

Issue **1**

Laboratory Number: **15904249**

Sample **3** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB06**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **23 February 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
1,3,5-Trimethylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
4-Chlorotoluene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
tert-Butylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2,4-Trimethylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
sec-Butylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
p-Isopropyltoluene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,3-Dichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,4-Dichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
n-Butylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dibromo-3-chloropropane	<2.0	ug/l	01/03/2017	Y Cov	GEO32
1,2,4-Trichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Hexachlorobutadiene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Naphthalene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2,3-Trichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
MTBE	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Dibromofluoromethane	100.0	%Recovery	01/03/2017	N Cov	GEO32
Toluene-d8	99.3	%Recovery	01/03/2017	N Cov	GEO32
4-Bromofluorobenzene	95.2	%Recovery	01/03/2017	N Cov	GEO32
SVOC	Y	ug/l	02/03/2017	N Cov	GEO40
Phenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Bis(2-chloroethyl)ether	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Chlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
1,3-Dichlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
1,4-Dichlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Methylphenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
3&4-Methylphenol	<1.0	ug/l	02/03/2017	N Cov	GEO40
Dibenzofuran	<1.0	ug/l	02/03/2017	N Cov	GEO40
1,2-Dichlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Bis(2-chloroisopropyl)ether	<1.0	ug/l	02/03/2017	Y Cov	GEO40
n-Nitrosodi-n-propylamine	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Hexachloroethane	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Nitrobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1365420/2017**

Issue **1**

Laboratory Number: **15904249**

Sample **3** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB06**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **23 February 2017**

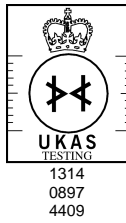
Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Isophorone	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4-Dimethylphenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Nitrophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Bis(2-chloroethoxy)methane	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4-Dichlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
1,2,4-Trichlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Naphthalene	<2.0	ug/l	02/03/2017	Y Cov	GEO40
Hexachlorobutadiene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
4-Chloro-3-methylphenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Methylnaphthalene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4,6-Trichlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4,5-Trichlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Chloronaphthalene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Dimethylphthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,6-Dinitrotoluene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Acenaphthylene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Acenaphthene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4-Dinitrotoluene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Diethylphthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
4-Nitrophenol	<5.0	ug/l	02/03/2017	Y Cov	GEO40
4-Chlorophenyl phenyl ether	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Fluorene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Diphenylamine	<1.0	ug/l	02/03/2017	N Cov	GEO40
4-Bromophenyl Phenyl Ether	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Hexachlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Pentachlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Phenanthrene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Anthracene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
di-n-Butylphthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Fluoranthene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Pyrene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzyl Butyl Phthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(a)anthracene	<1.0	ug/l	02/03/2017	Y Cov	GEO40

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1365420/2017**

Issue **1**

Laboratory Number: **15904249**

Sample **3** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB06**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 February 2017**

Sample Received: **23 February 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Chrysene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Bis(2-ethylhexyl)phthalate	<5.0	ug/l	02/03/2017	Y Cov	GEO40
Di-n-octylphthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(b)fluoranthene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(k)fluoranthene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(a)pyrene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Indeno(1,2,3-c,d)pyrene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Dibenz(a,h)anthracene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(g,h,i)perylene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Fluorophenol	97.0	%Recovery	02/03/2017	N Cov	GEO40
Phenol-d6	82.8	%Recovery	02/03/2017	N Cov	GEO40
Nitrobenzene-d5	86.3	%Recovery	02/03/2017	N Cov	GEO40
2-Fluorobiphenyl	82.7	%Recovery	02/03/2017	N Cov	GEO40
2,4,6-Tribromophenol	83.7	%Recovery	02/03/2017	N Cov	GEO40
Terphenyl-d14	93.2	%Recovery	02/03/2017	N Cov	GEO40
Nitrite as NO2	<0.28	mg/l	27/02/2017	N Cov	WAS036
Fluoroxypyr	<0.10	ug/l	14/03/2017	Y Cov	GEO20

### Analyst Comments for 15904249:

This sample has been analysed for pH, COD (Total) outside recommended stability times. It is therefore possible that the results provided may be compromised. . {/\*}The ferrous iron analysis was not carried out on site and there is the possibility of change in ferrous-ferric ratio between sampling and analysis.{\*/}  
GEO40 SVOC Waters: See attached SVOC-TIC Report.

Acid Herbicides reporting limits raised due to nature of sample matrix.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **C. Law**

Date: **16 March 2017**

Title: **Inorganics Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

ALS Environmental Ltd  
Torrington Avenue  
Coventry  
CV4 9GU

T: +44 (0)24 7642 1213  
F: +44 (0)24 7685 6575  
www.alsenvironmental.co.uk

**Mr Downes**  
**SKM Ireland c/o Jacobs**  
**Engineering Ireland**  
**Jacobs**  
**Merrion House**  
**Merrion Road**  
**Dublin 4 South Dublin**

10 March 2017

**Test Report: COV/1365869/2017**

Dear Mr Downes

Analysis of your sample(s) submitted on 24 February 2017 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:

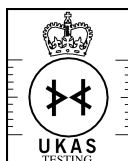


Name: A. Zunzunegui

Title: Organic Team Leader



# Report Summary



1314  
0897  
4409



**Mr Ultan Downes  
SKM Ireland c/o Jacobs  
Engineering Ireland  
Jacobs  
Merrion House  
Merrion Road  
Dublin 4  
South Dublin**

Date of Issue: **10 March 2017**

Report Number: **COV/1365869/2017**

Issue **1**

This issue replaces  
all previous issues

**Job Description:** Kerdiffstown Landfill

**Job Location:** 32EW5604 KLRP

Number of Samples  
included in this report **2**

Job Received: **24 February 2017**

Number of Test Results  
included in this report **560**

Analysis Commenced: **26 February 2017**

Signed:

Name: **A. Zunzunegui**

Date: **10 March 2017**

Title: **Organic Team Leader**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.

Information on the methods of analysis and performance characteristics are available on request.

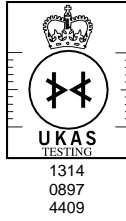
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

(c) ALS Environmental Ltd 2017. All rights reserved. We, ALS Environmental Ltd, are the owner of all copyright in this report. You must not copy, reproduce, amend or adapt this report, its contents or any format in which it is delivered without our prior written agreement. If you copy, reproduce, amend, or adapt this report in any way without our agreement you will be liable for any damage or loss to us. In the event of a dispute the copy of the report held by us shall be the reference copy.

# Certificate of Analysis



Report Number: **COV/1365869/2017**

Issue **1**

Laboratory Number: **15907273**

Sample **1** of **2**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH72**

Sample Matrix: **Ground Water**

Sample Date/Time: **24 February 2017**

Sample Received: **24 February 2017**

Analysis Complete: **10 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron, Total	1.4	mg/l	01/03/2017	N Cov	WAS043
Nitrate as NO3	<3.1	mg/l	26/02/2017	N Cov	WAS036
Antimony Ultra Low Total as Sb	0.0019	mg/l	08/03/2017	Y Cov	WAS060
Selenium Ultra Low Total as Se	0.0010	mg/l	08/03/2017	Y Cov	WAS060
Arsenic, Ultra Low Total as As	0.015	mg/l	08/03/2017	Y Cov	WAS060
Fluoride	0.189	mg/l	01/03/2017	Y S	SUBCON
Aluminium, Total as Al	16.8	mg/l	07/03/2017	Y Cov	WAS049
Barium, Total as Ba	0.575	mg/l	07/03/2017	Y Cov	WAS049
Beryllium, Total as Be	<0.0420	mg/l	07/03/2017	Y Cov	WAS049
Boron, Total as B	<4.60	mg/l	07/03/2017	Y Cov	WAS049
Cadmium , Total as Cd	0.0145	mg/l	07/03/2017	Y Cov	WAS049
Calcium , Total as Ca	454	mg/l	07/03/2017	Y Cov	WAS049
Chromium , Total as Cr	0.042	mg/l	07/03/2017	Y Cov	WAS049
Copper, Ultra-low Total as Cu	282	ug/l	08/03/2017	Y Cov	WAS060
Iron , Total as Fe	69.4	mg/l	07/03/2017	Y Cov	WAS049
Ferrous Iron	1.4	mg/l	01/03/2017	N Cov	WAS043
Ferric Iron	<0.5	mg/l	01/03/2017	N Cov	WAS043
Lead , Total as Pb	0.230	mg/l	07/03/2017	Y Cov	WAS049
Magnesium, Total as Mg	26.5	mg/l	07/03/2017	Y Cov	WAS049
Manganese , Total as Mn	9.74	mg/l	07/03/2017	Y Cov	WAS049
Mercury, Total as Hg	0.00023	mg/l	02/03/2017	N Cov	WAS013
Nickel, Total as Ni	0.126	mg/l	07/03/2017	Y Cov	WAS049
Potassium , Total as K	<3.60	mg/l	07/03/2017	Y Cov	WAS049
Sodium , Total as Na	27.6	mg/l	07/03/2017	Y Cov	WAS049
Vanadium , Total as V	<0.080	mg/l	07/03/2017	Y Cov	WAS049
Zinc, Total as Zn	0.529	mg/l	07/03/2017	Y Cov	WAS049
pH	7.7	pH units	06/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	630	uS/cm	06/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	1060	mg/l	09/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.15	mg/l	28/02/2017	Y Cov	WAS067
Chloride as Cl	19.9	mg/l	26/02/2017	N Cov	WAS036
Nitrite as N	<0.08	mg/l	26/02/2017	N Cov	WAS036

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575



# Certificate of Analysis



Report Number: **COV/1365869/2017**

Issue **1**

Laboratory Number: **15907273**

Sample **1** of **2**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH72**

Sample Matrix: **Ground Water**

Sample Date/Time: **24 February 2017**

Sample Received: **24 February 2017**

Analysis Complete: **10 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Phosphates , Total as P	<2.4	mg/l	07/03/2017	Y Cov	WAS049
Sulphate as SO4	25.7	mg/l	26/02/2017	N Cov	WAS036
BOD + ATU (5 day)	3	mg/l	05/03/2017	Y Cov	WAS001
COD (Total)	196	mg/l	09/03/2017	Y Cov	WAS040
TOC (Filtered)	1.1	mg/l	01/03/2017	Y Cov	WAS005
Cyanide, Free as CN	<0.008	mg/l	06/03/2017	N Cov	WAS018
Cyanide, Total as CN	<0.009	mg/l	04/03/2017	N Cov	WAS018
Sulphide as S	0.192	mg/l	03/03/2017	N Cov	WAS033
Formaldehyde	<0.029	mg/l	28/02/2017	N Cov	WAS030
1,2,3-Trichlorobenzene	<10	ng/l	01/03/2017	Y Cov	GEO47
1,2,4-Trichlorobenzene	<10	ng/l	01/03/2017	Y Cov	GEO47
1,3,5-Trichlorobenzene	<10	ng/l	01/03/2017	N Cov	GEO47
SVOC with TICs	Y	ug/l	02/03/2017	N Cov	GEO40
Aldrin	<4	ng/l	01/03/2017	Y Cov	GEO47
alpha-Endosulphan	<4	ng/l	01/03/2017	Y Cov	GEO47
alpha-HCH	<3	ng/l	01/03/2017	Y Cov	GEO47
beta-Endosulphan	<4	ng/l	01/03/2017	Y Cov	GEO47
beta-HCH	<3	ng/l	01/03/2017	Y Cov	GEO47
alpha-Chlordane	<3	ng/l	01/03/2017	Y Cov	GEO47
Dichlobenil	<2	ng/l	01/03/2017	Y Cov	GEO47
Dieldrin	<4	ng/l	01/03/2017	Y Cov	GEO47
Endrin	<4	ng/l	01/03/2017	Y Cov	GEO47
gamma-HCH	<2.7	ng/l	01/03/2017	Y Cov	GEO47
Heptachlor Epoxide	<4	ng/l	01/03/2017	Y Cov	GEO47
Hexachlorobenzene	<2	ng/l	01/03/2017	Y Cov	GEO47
Hexachlorobutadiene	<7	ng/l	01/03/2017	N Cov	GEO47
Isodrin	<4	ng/l	01/03/2017	Y Cov	GEO47
o,p - DDE	<2	ng/l	01/03/2017	Y Cov	GEO47
p,p - DDE	<2	ng/l	01/03/2017	Y Cov	GEO47
o,p - TDE	<2	ng/l	01/03/2017	Y Cov	GEO47
p,p - TDE	<2	ng/l	01/03/2017	Y Cov	GEO47
o,p - DDT	<2	ng/l	01/03/2017	Y Cov	GEO47
p,p - DDT	<4	ng/l	01/03/2017	Y Cov	GEO47

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1365869/2017**

Issue **1**

Laboratory Number: **15907273**

Sample **1** of **2**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH72**

Sample Matrix: **Ground Water**

Sample Date/Time: **24 February 2017**

Sample Received: **24 February 2017**

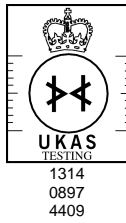
Analysis Complete: **10 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Tecnazene	<10	ng/l	01/03/2017	Y Cov	GEO47
gamma-Chlordane	<4	ng/l	01/03/2017	Y Cov	GEO47
Triallate	<10	ng/l	01/03/2017	Y Cov	GEO47
Trifluralin	<30	ng/l	01/03/2017	Y Cov	GEO47
Azinphos-ethyl	<0.004	ug/l	01/03/2017	Y Cov	GEO47
Azinphos-methyl	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Carbophenothion	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Chlorfenvinphos	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Chlorpyrifos	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Diazinon	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Dichlorvos	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Dimethoate	<0.020	ug/l	01/03/2017	Y Cov	GEO47
Fenitrothion	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Fenthion	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Malathion	<0.004	ug/l	01/03/2017	Y Cov	GEO47
Mevinphos	<0.020	ug/l	01/03/2017	Y Cov	GEO47
Parathion-ethyl	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Parathion-methyl	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Phorate	<0.004	ug/l	01/03/2017	Y Cov	GEO47
Phosalone	<0.004	ug/l	01/03/2017	Y Cov	GEO47
Pirimiphos-methyl	<0.005	ug/l	01/03/2017	Y Cov	GEO47
Propetamphos	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Triazophos	<0.002	ug/l	01/03/2017	Y Cov	GEO47
2,3,6 - TBA	<0.05	ug/l	09/03/2017	Y Cov	GEO20
2,4 - D	<0.05	ug/l	09/03/2017	Y Cov	GEO20
2,4 - DB	<0.05	ug/l	09/03/2017	Y Cov	GEO20
2,4,5 - T	<0.05	ug/l	09/03/2017	Y Cov	GEO20
Benazolin	<0.05	ug/l	09/03/2017	Y Cov	GEO20
Bentazone	<0.05	ug/l	09/03/2017	Y Cov	GEO20
Chlopyralid	<0.05	ug/l	09/03/2017	Y Cov	GEO20
Bromoxynil	<0.05	ug/l	09/03/2017	Y Cov	GEO20
Dicamba	<0.05	ug/l	09/03/2017	Y Cov	GEO20
Dichlorprop	<0.05	ug/l	09/03/2017	Y Cov	GEO20

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1365869/2017**

Issue **1**

Laboratory Number: **15907273**

Sample **1** of **2**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH72**

Sample Matrix: **Ground Water**

Sample Date/Time: **24 February 2017**

Sample Received: **24 February 2017**

Analysis Complete: **10 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Fenoprop	<0.05	ug/l	09/03/2017	Y Cov	GEO20
loxynil	<0.05	ug/l	09/03/2017	Y Cov	GEO20
MCPA	<0.05	ug/l	09/03/2017	Y Cov	GEO20
MCPB	<0.05	ug/l	09/03/2017	Y Cov	GEO20
Triclopyr	<0.05	ug/l	09/03/2017	Y Cov	GEO20
Mecoprop	<0.04	ug/l	09/03/2017	Y Cov	GEO20
Catechol	<0.10	ug/l	28/02/2017	N Cov	338
Cresol, Total	<0.10	ug/l	28/02/2017	N Cov	338
Xylenol, Total	<0.10	ug/l	28/02/2017	N Cov	338
Naphthol	<0.10	ug/l	28/02/2017	N Cov	338
Phenol	<0.10	ug/l	28/02/2017	N Cov	338
Trimethylphenol, Total	<0.10	ug/l	28/02/2017	N Cov	338
Phenols, Total	0.67	ug/l	28/02/2017	N Cov	338
Aliphatic VPH >C5 - C6	<10	ug/l	08/03/2017	Y Cov	GEO45
Aliphatic VPH >C6 - C8	<10	ug/l	08/03/2017	Y Cov	GEO45
Aliphatic VPH >C8 - 10	<10	ug/l	08/03/2017	Y Cov	GEO45
Aliphatic VPH >C5 - C10	<10	ug/l	08/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C7	<10	ug/l	08/03/2017	Y Cov	GEO45
Aromatic VPH >C7 - C8	<10	ug/l	08/03/2017	Y Cov	GEO45
Aromatic VPH >C8 - C10	<10	ug/l	08/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C10	<10	ug/l	08/03/2017	Y Cov	GEO45
VPH >C5 - C10	<10	ug/l	08/03/2017	Y Cov	GEO45
Aliphatic EPH >C10 - C12	<10	ug/l	03/03/2017	N Cov	GEO46
Aliphatic EPH >C12 - C16	<10	ug/l	03/03/2017	N Cov	GEO46
Aliphatic EPH >C16 - C35	<10	ug/l	03/03/2017	N Cov	GEO46
Aliphatic EPH >C35 - C44	<10	ug/l	03/03/2017	N Cov	GEO46
Aliphatic EPH >C10 - C44	<10	ug/l	03/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C12	<10	ug/l	03/03/2017	N Cov	GEO46
Aromatic EPH >C12 - C16	<10	ug/l	03/03/2017	N Cov	GEO46
Aromatic EPH >C16 - C21	<10	ug/l	03/03/2017	N Cov	GEO46
Aromatic EPH >C21 - C35	<10	ug/l	03/03/2017	N Cov	GEO46
Aromatic EPH >C35 - C44	<10	ug/l	03/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C44	<10	ug/l	03/03/2017	N Cov	GEO46

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1365869/2017**

Issue **1**

Laboratory Number: **15907273**

Sample **1** of **2**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH72**

Sample Matrix: **Ground Water**

Sample Date/Time: **24 February 2017**

Sample Received: **24 February 2017**

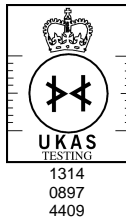
Analysis Complete: **10 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
EPH >C10 - C44	<10	ug/l	03/03/2017	N Cov	GEO46
Aliphatic VPH/EPH >C5 - C44	<10	ug/l	08/03/2017	N Cov	GEO45/GEO4
Aromatic VPH/EPH >C5 - C44	<10	ug/l	08/03/2017	N Cov	GEO45/GEO4
VPH/EPH >C5 - C44	<10	ug/l	08/03/2017	N Cov	GEO45/GEO4
Acenaphthene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Acenaphthylene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Anthracene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Benzo (a) anthracene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Benzo (g,h,i) perylene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Benzo (a) pyrene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Benzo (b) fluoranthene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Benzo (k) fluoranthene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Chrysene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Dibenz (a,h) anthracene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Fluoranthene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Fluorene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Indeno (1,2,3) cd pyrene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Naphthalene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Phenanthrene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Pyrene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
PAH, Total	<0.01	ug/l	02/03/2017	N Cov	GEO19
VOC	Y	ug/l	01/03/2017	N Cov	GEO32
Dichlorodifluoromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Chloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Chloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Bromomethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Trichlorofluoromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1-Dichloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Dichloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1-Dichloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
cis-1,2-Dichloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
2,2-Dichloropropane	<1.0	ug/l	01/03/2017	N Cov	GEO32
Chloroform	<1.0	ug/l	01/03/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1365869/2017**

Issue **1**

Laboratory Number: **15907273**

Sample **1** of **2**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH72**

Sample Matrix: **Ground Water**

Sample Date/Time: **24 February 2017**

Sample Received: **24 February 2017**

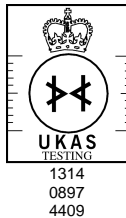
Analysis Complete: **10 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Bromochloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1,1-Trichloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1-Dichloropropene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dichloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Benzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dichloropropane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Trichloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Bromodichloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Dibromomethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
cis-1,3-Dichloropropene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Toluene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
trans-1,3-Dichloropropene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1,2-Trichloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Carbon Tetrachloride	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Vinyl Chloride	<0.5	ug/l	01/03/2017	Y Cov	GEO32
1,3-Dichloropropane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Tetrachloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Dibromochloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dibromoethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Chlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1,1,2-Tetrachloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Ethyl Benzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
m&p-Xylene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
o-Xylene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Styrene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Bromoform	<1.0	ug/l	01/03/2017	Y Cov	GEO32
trans-1,2-Dichloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Isopropylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1,2,2-Tetrachloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2,3-Trichloropropane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
n-Propylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Bromobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
2-Chlorotoluene	<1.0	ug/l	01/03/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1365869/2017**

Issue **1**

Laboratory Number: **15907273**

Sample **1** of **2**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH72**

Sample Matrix: **Ground Water**

Sample Date/Time: **24 February 2017**

Sample Received: **24 February 2017**

Analysis Complete: **10 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
1,3,5-Trimethylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
4-Chlorotoluene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
tert-Butylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2,4-Trimethylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
sec-Butylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
p-Isopropyltoluene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,3-Dichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,4-Dichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
n-Butylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dibromo-3-chloropropane	<2.0	ug/l	01/03/2017	Y Cov	GEO32
1,2,4-Trichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Hexachlorobutadiene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Naphthalene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2,3-Trichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
MTBE	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Dibromofluoromethane	99.0	%Recovery	01/03/2017	N Cov	GEO32
Toluene-d8	99.0	%Recovery	01/03/2017	N Cov	GEO32
4-Bromofluorobenzene	96.1	%Recovery	01/03/2017	N Cov	GEO32
SVOC	Y	ug/l	02/03/2017	N Cov	GEO40
Phenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Bis(2-chloroethyl)ether	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Chlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
1,3-Dichlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
1,4-Dichlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Methylphenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
3&4-Methylphenol	<1.0	ug/l	02/03/2017	N Cov	GEO40
Dibenzofuran	<1.0	ug/l	02/03/2017	N Cov	GEO40
1,2-Dichlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Bis(2-chloroisopropyl)ether	<1.0	ug/l	02/03/2017	Y Cov	GEO40
n-Nitrosodi-n-propylamine	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Hexachloroethane	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Nitrobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1365869/2017**

Issue **1**

Laboratory Number: **15907273**

Sample **1** of **2**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH72**

Sample Matrix: **Ground Water**

Sample Date/Time: **24 February 2017**

Sample Received: **24 February 2017**

Analysis Complete: **10 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Isophorone	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4-Dimethylphenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Nitrophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Bis(2-chloroethoxy)methane	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4-Dichlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
1,2,4-Trichlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Naphthalene	<2.0	ug/l	02/03/2017	Y Cov	GEO40
Hexachlorobutadiene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
4-Chloro-3-methylphenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Methylnaphthalene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4,6-Trichlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4,5-Trichlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Chloronaphthalene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Dimethylphthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,6-Dinitrotoluene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Acenaphthylene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Acenaphthene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4-Dinitrotoluene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Diethylphthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
4-Nitrophenol	<5.0	ug/l	02/03/2017	Y Cov	GEO40
4-Chlorophenyl phenyl ether	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Fluorene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Diphenylamine	<1.0	ug/l	02/03/2017	N Cov	GEO40
4-Bromophenyl Phenyl Ether	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Hexachlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Pentachlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Phenanthrene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Anthracene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
di-n-Butylphthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Fluoranthene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Pyrene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzyl Butyl Phthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(a)anthracene	<1.0	ug/l	02/03/2017	Y Cov	GEO40

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1365869/2017**

Issue **1**

Laboratory Number: **15907273**

Sample **1** of **2**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH72**

Sample Matrix: **Ground Water**

Sample Date/Time: **24 February 2017**

Sample Received: **24 February 2017**

Analysis Complete: **10 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Chrysene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Bis(2-ethylhexyl)phthalate	<5.0	ug/l	02/03/2017	Y Cov	GEO40
Di-n-octylphthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(b)fluoranthene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(k)fluoranthene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(a)pyrene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Indeno(1,2,3-c,d)pyrene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Dibenz(a,h)anthracene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(g,h,i)perylene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Fluorophenol	92.7	%Recovery	02/03/2017	N Cov	GEO40
Phenol-d6	79.2	%Recovery	02/03/2017	N Cov	GEO40
Nitrobenzene-d5	83.5	%Recovery	02/03/2017	N Cov	GEO40
2-Fluorobiphenyl	80.4	%Recovery	02/03/2017	N Cov	GEO40
2,4,6-Tribromophenol	84.0	%Recovery	02/03/2017	N Cov	GEO40
Terphenyl-d14	90.8	%Recovery	02/03/2017	N Cov	GEO40
Nitrite as NO2	<0.28	mg/l	27/02/2017	N Cov	WAS036
Fluoroxypyr	<0.05	ug/l	09/03/2017	Y Cov	GEO20

**Analyst Comments for 15907273:**

This sample has been analysed for pH, BOD + ATU (5 day), Magnesium, Total as Mg, Sodium Total as Na, COD (Total), Boron, Total as B, Barium, Total as Ba outside recommended stability times. It is therefore possible that the results provided may be compromised. . {\*/}The ferrous iron analysis was not carried out on site and there is the possibility of change in ferrous-ferric ratio between sampling and analysis. Reporting limit raised for Metals due to interference from internal standard{\*/}  
GEO40 SVOC Waters: See attached SVOC-TIC Report.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

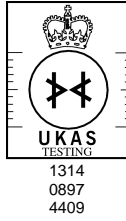
Signed:	Name: <b>A. Zunzunegui</b>	Date: <b>10 March 2017</b>
	Title: <b>Organic Team Leader</b>	

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575



# Certificate of Analysis



Report Number: **COV/1365869/2017**

Issue **1**

Laboratory Number: **15907274**

Sample **2** of **2**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH77**

Sample Matrix: **Ground Water**

Sample Date/Time: **24 February 2017**

Sample Received: **24 February 2017**

Analysis Complete: **10 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron, Total	1.4	mg/l	01/03/2017	N Cov	WAS043
Nitrate as NO3	<3.1	mg/l	26/02/2017	N Cov	WAS036
Antimony Ultra Low Total as Sb	0.0043	mg/l	08/03/2017	Y Cov	WAS060
Selenium Ultra Low Total as Se	0.0016	mg/l	08/03/2017	Y Cov	WAS060
Arsenic, Ultra Low Total as As	0.016	mg/l	08/03/2017	Y Cov	WAS060
Fluoride	0.350	mg/l	02/03/2017	Y S	SUBCON
Aluminium, Total as Al	4.6	mg/l	06/03/2017	Y Cov	WAS049
Barium, Total as Ba	0.193	mg/l	06/03/2017	Y Cov	WAS049
Beryllium, Total as Be	<0.0021	mg/l	06/03/2017	Y Cov	WAS049
Boron, Total as B	<0.23	mg/l	06/03/2017	Y Cov	WAS049
Cadmium , Total as Cd	0.0022	mg/l	06/03/2017	Y Cov	WAS049
Calcium , Total as Ca	179	mg/l	06/03/2017	Y Cov	WAS049
Chromium , Total as Cr	0.019	mg/l	06/03/2017	Y Cov	WAS049
Copper, Ultra-low Total as Cu	88	ug/l	08/03/2017	Y Cov	WAS060
Iron , Total as Fe	10.7	mg/l	06/03/2017	Y Cov	WAS049
Ferrous Iron	<0.5	mg/l	01/03/2017	N Cov	WAS043
Ferric Iron	1.3	mg/l	01/03/2017	N Cov	WAS043
Lead , Total as Pb	0.197	mg/l	06/03/2017	Y Cov	WAS049
Magnesium, Total as Mg	5.4	mg/l	06/03/2017	Y Cov	WAS049
Manganese , Total as Mn	0.925	mg/l	06/03/2017	Y Cov	WAS049
Mercury, Total as Hg	0.00018	mg/l	02/03/2017	N Cov	WAS013
Nickel, Total as Ni	0.043	mg/l	06/03/2017	Y Cov	WAS049
Potassium , Total as K	22.9	mg/l	06/03/2017	Y Cov	WAS049
Sodium , Total as Na	13.0	mg/l	06/03/2017	Y Cov	WAS049
Vanadium , Total as V	0.019	mg/l	06/03/2017	Y Cov	WAS049
Zinc, Total as Zn	0.316	mg/l	06/03/2017	Y Cov	WAS049
pH	7.1	pH units	06/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	794	uS/cm	06/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	415	mg/l	09/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.43	mg/l	28/02/2017	Y Cov	WAS067
Chloride as Cl	10.7	mg/l	26/02/2017	N Cov	WAS036
Nitrite as N	<0.08	mg/l	26/02/2017	N Cov	WAS036

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1365869/2017**  
 Laboratory Number: **15907274**

Issue **1**  
 Sample **2** of **2**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**  
 Sample Point Description:  
 Sample Description: **BH77**  
 Sample Matrix: **Ground Water**  
 Sample Date/Time: **24 February 2017**  
 Sample Received: **24 February 2017**  
 Analysis Complete: **10 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Phosphates , Total as P	0.62	mg/l	07/03/2017	Y Cov	WAS049
Sulphate as SO4	136	mg/l	26/02/2017	N Cov	WAS036
BOD + ATU (5 day)	9	mg/l	05/03/2017	Y Cov	WAS001
COD (Total)	248	mg/l	02/03/2017	Y Cov	WAS040
TOC (Filtered)	4.7	mg/l	01/03/2017	Y Cov	WAS005
Cyanide, Free as CN	<0.008	mg/l	06/03/2017	N Cov	WAS018
Cyanide, Total as CN	<0.009	mg/l	04/03/2017	N Cov	WAS018
Sulphide as S	0.112	mg/l	03/03/2017	N Cov	WAS033
Formaldehyde	<0.029	mg/l	28/02/2017	N Cov	WAS030
1,2,3-Trichlorobenzene	<10	ng/l	01/03/2017	Y Cov	GEO47
1,2,4-Trichlorobenzene	<10	ng/l	01/03/2017	Y Cov	GEO47
1,3,5-Trichlorobenzene	<10	ng/l	01/03/2017	N Cov	GEO47
SVOC with TICs	Y	ug/l	02/03/2017	N Cov	GEO40
Aldrin	<4	ng/l	01/03/2017	Y Cov	GEO47
alpha-Endosulphan	<4	ng/l	01/03/2017	Y Cov	GEO47
alpha-HCH	<3	ng/l	01/03/2017	Y Cov	GEO47
beta-Endosulphan	<4	ng/l	01/03/2017	Y Cov	GEO47
beta-HCH	<3	ng/l	01/03/2017	Y Cov	GEO47
alpha-Chlordane	<3	ng/l	01/03/2017	Y Cov	GEO47
Dichlobenil	2	ng/l	01/03/2017	Y Cov	GEO47
Dieldrin	<4	ng/l	01/03/2017	Y Cov	GEO47
Endrin	<4	ng/l	01/03/2017	Y Cov	GEO47
gamma-HCH	<2.7	ng/l	01/03/2017	Y Cov	GEO47
Heptachlor Epoxide	<4	ng/l	01/03/2017	Y Cov	GEO47
Hexachlorobenzene	<2	ng/l	01/03/2017	Y Cov	GEO47
Hexachlorobutadiene	<7	ng/l	01/03/2017	N Cov	GEO47
Isodrin	<4	ng/l	01/03/2017	Y Cov	GEO47
o,p - DDE	<2	ng/l	01/03/2017	Y Cov	GEO47
p,p - DDE	<2	ng/l	01/03/2017	Y Cov	GEO47
o,p - TDE	<2	ng/l	01/03/2017	Y Cov	GEO47
p,p - TDE	<2	ng/l	01/03/2017	Y Cov	GEO47
o,p - DDT	<2	ng/l	01/03/2017	Y Cov	GEO47
p,p - DDT	<4	ng/l	01/03/2017	Y Cov	GEO47

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
 Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1365869/2017**

Issue **1**

Laboratory Number: **15907274**

Sample **2** of **2**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH77**

Sample Matrix: **Ground Water**

Sample Date/Time: **24 February 2017**

Sample Received: **24 February 2017**

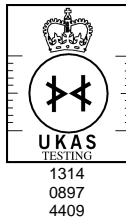
Analysis Complete: **10 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Tecnazene	<10	ng/l	01/03/2017	Y Cov	GEO47
gamma-Chlordane	<4	ng/l	01/03/2017	Y Cov	GEO47
Triallate	<10	ng/l	01/03/2017	Y Cov	GEO47
Trifluralin	<30	ng/l	01/03/2017	Y Cov	GEO47
Azinphos-ethyl	<0.004	ug/l	01/03/2017	Y Cov	GEO47
Azinphos-methyl	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Carbophenothion	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Chlorfenvinphos	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Chlorpyrifos	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Diazinon	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Dichlorvos	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Dimethoate	<0.020	ug/l	01/03/2017	Y Cov	GEO47
Fenitrothion	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Fenthion	<0.002	ug/l	01/03/2017	Y Cov	GEO47
Malathion	<0.004	ug/l	01/03/2017	Y Cov	GEO47
Mevinphos	<0.020	ug/l	01/03/2017	Y Cov	GEO47
Parathion-ethyl	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Parathion-methyl	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Phorate	<0.004	ug/l	01/03/2017	Y Cov	GEO47
Phosalone	<0.004	ug/l	01/03/2017	Y Cov	GEO47
Pirimiphos-methyl	<0.005	ug/l	01/03/2017	Y Cov	GEO47
Propetamphos	<0.003	ug/l	01/03/2017	Y Cov	GEO47
Triazophos	<0.002	ug/l	01/03/2017	Y Cov	GEO47
2,3,6 - TBA	<0.05	ug/l	10/03/2017	Y Cov	GEO20
2,4 - D	<0.15	ug/l	10/03/2017	Y Cov	GEO20
2,4 - DB	<0.05	ug/l	10/03/2017	Y Cov	GEO20
2,4,5 - T	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Benazolin	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Bentazone	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Chlopyralid	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Bromoxynil	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Dicamba	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Dichlorprop	<0.05	ug/l	10/03/2017	Y Cov	GEO20

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1365869/2017**

Issue **1**

Laboratory Number: **15907274**

Sample **2** of **2**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH77**

Sample Matrix: **Ground Water**

Sample Date/Time: **24 February 2017**

Sample Received: **24 February 2017**

Analysis Complete: **10 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Fenoprop	<0.05	ug/l	10/03/2017	Y Cov	GEO20
loxynil	<0.05	ug/l	10/03/2017	Y Cov	GEO20
MCPA	<0.05	ug/l	10/03/2017	Y Cov	GEO20
MCPB	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Triclopyr	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Mecoprop	0.12	ug/l	10/03/2017	Y Cov	GEO20
Catechol	<0.10	ug/l	28/02/2017	N Cov	338
Cresol, Total	<0.10	ug/l	28/02/2017	N Cov	338
Xylenol, Total	<0.10	ug/l	28/02/2017	N Cov	338
Naphthol	<0.10	ug/l	28/02/2017	N Cov	338
Phenol	<0.10	ug/l	28/02/2017	N Cov	338
Trimethylphenol, Total	7.0	ug/l	28/02/2017	N Cov	338
Phenols, Total	7.0	ug/l	28/02/2017	N Cov	338
Aliphatic VPH >C5 - C6	<10	ug/l	08/03/2017	Y Cov	GEO45
Aliphatic VPH >C6 - C8	<10	ug/l	08/03/2017	Y Cov	GEO45
Aliphatic VPH >C8 - 10	<10	ug/l	08/03/2017	Y Cov	GEO45
Aliphatic VPH >C5 - C10	<10	ug/l	08/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C7	<10	ug/l	08/03/2017	Y Cov	GEO45
Aromatic VPH >C7 - C8	<10	ug/l	08/03/2017	Y Cov	GEO45
Aromatic VPH >C8 - C10	<10	ug/l	08/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C10	<10	ug/l	08/03/2017	Y Cov	GEO45
VPH >C5 - C10	<10	ug/l	08/03/2017	Y Cov	GEO45
Aliphatic EPH >C10 - C12	<10	ug/l	03/03/2017	N Cov	GEO46
Aliphatic EPH >C12 - C16	<10	ug/l	03/03/2017	N Cov	GEO46
Aliphatic EPH >C16 - C35	<10	ug/l	03/03/2017	N Cov	GEO46
Aliphatic EPH >C35 - C44	<10	ug/l	03/03/2017	N Cov	GEO46
Aliphatic EPH >C10 - C44	<10	ug/l	03/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C12	<10	ug/l	03/03/2017	N Cov	GEO46
Aromatic EPH >C12 - C16	13	ug/l	03/03/2017	N Cov	GEO46
Aromatic EPH >C16 - C21	<10	ug/l	03/03/2017	N Cov	GEO46
Aromatic EPH >C21 - C35	<10	ug/l	03/03/2017	N Cov	GEO46
Aromatic EPH >C35 - C44	<10	ug/l	03/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C44	13	ug/l	03/03/2017	N Cov	GEO46

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1365869/2017**

Issue **1**

Laboratory Number: **15907274**

Sample **2** of **2**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH77**

Sample Matrix: **Ground Water**

Sample Date/Time: **24 February 2017**

Sample Received: **24 February 2017**

Analysis Complete: **10 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
EPH >C10 - C44	13	ug/l	03/03/2017	N Cov	GEO46
Aliphatic VPH/EPH >C5 - C44	<10	ug/l	08/03/2017	N Cov	GEO45/GEO4
Aromatic VPH/EPH >C5 - C44	13	ug/l	08/03/2017	N Cov	GEO45/GEO4
VPH/EPH >C5 - C44	13	ug/l	08/03/2017	N Cov	GEO45/GEO4
Acenaphthene	0.182	ug/l	02/03/2017	Y Cov	GEO19
Acenaphthylene	<0.02	ug/l	02/03/2017	Y Cov	GEO19
Anthracene	0.049	ug/l	02/03/2017	Y Cov	GEO19
Benzo (a) anthracene	<0.02	ug/l	02/03/2017	Y Cov	GEO19
Benzo (g,h,i) perylene	<0.02	ug/l	02/03/2017	Y Cov	GEO19
Benzo (a) pyrene	<0.02	ug/l	02/03/2017	Y Cov	GEO19
Benzo (b) fluoranthene	<0.02	ug/l	02/03/2017	Y Cov	GEO19
Benzo (k) fluoranthene	<0.02	ug/l	02/03/2017	Y Cov	GEO19
Chrysene	<0.02	ug/l	02/03/2017	Y Cov	GEO19
Dibenz (a,h) anthracene	<0.02	ug/l	02/03/2017	Y Cov	GEO19
Fluoranthene	0.099	ug/l	02/03/2017	Y Cov	GEO19
Fluorene	0.187	ug/l	02/03/2017	Y Cov	GEO19
Indeno (1,2,3) cd pyrene	<0.02	ug/l	02/03/2017	Y Cov	GEO19
Naphthalene	0.248	ug/l	02/03/2017	Y Cov	GEO19
Phenanthrene	0.416	ug/l	02/03/2017	Y Cov	GEO19
Pyrene	0.066	ug/l	02/03/2017	Y Cov	GEO19
PAH, Total	1.25	ug/l	02/03/2017	N Cov	GEO19
VOC	Y	ug/l	01/03/2017	N Cov	GEO32
Dichlorodifluoromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Chloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Chloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Bromomethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Trichlorofluoromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1-Dichloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Dichloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1-Dichloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
cis-1,2-Dichloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
2,2-Dichloropropane	<1.0	ug/l	01/03/2017	N Cov	GEO32
Chloroform	<1.0	ug/l	01/03/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1365869/2017**

Issue **1**

Laboratory Number: **15907274**

Sample **2** of **2**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH77**

Sample Matrix: **Ground Water**

Sample Date/Time: **24 February 2017**

Sample Received: **24 February 2017**

Analysis Complete: **10 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Bromochloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1,1-Trichloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1-Dichloropropene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dichloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Benzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dichloropropane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Trichloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Bromodichloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Dibromomethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
cis-1,3-Dichloropropene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Toluene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
trans-1,3-Dichloropropene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1,2-Trichloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Carbon Tetrachloride	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Vinyl Chloride	<0.5	ug/l	01/03/2017	Y Cov	GEO32
1,3-Dichloropropane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Tetrachloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Dibromochloromethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dibromoethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Chlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1,1,2-Tetrachloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Ethyl Benzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
m&p-Xylene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
o-Xylene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Styrene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Bromoform	<1.0	ug/l	01/03/2017	Y Cov	GEO32
trans-1,2-Dichloroethene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Isopropylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,1,2,2-Tetrachloroethane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2,3-Trichloropropane	<1.0	ug/l	01/03/2017	Y Cov	GEO32
n-Propylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Bromobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
2-Chlorotoluene	<1.0	ug/l	01/03/2017	Y Cov	GEO32

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1365869/2017**

Issue **1**

Laboratory Number: **15907274**

Sample **2** of **2**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH77**

Sample Matrix: **Ground Water**

Sample Date/Time: **24 February 2017**

Sample Received: **24 February 2017**

Analysis Complete: **10 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
1,3,5-Trimethylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
4-Chlorotoluene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
tert-Butylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2,4-Trimethylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
sec-Butylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
p-Isopropyltoluene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,3-Dichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,4-Dichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
n-Butylbenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2-Dibromo-3-chloropropane	<2.0	ug/l	01/03/2017	Y Cov	GEO32
1,2,4-Trichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Hexachlorobutadiene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Naphthalene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
1,2,3-Trichlorobenzene	<1.0	ug/l	01/03/2017	Y Cov	GEO32
MTBE	<1.0	ug/l	01/03/2017	Y Cov	GEO32
Dibromofluoromethane	102.9	%Recovery	01/03/2017	N Cov	GEO32
Toluene-d8	99.9	%Recovery	01/03/2017	N Cov	GEO32
4-Bromofluorobenzene	94.8	%Recovery	01/03/2017	N Cov	GEO32
SVOC	Y	ug/l	02/03/2017	N Cov	GEO40
Phenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Bis(2-chloroethyl)ether	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Chlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
1,3-Dichlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
1,4-Dichlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Methylphenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
3&4-Methylphenol	<1.0	ug/l	02/03/2017	N Cov	GEO40
Dibenzofuran	<1.0	ug/l	02/03/2017	N Cov	GEO40
1,2-Dichlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Bis(2-chloroisopropyl)ether	<1.0	ug/l	02/03/2017	Y Cov	GEO40
n-Nitrosodi-n-propylamine	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Hexachloroethane	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Nitrobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1365869/2017**  
 Laboratory Number: **15907274**

Issue **1**  
 Sample **2** of **2**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**  
 Sample Point Description:  
 Sample Description: **BH77**  
 Sample Matrix: **Ground Water**  
 Sample Date/Time: **24 February 2017**  
 Sample Received: **24 February 2017**  
 Analysis Complete: **10 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Isophorone	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4-Dimethylphenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Nitrophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Bis(2-chloroethoxy)methane	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4-Dichlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
1,2,4-Trichlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Naphthalene	<2.0	ug/l	02/03/2017	Y Cov	GEO40
Hexachlorobutadiene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
4-Chloro-3-methylphenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Methylnaphthalene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4,6-Trichlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4,5-Trichlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Chloronaphthalene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Dimethylphthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,6-Dinitrotoluene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Acenaphthylene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Acenaphthene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4-Dinitrotoluene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Diethylphthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
4-Nitrophenol	<5.0	ug/l	02/03/2017	Y Cov	GEO40
4-Chlorophenyl phenyl ether	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Fluorene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Diphenylamine	<1.0	ug/l	02/03/2017	N Cov	GEO40
4-Bromophenyl Phenyl Ether	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Hexachlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Pentachlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Phenanthrene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Anthracene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
di-n-Butylphthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Fluoranthene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Pyrene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzyl Butyl Phthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(a)anthracene	<1.0	ug/l	02/03/2017	Y Cov	GEO40

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
 Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575



# Certificate of Analysis



Report Number: **COV/1365869/2017**

Issue **1**

Laboratory Number: **15907274**

Sample **2** of **2**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH77**

Sample Matrix: **Ground Water**

Sample Date/Time: **24 February 2017**

Sample Received: **24 February 2017**

Analysis Complete: **10 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Chrysene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Bis(2-ethylhexyl)phthalate	<5.0	ug/l	02/03/2017	Y Cov	GEO40
Di-n-octylphthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(b)fluoranthene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(k)fluoranthene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(a)pyrene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Indeno(1,2,3-c,d)pyrene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Dibenz(a,h)anthracene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(g,h,i)perylene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Fluorophenol	94.3	%Recovery	02/03/2017	N Cov	GEO40
Phenol-d6	80.6	%Recovery	02/03/2017	N Cov	GEO40
Nitrobenzene-d5	85.3	%Recovery	02/03/2017	N Cov	GEO40
2-Fluorobiphenyl	82.3	%Recovery	02/03/2017	N Cov	GEO40
2,4,6-Tribromophenol	86.2	%Recovery	02/03/2017	N Cov	GEO40
Terphenyl-d14	79.9	%Recovery	02/03/2017	N Cov	GEO40
Nitrite as NO2	<0.28	mg/l	27/02/2017	N Cov	WAS036
Fluoroxypyr	<0.05	ug/l	10/03/2017	Y Cov	GEO20

**Analyst Comments for 15907274:**

This sample has been analysed for pH, BOD + ATU (5 day), Sodium Total as Na, Boron, Total as B, Barium, Total as Ba outside recommended stability times. It is therefore possible that the results provided may be compromised. . {\*/}The ferrous iron analysis was not carried out on site and there is the possibility of change in ferrous-ferric ratio between sampling and analysis.{\*/}  
 Reporting limits raised for PAH due to nature of sample matrix.  
 GEO40 SVOC Waters: See attached SVOC-TIC Report.Reporting limit raised for Acid Herbs due to interference.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:	Name: <b>A. Zunzunegui</b>	Date: <b>10 March 2017</b>
	Title: <b>Organic Team Leader</b>	

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
 Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

ALS Environmental Ltd  
Torrington Avenue  
Coventry  
CV4 9GU

T: +44 (0)24 7642 1213  
F: +44 (0)24 7685 6575  
www.alsenvironmental.co.uk

**Mr Downes**  
**SKM Ireland c/o Jacobs**  
**Engineering Ireland**  
**Jacobs**  
**Merrion House**  
**Merrion Road**  
**Dublin 4 South Dublin**

16 March 2017

**Test Report: COV/1366439/2017**

Dear Mr Downes

Analysis of your sample(s) submitted on 27 February 2017 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed: 

Name: P. Johal

Title: Microbiology Manager



# Report Summary



1314  
0897  
4409



**Mr Ultan Downes**  
**SKM Ireland c/o Jacobs**  
**Engineering Ireland**  
**Jacobs**  
**Merrion House**  
**Merrion Road**  
**Dublin 4**  
**South Dublin**

Date of Issue: **16 March 2017**

Report Number: **COV/1366439/2017**

Issue **1**

This issue replaces  
all previous issues

**Job Description:** Kerdiffstown Landfill

**Job Location:** 32EW5604 KLRP

Number of Samples  
included in this report **3**

Job Received: **27 February 2017**

Number of Test Results  
included in this report **840**

Analysis Commenced: **28 February 2017**

Signed:

Name: **P. Johal**

Date: **16 March 2017**

Title: **Microbiology Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.

Information on the methods of analysis and performance characteristics are available on request.

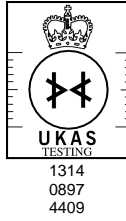
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

(c) ALS Environmental Ltd 2017. All rights reserved. We, ALS Environmental Ltd, are the owner of all copyright in this report. You must not copy, reproduce, amend or adapt this report, its contents or any format in which it is delivered without our prior written agreement. If you copy, reproduce, amend, or adapt this report in any way without our agreement you will be liable for any damage or loss to us. In the event of a dispute the copy of the report held by us shall be the reference copy.

# Certificate of Analysis



Report Number: **COV/1366439/2017**

Issue **1**

Laboratory Number: **15911231**

Sample **1** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM03**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **27 February 2017**

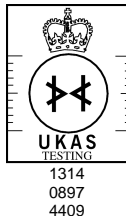
Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron, Total	<0.5	mg/l	01/03/2017	N Cov	WAS043
Nitrate as NO3	<3.1	mg/l	01/03/2017	N Cov	WAS036
Antimony Ultra Low Total as Sb	<0.0012	mg/l	09/03/2017	Y Cov	WAS060
Selenium Ultra Low Total as Se	0.0009	mg/l	09/03/2017	Y Cov	WAS060
Arsenic, Ultra Low Total as As	0.013	mg/l	09/03/2017	Y Cov	WAS060
Fluoride	<0.100	mg/l	06/03/2017	Y S	SUBCON
Aluminium, Total as Al	1.0	mg/l	07/03/2017	Y Cov	WAS049
Barium, Total as Ba	0.081	mg/l	07/03/2017	Y Cov	WAS049
Beryllium, Total as Be	<0.0021	mg/l	07/03/2017	Y Cov	WAS049
Boron, Total as B	0.32	mg/l	07/03/2017	Y Cov	WAS049
Cadmium , Total as Cd	<0.0006	mg/l	07/03/2017	Y Cov	WAS049
Calcium , Total as Ca	198	mg/l	07/03/2017	Y Cov	WAS049
Chromium , Total as Cr	0.004	mg/l	07/03/2017	Y Cov	WAS049
Copper, Ultra-low Total as Cu	10	ug/l	09/03/2017	Y Cov	WAS060
Iron , Total as Fe	6.88	mg/l	07/03/2017	Y Cov	WAS049
Ferrous Iron	<0.5	mg/l	01/03/2017	N Cov	WAS043
Ferric Iron	<0.5	mg/l	01/03/2017	N Cov	WAS043
Lead , Total as Pb	<0.006	mg/l	07/03/2017	Y Cov	WAS049
Magnesium, Total as Mg	16.6	mg/l	07/03/2017	Y Cov	WAS049
Manganese , Total as Mn	0.790	mg/l	07/03/2017	Y Cov	WAS049
Mercury, Total as Hg	<0.00010	mg/l	02/03/2017	N Cov	WAS013
Nickel, Total as Ni	0.011	mg/l	07/03/2017	Y Cov	WAS049
Potassium , Total as K	2.36	mg/l	07/03/2017	Y Cov	WAS049
Sodium , Total as Na	40.2	mg/l	07/03/2017	Y Cov	WAS049
Vanadium , Total as V	0.005	mg/l	07/03/2017	Y Cov	WAS049
Zinc, Total as Zn	0.04	mg/l	07/03/2017	Y Cov	WAS049
pH	7.3	pH units	01/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	956	uS/cm	01/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	506	mg/l	10/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.67	mg/l	28/02/2017	Y Cov	WAS067
Chloride as Cl	38.4	mg/l	01/03/2017	N Cov	WAS036
Nitrite as N	<0.08	mg/l	01/03/2017	N Cov	WAS036

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366439/2017**

Issue **1**

Laboratory Number: **15911231**

Sample **1** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM03**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **27 February 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Phosphates , Total as P	0.68	mg/l	07/03/2017	Y Cov	WAS049
Sulphate as SO4	69.7	mg/l	01/03/2017	N Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	05/03/2017	Y Cov	WAS001
COD (Total)	40.0	mg/l	02/03/2017	Y Cov	WAS040
TOC (Filtered)	4.6	mg/l	01/03/2017	Y Cov	WAS005
Cyanide, Free as CN	<0.008	mg/l	06/03/2017	N Cov	WAS018
Cyanide, Total as CN	<0.009	mg/l	04/03/2017	N Cov	WAS018
Sulphide as S	<0.020	mg/l	08/03/2017	N Cov	WAS033
Formaldehyde	<0.029	mg/l	28/02/2017	N Cov	WAS030
1,2,3-Trichlorobenzene	<10	ng/l	06/03/2017	Y Cov	GEO47
1,2,4-Trichlorobenzene	<10	ng/l	06/03/2017	Y Cov	GEO47
1,3,5-Trichlorobenzene	<10	ng/l	06/03/2017	N Cov	GEO47
SVOC with TICs	Y	ug/l	02/03/2017	N Cov	GEO40
Aldrin	<4	ng/l	06/03/2017	Y Cov	GEO47
alpha-Endosulphan	<4	ng/l	06/03/2017	Y Cov	GEO47
alpha-HCH	<3	ng/l	06/03/2017	Y Cov	GEO47
beta-Endosulphan	<7	ng/l	16/03/2017	Y Cov	GEO47
beta-HCH	<3	ng/l	06/03/2017	Y Cov	GEO47
alpha-Chlordane	<3	ng/l	06/03/2017	Y Cov	GEO47
Dichlobenil	<2	ng/l	06/03/2017	Y Cov	GEO47
Dieldrin	<4	ng/l	06/03/2017	Y Cov	GEO47
Endrin	<4	ng/l	06/03/2017	Y Cov	GEO47
gamma-HCH	<2.7	ng/l	06/03/2017	Y Cov	GEO47
Heptachlor Epoxide	<4	ng/l	06/03/2017	Y Cov	GEO47
Hexachlorobenzene	<5	ng/l	16/03/2017	Y Cov	GEO47
Hexachlorobutadiene	<7	ng/l	06/03/2017	N Cov	GEO47
Isodrin	<4	ng/l	06/03/2017	Y Cov	GEO47
o,p - DDE	<2	ng/l	06/03/2017	Y Cov	GEO47
p,p - DDE	<2	ng/l	06/03/2017	Y Cov	GEO47
o,p - TDE	<2	ng/l	06/03/2017	Y Cov	GEO47
p,p - TDE	<2	ng/l	06/03/2017	Y Cov	GEO47
o,p - DDT	<2	ng/l	06/03/2017	Y Cov	GEO47
p,p - DDT	<4	ng/l	06/03/2017	Y Cov	GEO47

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366439/2017**

Issue **1**

Laboratory Number: **15911231**

Sample **1** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM03**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **27 February 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Tecnazene	<10	ng/l	06/03/2017	Y Cov	GEO47
gamma-Chlordane	<4	ng/l	06/03/2017	Y Cov	GEO47
Triallate	<10	ng/l	06/03/2017	Y Cov	GEO47
Trifluralin	<30	ng/l	06/03/2017	Y Cov	GEO47
Azinphos-ethyl	<0.004	ug/l	06/03/2017	Y Cov	GEO47
Azinphos-methyl	<0.002	ug/l	06/03/2017	Y Cov	GEO47
Carbophenothion	<0.003	ug/l	06/03/2017	Y Cov	GEO47
Chlorfenvinphos	<0.002	ug/l	06/03/2017	Y Cov	GEO47
Chlorpyrifos	<0.002	ug/l	06/03/2017	Y Cov	GEO47
Diazinon	<0.003	ug/l	06/03/2017	Y Cov	GEO47
Dichlorvos	<0.002	ug/l	06/03/2017	Y Cov	GEO47
Dimethoate	<0.020	ug/l	06/03/2017	Y Cov	GEO47
Fenitrothion	<0.002	ug/l	06/03/2017	Y Cov	GEO47
Fenthion	<0.002	ug/l	06/03/2017	Y Cov	GEO47
Malathion	<0.004	ug/l	06/03/2017	Y Cov	GEO47
Mevinphos	<0.020	ug/l	06/03/2017	Y Cov	GEO47
Parathion-ethyl	<0.003	ug/l	06/03/2017	Y Cov	GEO47
Parathion-methyl	<0.003	ug/l	06/03/2017	Y Cov	GEO47
Phorate	<0.004	ug/l	06/03/2017	Y Cov	GEO47
Phosalone	<0.004	ug/l	06/03/2017	Y Cov	GEO47
Pirimiphos-methyl	<0.005	ug/l	06/03/2017	Y Cov	GEO47
Propetamphos	<0.003	ug/l	06/03/2017	Y Cov	GEO47
Triazophos	<0.002	ug/l	06/03/2017	Y Cov	GEO47
2,3,6 - TBA	<0.05	ug/l	10/03/2017	Y Cov	GEO20
2,4 - D	<0.05	ug/l	10/03/2017	Y Cov	GEO20
2,4 - DB	<0.05	ug/l	10/03/2017	Y Cov	GEO20
2,4,5 - T	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Benazolin	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Bentazone	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Chlopyralid	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Bromoxynil	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Dicamba	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Dichlorprop	<0.05	ug/l	10/03/2017	Y Cov	GEO20

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366439/2017**

Issue **1**

Laboratory Number: **15911231**

Sample **1** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM03**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **27 February 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Fenoprop	<0.05	ug/l	10/03/2017	Y Cov	GEO20
loxynil	<0.05	ug/l	10/03/2017	Y Cov	GEO20
MCPA	<0.05	ug/l	10/03/2017	Y Cov	GEO20
MCPB	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Triclopyr	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Mecoprop	0.16	ug/l	10/03/2017	Y Cov	GEO20
Catechol	<0.10	ug/l	28/02/2017	N Cov	338
Cresol, Total	<0.10	ug/l	28/02/2017	N Cov	338
Xylenol, Total	<0.10	ug/l	28/02/2017	N Cov	338
Naphthol	<0.10	ug/l	28/02/2017	N Cov	338
Phenol	8.6	ug/l	28/02/2017	N Cov	338
Trimethylphenol, Total	<0.10	ug/l	28/02/2017	N Cov	338
Phenols, Total	8.6	ug/l	28/02/2017	N Cov	338
Aliphatic VPH >C5 - C6	<10	ug/l	08/03/2017	Y Cov	GEO45
Aliphatic VPH >C6 - C8	<10	ug/l	08/03/2017	Y Cov	GEO45
Aliphatic VPH >C8 - 10	<10	ug/l	08/03/2017	Y Cov	GEO45
Aliphatic VPH >C5 - C10	<10	ug/l	08/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C7	<10	ug/l	08/03/2017	Y Cov	GEO45
Aromatic VPH >C7 - C8	<10	ug/l	08/03/2017	Y Cov	GEO45
Aromatic VPH >C8 - C10	<10	ug/l	08/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C10	<10	ug/l	08/03/2017	Y Cov	GEO45
VPH >C5 - C10	<10	ug/l	08/03/2017	Y Cov	GEO45
Aliphatic EPH >C10 - C12	<10	ug/l	03/03/2017	N Cov	GEO46
Aliphatic EPH >C12 - C16	<10	ug/l	03/03/2017	N Cov	GEO46
Aliphatic EPH >C16 - C35	<10	ug/l	03/03/2017	N Cov	GEO46
Aliphatic EPH >C35 - C44	<10	ug/l	03/03/2017	N Cov	GEO46
Aliphatic EPH >C10 - C44	<10	ug/l	03/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C12	<10	ug/l	03/03/2017	N Cov	GEO46
Aromatic EPH >C12 - C16	<10	ug/l	03/03/2017	N Cov	GEO46
Aromatic EPH >C16 - C21	<10	ug/l	03/03/2017	N Cov	GEO46
Aromatic EPH >C21 - C35	<10	ug/l	03/03/2017	N Cov	GEO46
Aromatic EPH >C35 - C44	<10	ug/l	03/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C44	<10	ug/l	03/03/2017	N Cov	GEO46

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366439/2017**

Issue **1**

Laboratory Number: **15911231**

Sample **1** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM03**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **27 February 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
EPH >C10 - C44	<10	ug/l	03/03/2017	N Cov	GEO46
Aliphatic VPH/EPH >C5 - C44	<10	ug/l	08/03/2017	N Cov	GEO45/GEO4
Aromatic VPH/EPH >C5 - C44	<10	ug/l	08/03/2017	N Cov	GEO45/GEO4
VPH/EPH >C5 - C44	<10	ug/l	08/03/2017	N Cov	GEO45/GEO4
Acenaphthene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Acenaphthylene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Anthracene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Benzo (a) anthracene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Benzo (g,h,i) perylene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Benzo (a) pyrene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Benzo (b) fluoranthene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Benzo (k) fluoranthene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Chrysene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Dibenz (a,h) anthracene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Fluoranthene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Fluorene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Indeno (1,2,3) cd pyrene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Naphthalene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Phenanthrene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Pyrene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
PAH, Total	<0.01	ug/l	02/03/2017	N Cov	GEO19
VOC	Y	ug/l	08/03/2017	N Cov	GEO32
Dichlorodifluoromethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Chloromethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Chloroethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Bromomethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Trichlorofluoromethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,1-Dichloroethene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Dichloromethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,1-Dichloroethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
cis-1,2-Dichloroethene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
2,2-Dichloropropane	<1.0	ug/l	08/03/2017	N Cov	GEO32
Chloroform	<1.0	ug/l	08/03/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575



# Certificate of Analysis



Report Number: **COV/1366439/2017**

Issue **1**

Laboratory Number: **15911231**

Sample **1** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM03**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **27 February 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Bromochloromethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,1,1-Trichloroethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,1-Dichloropropene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,2-Dichloroethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Benzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,2-Dichloropropane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Trichloroethene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Bromodichloromethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Dibromomethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
cis-1,3-Dichloropropene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Toluene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
trans-1,3-Dichloropropene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,1,2-Trichloroethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Carbon Tetrachloride	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Vinyl Chloride	<0.5	ug/l	08/03/2017	Y Cov	GEO32
1,3-Dichloropropane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Tetrachloroethene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Dibromochloromethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,2-Dibromoethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Chlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,1,1,2-Tetrachloroethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Ethyl Benzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
m&p-Xylene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
o-Xylene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Styrene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Bromoform	<1.0	ug/l	08/03/2017	Y Cov	GEO32
trans-1,2-Dichloroethene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Isopropylbenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,1,2,2-Tetrachloroethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,2,3-Trichloropropane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
n-Propylbenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Bromobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
2-Chlorotoluene	<1.0	ug/l	08/03/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366439/2017**

Issue **1**

Laboratory Number: **15911231**

Sample **1** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM03**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **27 February 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
1,3,5-Trimethylbenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
4-Chlorotoluene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
tert-Butylbenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,2,4-Trimethylbenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
sec-Butylbenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
p-Isopropyltoluene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,3-Dichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,4-Dichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
n-Butylbenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,2-Dichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,2-Dibromo-3-chloropropane	<2.0	ug/l	08/03/2017	Y Cov	GEO32
1,2,4-Trichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Hexachlorobutadiene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Naphthalene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,2,3-Trichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
MTBE	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Dibromofluoromethane	102.0	%Recovery	08/03/2017	N Cov	GEO32
Toluene-d8	99.8	%Recovery	08/03/2017	N Cov	GEO32
4-Bromofluorobenzene	96.2	%Recovery	08/03/2017	N Cov	GEO32
SVOC	Y	ug/l	02/03/2017	N Cov	GEO40
Phenol	3.3	ug/l	02/03/2017	Y Cov	GEO40
Bis(2-chloroethyl)ether	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Chlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
1,3-Dichlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
1,4-Dichlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Methylphenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
3&4-Methylphenol	<1.0	ug/l	02/03/2017	N Cov	GEO40
Dibenzofuran	<1.0	ug/l	02/03/2017	N Cov	GEO40
1,2-Dichlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Bis(2-chloroisopropyl)ether	<1.0	ug/l	02/03/2017	Y Cov	GEO40
n-Nitrosodi-n-propylamine	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Hexachloroethane	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Nitrobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366439/2017**

Issue **1**

Laboratory Number: **15911231**

Sample **1** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM03**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **27 February 2017**

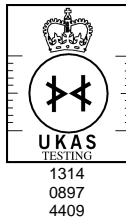
Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Isophorone	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4-Dimethylphenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Nitrophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Bis(2-chloroethoxy)methane	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4-Dichlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
1,2,4-Trichlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Naphthalene	<2.0	ug/l	02/03/2017	Y Cov	GEO40
Hexachlorobutadiene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
4-Chloro-3-methylphenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Methylnaphthalene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4,6-Trichlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4,5-Trichlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Chloronaphthalene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Dimethylphthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,6-Dinitrotoluene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Acenaphthylene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Acenaphthene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4-Dinitrotoluene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Diethylphthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
4-Nitrophenol	<5.0	ug/l	02/03/2017	Y Cov	GEO40
4-Chlorophenyl phenyl ether	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Fluorene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Diphenylamine	<1.0	ug/l	02/03/2017	N Cov	GEO40
4-Bromophenyl Phenyl Ether	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Hexachlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Pentachlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Phenanthrene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Anthracene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
di-n-Butylphthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Fluoranthene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Pyrene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzyl Butyl Phthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(a)anthracene	<1.0	ug/l	02/03/2017	Y Cov	GEO40

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366439/2017**

Issue **1**

Laboratory Number: **15911231**

Sample **1** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM03**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **27 February 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Chrysene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Bis(2-ethylhexyl)phthalate	<5.0	ug/l	02/03/2017	Y Cov	GEO40
Di-n-octylphthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(b)fluoranthene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(k)fluoranthene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(a)pyrene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Indeno(1,2,3-c,d)pyrene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Dibenz(a,h)anthracene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(g,h,i)perylene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Fluorophenol	88.2	%Recovery	02/03/2017	N Cov	GEO40
Phenol-d6	60.8	%Recovery	02/03/2017	N Cov	GEO40
Nitrobenzene-d5	82.2	%Recovery	02/03/2017	N Cov	GEO40
2-Fluorobiphenyl	81.1	%Recovery	02/03/2017	N Cov	GEO40
2,4,6-Tribromophenol	78.7	%Recovery	02/03/2017	N Cov	GEO40
Terphenyl-d14	91.8	%Recovery	02/03/2017	N Cov	GEO40
Nitrite as NO2	<0.28	mg/l	03/03/2017	N Cov	WAS036
Fluoroxypyr	<0.05	ug/l	10/03/2017	Y Cov	GEO20

### Analyst Comments for 15911231:

This sample has been analysed for Pesticides method GEO47 outside recommended stability times. It is therefore possible that the results provided may be compromised. {^\*}The ferrous iron analysis was not carried out on site and there is the possibility of change in ferrous-ferric ratio between sampling and analysis.{^\*}GEO40 SVOC Waters: See attached SVOC-TIC Report.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **P. Johal**

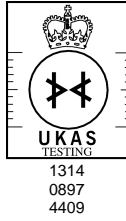
Date: **16 March 2017**

Title: **Microbiology Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366439/2017**

Issue **1**

Laboratory Number: **15911232**

Sample **2** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM04**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **27 February 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron, Total	2.7	mg/l	01/03/2017	N Cov	WAS043
Nitrate as NO3	<3.1	mg/l	01/03/2017	N Cov	WAS036
Antimony Ultra Low Total as Sb	<0.0012	mg/l	09/03/2017	Y Cov	WAS060
Selenium Ultra Low Total as Se	0.0085	mg/l	09/03/2017	Y Cov	WAS060
Arsenic, Ultra Low Total as As	0.019	mg/l	09/03/2017	Y Cov	WAS060
Fluoride	0.201	mg/l	03/03/2017	Y S	SUBCON
Aluminium, Total as Al	2.3	mg/l	07/03/2017	Y Cov	WAS049
Barium, Total as Ba	0.189	mg/l	07/03/2017	Y Cov	WAS049
Beryllium, Total as Be	<0.0021	mg/l	07/03/2017	Y Cov	WAS049
Boron, Total as B	<0.23	mg/l	07/03/2017	Y Cov	WAS049
Cadmium , Total as Cd	0.0006	mg/l	07/03/2017	Y Cov	WAS049
Calcium , Total as Ca	177	mg/l	07/03/2017	Y Cov	WAS049
Chromium , Total as Cr	0.008	mg/l	07/03/2017	Y Cov	WAS049
Copper, Ultra-low Total as Cu	16	ug/l	09/03/2017	Y Cov	WAS060
Iron , Total as Fe	22.9	mg/l	07/03/2017	Y Cov	WAS049
Ferrous Iron	2.6	mg/l	01/03/2017	N Cov	WAS043
Ferric Iron	<0.5	mg/l	01/03/2017	N Cov	WAS043
Lead , Total as Pb	0.023	mg/l	07/03/2017	Y Cov	WAS049
Magnesium, Total as Mg	12.6	mg/l	07/03/2017	Y Cov	WAS049
Manganese , Total as Mn	1.80	mg/l	07/03/2017	Y Cov	WAS049
Mercury, Total as Hg	<0.00010	mg/l	02/03/2017	N Cov	WAS013
Nickel, Total as Ni	0.015	mg/l	07/03/2017	Y Cov	WAS049
Potassium , Total as K	1.62	mg/l	07/03/2017	Y Cov	WAS049
Sodium , Total as Na	12.6	mg/l	07/03/2017	Y Cov	WAS049
Vanadium , Total as V	0.011	mg/l	07/03/2017	Y Cov	WAS049
Zinc, Total as Zn	0.07	mg/l	07/03/2017	Y Cov	WAS049
pH	7.4	pH units	01/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	633	uS/cm	01/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	358	mg/l	01/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	1.45	mg/l	28/02/2017	Y Cov	WAS067
Chloride as Cl	22.3	mg/l	01/03/2017	N Cov	WAS036
Nitrite as N	<0.08	mg/l	01/03/2017	N Cov	WAS036

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366439/2017**

Issue **1**

Laboratory Number: **15911232**

Sample **2** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM04**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **27 February 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Phosphates , Total as P	1.8	mg/l	07/03/2017	Y Cov	WAS049
Sulphate as SO4	22.3	mg/l	01/03/2017	N Cov	WAS036
BOD + ATU (5 day)	1	mg/l	05/03/2017	Y Cov	WAS001
COD (Total)	86.0	mg/l	02/03/2017	Y Cov	WAS040
TOC (Filtered)	1.9	mg/l	01/03/2017	Y Cov	WAS005
Cyanide, Free as CN	<0.008	mg/l	06/03/2017	N Cov	WAS018
Cyanide, Total as CN	<0.009	mg/l	06/03/2017	N Cov	WAS018
Sulphide as S	<0.020	mg/l	08/03/2017	N Cov	WAS033
Formaldehyde	0.110	mg/l	28/02/2017	N Cov	WAS030
1,2,3-Trichlorobenzene	<10	ng/l	06/03/2017	Y Cov	GEO47
1,2,4-Trichlorobenzene	<10	ng/l	06/03/2017	Y Cov	GEO47
1,3,5-Trichlorobenzene	<10	ng/l	06/03/2017	N Cov	GEO47
SVOC with TICs	Y	ug/l	02/03/2017	N Cov	GEO40
Aldrin	<4	ng/l	06/03/2017	Y Cov	GEO47
alpha-Endosulphan	<4	ng/l	06/03/2017	Y Cov	GEO47
alpha-HCH	<3	ng/l	06/03/2017	Y Cov	GEO47
beta-Endosulphan	<7	ng/l	16/03/2017	Y Cov	GEO47
beta-HCH	<3	ng/l	06/03/2017	Y Cov	GEO47
alpha-Chlordane	<3	ng/l	06/03/2017	Y Cov	GEO47
Dichlobenil	<2	ng/l	06/03/2017	Y Cov	GEO47
Dieldrin	<4	ng/l	06/03/2017	Y Cov	GEO47
Endrin	<4	ng/l	06/03/2017	Y Cov	GEO47
gamma-HCH	<2.7	ng/l	06/03/2017	Y Cov	GEO47
Heptachlor Epoxide	<4	ng/l	06/03/2017	Y Cov	GEO47
Hexachlorobenzene	<5	ng/l	16/03/2017	Y Cov	GEO47
Hexachlorobutadiene	<7	ng/l	06/03/2017	N Cov	GEO47
Isodrin	<4	ng/l	06/03/2017	Y Cov	GEO47
o,p - DDE	<2	ng/l	06/03/2017	Y Cov	GEO47
p,p - DDE	<2	ng/l	06/03/2017	Y Cov	GEO47
o,p - TDE	<2	ng/l	06/03/2017	Y Cov	GEO47
p,p - TDE	<2	ng/l	06/03/2017	Y Cov	GEO47
o,p - DDT	<2	ng/l	06/03/2017	Y Cov	GEO47
p,p - DDT	<4	ng/l	06/03/2017	Y Cov	GEO47

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366439/2017**

Issue **1**

Laboratory Number: **15911232**

Sample **2** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM04**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **27 February 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Tecnazene	<10	ng/l	06/03/2017	Y Cov	GEO47
gamma-Chlordane	<4	ng/l	06/03/2017	Y Cov	GEO47
Triallate	<10	ng/l	06/03/2017	Y Cov	GEO47
Trifluralin	<30	ng/l	06/03/2017	Y Cov	GEO47
Azinphos-ethyl	<0.004	ug/l	06/03/2017	Y Cov	GEO47
Azinphos-methyl	<0.002	ug/l	06/03/2017	Y Cov	GEO47
Carbophenothion	<0.003	ug/l	06/03/2017	Y Cov	GEO47
Chlorfenvinphos	<0.002	ug/l	06/03/2017	Y Cov	GEO47
Chlorpyrifos	<0.002	ug/l	06/03/2017	Y Cov	GEO47
Diazinon	<0.003	ug/l	06/03/2017	Y Cov	GEO47
Dichlorvos	<0.002	ug/l	06/03/2017	Y Cov	GEO47
Dimethoate	<0.020	ug/l	06/03/2017	Y Cov	GEO47
Fenitrothion	<0.002	ug/l	06/03/2017	Y Cov	GEO47
Fenthion	<0.002	ug/l	06/03/2017	Y Cov	GEO47
Malathion	<0.004	ug/l	06/03/2017	Y Cov	GEO47
Mevinphos	<0.020	ug/l	06/03/2017	Y Cov	GEO47
Parathion-ethyl	<0.003	ug/l	06/03/2017	Y Cov	GEO47
Parathion-methyl	<0.003	ug/l	06/03/2017	Y Cov	GEO47
Phorate	<0.004	ug/l	06/03/2017	Y Cov	GEO47
Phosalone	<0.004	ug/l	06/03/2017	Y Cov	GEO47
Pirimiphos-methyl	<0.005	ug/l	06/03/2017	Y Cov	GEO47
Propetamphos	<0.003	ug/l	06/03/2017	Y Cov	GEO47
Triazophos	<0.002	ug/l	06/03/2017	Y Cov	GEO47
2,3,6 - TBA	<0.05	ug/l	10/03/2017	Y Cov	GEO20
2,4 - D	<0.05	ug/l	10/03/2017	Y Cov	GEO20
2,4 - DB	<0.05	ug/l	10/03/2017	Y Cov	GEO20
2,4,5 - T	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Benazolin	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Bentazone	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Chlopyralid	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Bromoxynil	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Dicamba	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Dichlorprop	<0.05	ug/l	10/03/2017	Y Cov	GEO20

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366439/2017**

Issue **1**

Laboratory Number: **15911232**

Sample **2** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM04**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **27 February 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Fenoprop	<0.05	ug/l	10/03/2017	Y Cov	GEO20
loxynil	<0.05	ug/l	10/03/2017	Y Cov	GEO20
MCPA	<0.05	ug/l	10/03/2017	Y Cov	GEO20
MCPB	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Triclopyr	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Mecoprop	0.08	ug/l	10/03/2017	Y Cov	GEO20
Catechol	<0.10	ug/l	28/02/2017	N Cov	338
Cresol, Total	<0.10	ug/l	28/02/2017	N Cov	338
Xylenol, Total	<0.10	ug/l	28/02/2017	N Cov	338
Naphthol	<0.10	ug/l	28/02/2017	N Cov	338
Phenol	<0.10	ug/l	28/02/2017	N Cov	338
Trimethylphenol, Total	<0.10	ug/l	28/02/2017	N Cov	338
Phenols, Total	<0.50	ug/l	28/02/2017	N Cov	338
Aliphatic VPH >C5 - C6	<10	ug/l	09/03/2017	Y Cov	GEO45
Aliphatic VPH >C6 - C8	<10	ug/l	09/03/2017	Y Cov	GEO45
Aliphatic VPH >C8 - 10	<10	ug/l	09/03/2017	Y Cov	GEO45
Aliphatic VPH >C5 - C10	<10	ug/l	09/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C7	<10	ug/l	09/03/2017	Y Cov	GEO45
Aromatic VPH >C7 - C8	<10	ug/l	09/03/2017	Y Cov	GEO45
Aromatic VPH >C8 - C10	<10	ug/l	09/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C10	<10	ug/l	09/03/2017	Y Cov	GEO45
VPH >C5 - C10	<10	ug/l	09/03/2017	Y Cov	GEO45
Aliphatic EPH >C10 - C12	<10	ug/l	03/03/2017	N Cov	GEO46
Aliphatic EPH >C12 - C16	<10	ug/l	03/03/2017	N Cov	GEO46
Aliphatic EPH >C16 - C35	<10	ug/l	03/03/2017	N Cov	GEO46
Aliphatic EPH >C35 - C44	<10	ug/l	03/03/2017	N Cov	GEO46
Aliphatic EPH >C10 - C44	<10	ug/l	03/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C12	<10	ug/l	03/03/2017	N Cov	GEO46
Aromatic EPH >C12 - C16	<10	ug/l	03/03/2017	N Cov	GEO46
Aromatic EPH >C16 - C21	<10	ug/l	03/03/2017	N Cov	GEO46
Aromatic EPH >C21 - C35	<10	ug/l	03/03/2017	N Cov	GEO46
Aromatic EPH >C35 - C44	<10	ug/l	03/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C44	<10	ug/l	03/03/2017	N Cov	GEO46

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575



# Certificate of Analysis



Report Number: **COV/1366439/2017**

Issue **1**

Laboratory Number: **15911232**

Sample **2** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM04**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **27 February 2017**

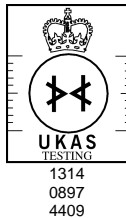
Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
EPH >C10 - C44	<10	ug/l	03/03/2017	N Cov	GEO46
Aliphatic VPH/EPH >C5 - C44	<10	ug/l	09/03/2017	N Cov	GEO45/GEO4
Aromatic VPH/EPH >C5 - C44	<10	ug/l	09/03/2017	N Cov	GEO45/GEO4
VPH/EPH >C5 - C44	<10	ug/l	09/03/2017	N Cov	GEO45/GEO4
Acenaphthene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Acenaphthylene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Anthracene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Benzo (a) anthracene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Benzo (g,h,i) perylene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Benzo (a) pyrene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Benzo (b) fluoranthene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Benzo (k) fluoranthene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Chrysene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Dibenz (a,h) anthracene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Fluoranthene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Fluorene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Indeno (1,2,3) cd pyrene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Naphthalene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Phenanthrene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
Pyrene	<0.01	ug/l	02/03/2017	Y Cov	GEO19
PAH, Total	<0.01	ug/l	02/03/2017	N Cov	GEO19
VOC	Y	ug/l	08/03/2017	N Cov	GEO32
Dichlorodifluoromethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Chloromethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Chloroethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Bromomethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Trichlorofluoromethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,1-Dichloroethene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Dichloromethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,1-Dichloroethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
cis-1,2-Dichloroethene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
2,2-Dichloropropane	<1.0	ug/l	08/03/2017	N Cov	GEO32
Chloroform	<1.0	ug/l	08/03/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366439/2017**

Issue **1**

Laboratory Number: **15911232**

Sample **2** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM04**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **27 February 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Bromochloromethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,1,1-Trichloroethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,1-Dichloropropene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,2-Dichloroethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Benzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,2-Dichloropropane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Trichloroethene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Bromodichloromethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Dibromomethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
cis-1,3-Dichloropropene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Toluene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
trans-1,3-Dichloropropene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,1,2-Trichloroethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Carbon Tetrachloride	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Vinyl Chloride	<0.5	ug/l	08/03/2017	Y Cov	GEO32
1,3-Dichloropropane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Tetrachloroethene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Dibromochloromethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,2-Dibromoethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Chlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,1,1,2-Tetrachloroethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Ethyl Benzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
m&p-Xylene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
o-Xylene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Styrene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Bromoform	<1.0	ug/l	08/03/2017	Y Cov	GEO32
trans-1,2-Dichloroethene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Isopropylbenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,1,2,2-Tetrachloroethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,2,3-Trichloropropane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
n-Propylbenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Bromobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
2-Chlorotoluene	<1.0	ug/l	08/03/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366439/2017**

Issue **1**

Laboratory Number: **15911232**

Sample **2** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM04**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **27 February 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
1,3,5-Trimethylbenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
4-Chlorotoluene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
tert-Butylbenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,2,4-Trimethylbenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
sec-Butylbenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
p-Isopropyltoluene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,3-Dichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,4-Dichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
n-Butylbenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,2-Dichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,2-Dibromo-3-chloropropane	<2.0	ug/l	08/03/2017	Y Cov	GEO32
1,2,4-Trichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Hexachlorobutadiene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Naphthalene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,2,3-Trichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
MTBE	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Dibromofluoromethane	102.3	%Recovery	08/03/2017	N Cov	GEO32
Toluene-d8	98.7	%Recovery	08/03/2017	N Cov	GEO32
4-Bromofluorobenzene	94.5	%Recovery	08/03/2017	N Cov	GEO32
SVOC	Y	ug/l	02/03/2017	N Cov	GEO40
Phenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Bis(2-chloroethyl)ether	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Chlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
1,3-Dichlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
1,4-Dichlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Methylphenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
3&4-Methylphenol	<1.0	ug/l	02/03/2017	N Cov	GEO40
Dibenzofuran	<1.0	ug/l	02/03/2017	N Cov	GEO40
1,2-Dichlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Bis(2-chloroisopropyl)ether	<1.0	ug/l	02/03/2017	Y Cov	GEO40
n-Nitrosodi-n-propylamine	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Hexachloroethane	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Nitrobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366439/2017**

Issue **1**

Laboratory Number: **15911232**

Sample **2** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM04**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **27 February 2017**

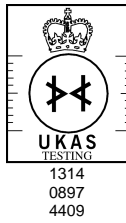
Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Isophorone	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4-Dimethylphenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Nitrophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Bis(2-chloroethoxy)methane	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4-Dichlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
1,2,4-Trichlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Naphthalene	<2.0	ug/l	02/03/2017	Y Cov	GEO40
Hexachlorobutadiene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
4-Chloro-3-methylphenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Methylnaphthalene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4,6-Trichlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4,5-Trichlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Chloronaphthalene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Dimethylphthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,6-Dinitrotoluene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Acenaphthylene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Acenaphthene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4-Dinitrotoluene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Diethylphthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
4-Nitrophenol	<5.0	ug/l	02/03/2017	Y Cov	GEO40
4-Chlorophenyl phenyl ether	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Fluorene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Diphenylamine	<1.0	ug/l	02/03/2017	N Cov	GEO40
4-Bromophenyl Phenyl Ether	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Hexachlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Pentachlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Phenanthrene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Anthracene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
di-n-Butylphthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Fluoranthene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Pyrene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzyl Butyl Phthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(a)anthracene	<1.0	ug/l	02/03/2017	Y Cov	GEO40

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366439/2017**  
 Laboratory Number: **15911232**

Issue **1**  
 Sample **2** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**  
 Sample Point Description:  
 Sample Description: **RM04**  
 Sample Matrix: **Ground Water**  
 Sample Date/Time: **27 February 2017**  
 Sample Received: **27 February 2017**  
 Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Chrysene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Bis(2-ethylhexyl)phthalate	<5.0	ug/l	02/03/2017	Y Cov	GEO40
Di-n-octylphthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(b)fluoranthene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(k)fluoranthene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(a)pyrene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Indeno(1,2,3-c,d)pyrene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Dibenz(a,h)anthracene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(g,h,i)perylene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Fluorophenol	83.7	%Recovery	02/03/2017	N Cov	GEO40
Phenol-d6	61.9	%Recovery	02/03/2017	N Cov	GEO40
Nitrobenzene-d5	78.7	%Recovery	02/03/2017	N Cov	GEO40
2-Fluorobiphenyl	77.6	%Recovery	02/03/2017	N Cov	GEO40
2,4,6-Tribromophenol	77.1	%Recovery	02/03/2017	N Cov	GEO40
Terphenyl-d14	92.5	%Recovery	02/03/2017	N Cov	GEO40
Nitrite as NO2	<0.28	mg/l	03/03/2017	N Cov	WAS036
Fluoroxypyr	<0.05	ug/l	10/03/2017	Y Cov	GEO20

**Analyst Comments for 15911232:**


This sample has been analysed for Pesticides method GEO47 outside recommended stability times. It is therefore possible that the results provided may be compromised. {^\*}The ferrous iron analysis was not carried out on site and there is the possibility of change in ferrous-ferric ratio between sampling and analysis.{^\*}/GEO40 SVOC Waters: See attached SVOC-TIC Report.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

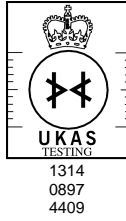
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:  Name: **P. Johal** Date: **16 March 2017**  
 Title: **Microbiology Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
 Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366439/2017**

Issue **1**

Laboratory Number: **15911233**

Sample **3** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM06**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **27 February 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron, Total	4.9	mg/l	01/03/2017	N Cov	WAS043
Nitrate as NO3	<3.1	mg/l	01/03/2017	N Cov	WAS036
Antimony Ultra Low Total as Sb	<0.0012	mg/l	09/03/2017	Y Cov	WAS060
Selenium Ultra Low Total as Se	<0.0008	mg/l	09/03/2017	Y Cov	WAS060
Arsenic, Ultra Low Total as As	0.0049	mg/l	09/03/2017	Y Cov	WAS060
Fluoride	0.091	mg/l	03/03/2017	Y S	SUBCON
Aluminium, Total as Al	<0.1	mg/l	07/03/2017	Y Cov	WAS049
Barium, Total as Ba	0.117	mg/l	07/03/2017	Y Cov	WAS049
Beryllium, Total as Be	<0.0021	mg/l	07/03/2017	Y Cov	WAS049
Boron, Total as B	<0.23	mg/l	07/03/2017	Y Cov	WAS049
Cadmium , Total as Cd	<0.0006	mg/l	07/03/2017	Y Cov	WAS049
Calcium , Total as Ca	120	mg/l	07/03/2017	Y Cov	WAS049
Chromium , Total as Cr	<0.002	mg/l	07/03/2017	Y Cov	WAS049
Copper, Ultra-low Total as Cu	5.0	ug/l	09/03/2017	Y Cov	WAS060
Iron , Total as Fe	5.61	mg/l	07/03/2017	Y Cov	WAS049
Ferrous Iron	4.9	mg/l	01/03/2017	N Cov	WAS043
Ferric Iron	<0.5	mg/l	01/03/2017	N Cov	WAS043
Lead , Total as Pb	<0.006	mg/l	07/03/2017	Y Cov	WAS049
Magnesium, Total as Mg	9.9	mg/l	07/03/2017	Y Cov	WAS049
Manganese , Total as Mn	1.58	mg/l	07/03/2017	Y Cov	WAS049
Mercury, Total as Hg	<0.00010	mg/l	02/03/2017	N Cov	WAS013
Nickel, Total as Ni	<0.003	mg/l	07/03/2017	Y Cov	WAS049
Potassium , Total as K	1.05	mg/l	07/03/2017	Y Cov	WAS049
Sodium , Total as Na	8.73	mg/l	07/03/2017	Y Cov	WAS049
Vanadium , Total as V	<0.004	mg/l	07/03/2017	Y Cov	WAS049
Zinc, Total as Zn	<0.018	mg/l	07/03/2017	Y Cov	WAS049
pH	7.5	pH units	01/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	535	uS/cm	01/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	270	mg/l	01/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.33	mg/l	28/02/2017	Y Cov	WAS067
Chloride as Cl	19.1	mg/l	01/03/2017	N Cov	WAS036
Nitrite as N	<0.08	mg/l	01/03/2017	N Cov	WAS036

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366439/2017**

Issue **1**

Laboratory Number: **15911233**

Sample **3** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM06**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **27 February 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Phosphates , Total as P	0.42	mg/l	07/03/2017	Y Cov	WAS049
Sulphate as SO4	7.3	mg/l	01/03/2017	N Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	05/03/2017	Y Cov	WAS001
COD (Total)	15.0	mg/l	02/03/2017	Y Cov	WAS040
TOC (Filtered)	1.1	mg/l	01/03/2017	Y Cov	WAS005
Cyanide, Free as CN	<0.008	mg/l	06/03/2017	N Cov	WAS018
Cyanide, Total as CN	<0.009	mg/l	06/03/2017	N Cov	WAS018
Sulphide as S	<0.020	mg/l	08/03/2017	N Cov	WAS033
Formaldehyde	0.045	mg/l	28/02/2017	N Cov	WAS030
1,2,3-Trichlorobenzene	<10	ng/l	06/03/2017	Y Cov	GEO47
1,2,4-Trichlorobenzene	<10	ng/l	06/03/2017	Y Cov	GEO47
1,3,5-Trichlorobenzene	<10	ng/l	06/03/2017	N Cov	GEO47
SVOC with TICs	Y	ug/l	02/03/2017	N Cov	GEO40
Aldrin	<4	ng/l	06/03/2017	Y Cov	GEO47
alpha-Endosulphan	<4	ng/l	06/03/2017	Y Cov	GEO47
alpha-HCH	<3	ng/l	06/03/2017	Y Cov	GEO47
beta-Endosulphan	<7	ng/l	16/03/2017	Y Cov	GEO47
beta-HCH	<3	ng/l	06/03/2017	Y Cov	GEO47
alpha-Chlordane	<3	ng/l	06/03/2017	Y Cov	GEO47
Dichlobenil	<2	ng/l	06/03/2017	Y Cov	GEO47
Dieldrin	<4	ng/l	06/03/2017	Y Cov	GEO47
Endrin	<4	ng/l	06/03/2017	Y Cov	GEO47
gamma-HCH	<2.7	ng/l	06/03/2017	Y Cov	GEO47
Heptachlor Epoxide	<4	ng/l	06/03/2017	Y Cov	GEO47
Hexachlorobenzene	<5	ng/l	16/03/2017	Y Cov	GEO47
Hexachlorobutadiene	<7	ng/l	06/03/2017	N Cov	GEO47
Isodrin	<4	ng/l	06/03/2017	Y Cov	GEO47
o,p - DDE	<2	ng/l	06/03/2017	Y Cov	GEO47
p,p - DDE	<2	ng/l	06/03/2017	Y Cov	GEO47
o,p - TDE	<2	ng/l	06/03/2017	Y Cov	GEO47
p,p - TDE	<2	ng/l	06/03/2017	Y Cov	GEO47
o,p - DDT	<2	ng/l	06/03/2017	Y Cov	GEO47
p,p - DDT	<4	ng/l	06/03/2017	Y Cov	GEO47

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366439/2017**

Issue **1**

Laboratory Number: **15911233**

Sample **3** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM06**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **27 February 2017**

Analysis Complete: **16 March 2017**

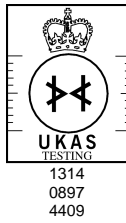
Test Description	Result	Units	Analysis Date	Accreditation	Method
Tecnazene	<10	ng/l	06/03/2017	Y Cov	GEO47
gamma-Chlordane	<4	ng/l	06/03/2017	Y Cov	GEO47
Triallate	<10	ng/l	06/03/2017	Y Cov	GEO47
Trifluralin	<30	ng/l	06/03/2017	Y Cov	GEO47
Azinphos-ethyl	<0.004	ug/l	06/03/2017	Y Cov	GEO47
Azinphos-methyl	<0.002	ug/l	06/03/2017	Y Cov	GEO47
Carbophenothion	<0.003	ug/l	06/03/2017	Y Cov	GEO47
Chlorfenvinphos	<0.002	ug/l	06/03/2017	Y Cov	GEO47
Chlorpyrifos	<0.002	ug/l	06/03/2017	Y Cov	GEO47
Diazinon	<0.003	ug/l	06/03/2017	Y Cov	GEO47
Dichlorvos	<0.002	ug/l	06/03/2017	Y Cov	GEO47
Dimethoate	<0.020	ug/l	06/03/2017	Y Cov	GEO47
Fenitrothion	<0.002	ug/l	06/03/2017	Y Cov	GEO47
Fenthion	<0.002	ug/l	06/03/2017	Y Cov	GEO47
Malathion	<0.004	ug/l	06/03/2017	Y Cov	GEO47
Mevinphos	<0.020	ug/l	06/03/2017	Y Cov	GEO47
Parathion-ethyl	<0.003	ug/l	06/03/2017	Y Cov	GEO47
Parathion-methyl	<0.003	ug/l	06/03/2017	Y Cov	GEO47
Phorate	<0.004	ug/l	06/03/2017	Y Cov	GEO47
Phosalone	<0.004	ug/l	06/03/2017	Y Cov	GEO47
Pirimiphos-methyl	<0.005	ug/l	06/03/2017	Y Cov	GEO47
Propetamphos	<0.003	ug/l	06/03/2017	Y Cov	GEO47
Triazophos	<0.002	ug/l	06/03/2017	Y Cov	GEO47
2,3,6 - TBA	<0.05	ug/l	10/03/2017	Y Cov	GEO20
2,4 - D	<0.05	ug/l	10/03/2017	Y Cov	GEO20
2,4 - DB	<0.05	ug/l	10/03/2017	Y Cov	GEO20
2,4,5 - T	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Benazolin	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Bentazone	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Chlopyralid	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Bromoxynil	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Dicamba	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Dichlorprop	<0.05	ug/l	10/03/2017	Y Cov	GEO20

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575



# Certificate of Analysis



Report Number: **COV/1366439/2017**

Issue **1**

Laboratory Number: **15911233**

Sample **3** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM06**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **27 February 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Fenoprop	<0.05	ug/l	10/03/2017	Y Cov	GEO20
loxynil	<0.05	ug/l	10/03/2017	Y Cov	GEO20
MCPA	<0.05	ug/l	10/03/2017	Y Cov	GEO20
MCPB	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Triclopyr	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Mecoprop	0.08	ug/l	10/03/2017	Y Cov	GEO20
Catechol	<0.10	ug/l	28/02/2017	N Cov	338
Cresol, Total	<0.10	ug/l	28/02/2017	N Cov	338
Xylenol, Total	<0.10	ug/l	28/02/2017	N Cov	338
Naphthol	<0.10	ug/l	28/02/2017	N Cov	338
Phenol	<0.10	ug/l	28/02/2017	N Cov	338
Trimethylphenol, Total	<0.10	ug/l	28/02/2017	N Cov	338
Phenols, Total	<0.50	ug/l	28/02/2017	N Cov	338
Aliphatic VPH >C5 - C6	<10	ug/l	08/03/2017	Y Cov	GEO45
Aliphatic VPH >C6 - C8	<10	ug/l	08/03/2017	Y Cov	GEO45
Aliphatic VPH >C8 - 10	<10	ug/l	08/03/2017	Y Cov	GEO45
Aliphatic VPH >C5 - C10	<10	ug/l	08/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C7	<10	ug/l	08/03/2017	Y Cov	GEO45
Aromatic VPH >C7 - C8	<10	ug/l	08/03/2017	Y Cov	GEO45
Aromatic VPH >C8 - C10	<10	ug/l	08/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C10	<10	ug/l	08/03/2017	Y Cov	GEO45
VPH >C5 - C10	<10	ug/l	08/03/2017	Y Cov	GEO45
Aliphatic EPH >C10 - C12	<10	ug/l	03/03/2017	N Cov	GEO46
Aliphatic EPH >C12 - C16	<10	ug/l	03/03/2017	N Cov	GEO46
Aliphatic EPH >C16 - C35	<10	ug/l	03/03/2017	N Cov	GEO46
Aliphatic EPH >C35 - C44	<10	ug/l	03/03/2017	N Cov	GEO46
Aliphatic EPH >C10 - C44	<10	ug/l	03/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C12	<10	ug/l	03/03/2017	N Cov	GEO46
Aromatic EPH >C12 - C16	<10	ug/l	03/03/2017	N Cov	GEO46
Aromatic EPH >C16 - C21	<10	ug/l	03/03/2017	N Cov	GEO46
Aromatic EPH >C21 - C35	<10	ug/l	03/03/2017	N Cov	GEO46
Aromatic EPH >C35 - C44	<10	ug/l	03/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C44	<10	ug/l	03/03/2017	N Cov	GEO46

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366439/2017**

Issue **1**

Laboratory Number: **15911233**

Sample **3** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM06**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **27 February 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
EPH >C10 - C44	<10	ug/l	03/03/2017	N Cov	GEO46
Aliphatic VPH/EPH >C5 - C44	<10	ug/l	08/03/2017	N Cov	GEO45/GEO4
Aromatic VPH/EPH >C5 - C44	<10	ug/l	08/03/2017	N Cov	GEO45/GEO4
VPH/EPH >C5 - C44	<10	ug/l	08/03/2017	N Cov	GEO45/GEO4
Acenaphthene	<0.02	ug/l	02/03/2017	Y Cov	GEO19
Acenaphthylene	<0.02	ug/l	02/03/2017	Y Cov	GEO19
Anthracene	<0.02	ug/l	02/03/2017	Y Cov	GEO19
Benzo (a) anthracene	<0.02	ug/l	02/03/2017	Y Cov	GEO19
Benzo (g,h,i) perylene	<0.02	ug/l	02/03/2017	Y Cov	GEO19
Benzo (a) pyrene	<0.02	ug/l	02/03/2017	Y Cov	GEO19
Benzo (b) fluoranthene	<0.02	ug/l	02/03/2017	Y Cov	GEO19
Benzo (k) fluoranthene	<0.02	ug/l	02/03/2017	Y Cov	GEO19
Chrysene	<0.02	ug/l	02/03/2017	Y Cov	GEO19
Dibenz (a,h) anthracene	<0.02	ug/l	02/03/2017	Y Cov	GEO19
Fluoranthene	<0.02	ug/l	02/03/2017	Y Cov	GEO19
Fluorene	<0.02	ug/l	02/03/2017	Y Cov	GEO19
Indeno (1,2,3) cd pyrene	<0.02	ug/l	02/03/2017	Y Cov	GEO19
Naphthalene	<0.02	ug/l	02/03/2017	Y Cov	GEO19
Phenanthrene	<0.02	ug/l	02/03/2017	Y Cov	GEO19
Pyrene	<0.02	ug/l	02/03/2017	Y Cov	GEO19
PAH, Total	<0.02	ug/l	02/03/2017	N Cov	GEO19
VOC	Y	ug/l	08/03/2017	N Cov	GEO32
Dichlorodifluoromethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Chloromethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Chloroethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Bromomethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Trichlorofluoromethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,1-Dichloroethene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Dichloromethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,1-Dichloroethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
cis-1,2-Dichloroethene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
2,2-Dichloropropane	<1.0	ug/l	08/03/2017	N Cov	GEO32
Chloroform	<1.0	ug/l	08/03/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366439/2017**

Issue **1**

Laboratory Number: **15911233**

Sample **3** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM06**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **27 February 2017**

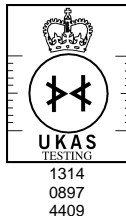
Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Bromochloromethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,1,1-Trichloroethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,1-Dichloropropene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,2-Dichloroethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Benzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,2-Dichloropropane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Trichloroethene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Bromodichloromethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Dibromomethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
cis-1,3-Dichloropropene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Toluene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
trans-1,3-Dichloropropene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,1,2-Trichloroethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Carbon Tetrachloride	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Vinyl Chloride	<0.5	ug/l	08/03/2017	Y Cov	GEO32
1,3-Dichloropropane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Tetrachloroethene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Dibromochloromethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,2-Dibromoethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Chlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,1,1,2-Tetrachloroethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Ethyl Benzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
m&p-Xylene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
o-Xylene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Styrene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Bromoform	<1.0	ug/l	08/03/2017	Y Cov	GEO32
trans-1,2-Dichloroethene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Isopropylbenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,1,2,2-Tetrachloroethane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,2,3-Trichloropropane	<1.0	ug/l	08/03/2017	Y Cov	GEO32
n-Propylbenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Bromobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
2-Chlorotoluene	<1.0	ug/l	08/03/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366439/2017**

Issue **1**

Laboratory Number: **15911233**

Sample **3** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM06**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **27 February 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
1,3,5-Trimethylbenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
4-Chlorotoluene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
tert-Butylbenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,2,4-Trimethylbenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
sec-Butylbenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
p-Isopropyltoluene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,3-Dichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,4-Dichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
n-Butylbenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,2-Dichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,2-Dibromo-3-chloropropane	<2.0	ug/l	08/03/2017	Y Cov	GEO32
1,2,4-Trichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Hexachlorobutadiene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Naphthalene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
1,2,3-Trichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO32
MTBE	<1.0	ug/l	08/03/2017	Y Cov	GEO32
Dibromofluoromethane	102.5	%Recovery	08/03/2017	N Cov	GEO32
Toluene-d8	99.5	%Recovery	08/03/2017	N Cov	GEO32
4-Bromofluorobenzene	96.9	%Recovery	08/03/2017	N Cov	GEO32
SVOC	Y	ug/l	02/03/2017	N Cov	GEO40
Phenol	11.3	ug/l	02/03/2017	Y Cov	GEO40
Bis(2-chloroethyl)ether	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Chlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
1,3-Dichlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
1,4-Dichlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Methylphenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
3&4-Methylphenol	<1.0	ug/l	02/03/2017	N Cov	GEO40
Dibenzofuran	<1.0	ug/l	02/03/2017	N Cov	GEO40
1,2-Dichlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Bis(2-chloroisopropyl)ether	<1.0	ug/l	02/03/2017	Y Cov	GEO40
n-Nitrosodi-n-propylamine	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Hexachloroethane	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Nitrobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366439/2017**

Issue **1**

Laboratory Number: **15911233**

Sample **3** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM06**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **27 February 2017**

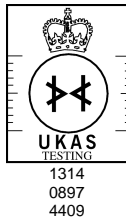
Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Isophorone	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4-Dimethylphenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Nitrophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Bis(2-chloroethoxy)methane	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4-Dichlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
1,2,4-Trichlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Naphthalene	<2.0	ug/l	02/03/2017	Y Cov	GEO40
Hexachlorobutadiene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
4-Chloro-3-methylphenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Methylnaphthalene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4,6-Trichlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4,5-Trichlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Chloronaphthalene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Dimethylphthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,6-Dinitrotoluene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Acenaphthylene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Acenaphthene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2,4-Dinitrotoluene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Diethylphthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
4-Nitrophenol	<5.0	ug/l	02/03/2017	Y Cov	GEO40
4-Chlorophenyl phenyl ether	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Fluorene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Diphenylamine	<1.0	ug/l	02/03/2017	N Cov	GEO40
4-Bromophenyl Phenyl Ether	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Hexachlorobenzene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Pentachlorophenol	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Phenanthrene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Anthracene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
di-n-Butylphthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Fluoranthene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Pyrene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzyl Butyl Phthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(a)anthracene	<1.0	ug/l	02/03/2017	Y Cov	GEO40

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366439/2017**  
 Laboratory Number: **15911233**

Issue **1**  
 Sample **3** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**  
 Sample Point Description:  
 Sample Description: **RM06**  
 Sample Matrix: **Ground Water**  
 Sample Date/Time: **27 February 2017**  
 Sample Received: **27 February 2017**  
 Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Chrysene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Bis(2-ethylhexyl)phthalate	<5.0	ug/l	02/03/2017	Y Cov	GEO40
Di-n-octylphthalate	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(b)fluoranthene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(k)fluoranthene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(a)pyrene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Indeno(1,2,3-c,d)pyrene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Dibenz(a,h)anthracene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
Benzo(g,h,i)perylene	<1.0	ug/l	02/03/2017	Y Cov	GEO40
2-Fluorophenol	84.5	%Recovery	02/03/2017	N Cov	GEO40
Phenol-d6	66.2	%Recovery	02/03/2017	N Cov	GEO40
Nitrobenzene-d5	79.3	%Recovery	02/03/2017	N Cov	GEO40
2-Fluorobiphenyl	79.7	%Recovery	02/03/2017	N Cov	GEO40
2,4,6-Tribromophenol	79.4	%Recovery	02/03/2017	N Cov	GEO40
Terphenyl-d14	88.6	%Recovery	02/03/2017	N Cov	GEO40
Nitrite as NO2	<0.28	mg/l	03/03/2017	N Cov	WAS036
Fluoroxypyr	<0.05	ug/l	10/03/2017	Y Cov	GEO20


**Analyst Comments for 15911233:**

This sample has been analysed for Pesticides method GEO47 outside recommended stability times. It is therefore possible that the results provided may be compromised. {^}The ferrous iron analysis was not carried out on site and there is the possibility of change in ferrous-ferric ratio between sampling and analysis.{^}  
 Reporting limits raised for PAH due to nature of sample matrix.  
 GEO40 SVOC Waters: See attached SVOC-TIC Report.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).  
 For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:  Name: **P. Johal** Date: **16 March 2017**  
 Title: **Microbiology Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
 Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

**ALS Environmental Ltd**  
Torrington Avenue  
Coventry  
CV4 9GU

T: +44 (0)24 7642 1213  
F: +44 (0)24 7685 6575  
[www.alsenvironmental.co.uk](http://www.alsenvironmental.co.uk)

**Mr Downes**  
**SKM Ireland c/o Jacobs**  
**Engineering Ireland**  
**Jacobs**  
**Merrion House**  
**Merrion Road**  
**Dublin 4 South Dublin**

10 March 2017

**Test Report: COV/1366795/2017**

Dear Mr Downes

Analysis of your sample(s) submitted on 28 February 2017 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:



Name: P. Johal

Title: Microbiology Manager



# Report Summary



1314  
0897  
4409



**Mr Ultan Downes**  
**SKM Ireland c/o Jacobs**  
**Engineering Ireland**  
**Jacobs**  
**Merrion House**  
**Merrion Road**  
**Dublin 4**  
**South Dublin**

Date of Issue: **10 March 2017**

Report Number: **COV/1366795/2017**

Issue **1**

This issue replaces  
all previous issues

**Job Description:** Kerdiffstown Landfill

Number of Samples  
included in this report **10**

Job Received: **28 February 2017**

Number of Test Results  
included in this report **154**

Analysis Commenced: **01 March 2017**

Signed:

Name: **P. Johal**

Date: **10 March 2017**

Title: **Microbiology Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested.

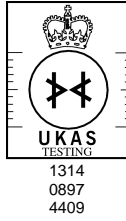
Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

(c) ALS Environmental Ltd 2017. All rights reserved. We, ALS Environmental Ltd, are the owner of all copyright in this report. You must not copy, reproduce, amend or adapt this report, its contents or any format in which it is delivered without our prior written agreement. If you copy, reproduce, amend, or adapt this report in any way without our agreement you will be liable for any damage or loss to us. In the event of a dispute the copy of the report held by us shall be the reference copy.



# Certificate of Analysis



Report Number: **COV/1366795/2017**

Issue **1**

Laboratory Number: **15913878**

Sample **1** of **10**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **SW01**

Sample Matrix: **Surface Water**

Sample Date/Time: **28 February 2017**

Sample Received: **28 February 2017**

Analysis Complete: **10 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	14.1	mg/l	01/03/2017	Y Cov	WAS036
Arsenic, Ultra Low Total as As	<0.0010	mg/l	10/03/2017	N Cov	WAS060
Calcium , Total as Ca	105	mg/l	09/03/2017	N Cov	WAS049
Iron , Total as Fe	<0.23	mg/l	09/03/2017	N Cov	WAS049
Manganese , Total as Mn	0.010	mg/l	09/03/2017	N Cov	WAS049
Potassium , Total as K	1.16	mg/l	09/03/2017	N Cov	WAS049
Sodium , Total as Na	8.10	mg/l	09/03/2017	N Cov	WAS049
pH	8.1	pH units	02/03/2017	N Cov	WAS039
Conductivity- Electrical 20C	575	uS/cm	02/03/2017	N Cov	WAS039
Alkalinity as CaCO3	274	mg/l	09/03/2017	N Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	01/03/2017	N Cov	WAS067
Chloride as Cl	18.5	mg/l	01/03/2017	Y Cov	WAS036
Sulphate as SO4	17.5	mg/l	01/03/2017	Y Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	06/03/2017	Y Cov	WAS001
COD (Total)	<11.0	mg/l	02/03/2017	Y Cov	WAS040
TOC (Filtered)	1.2	mg/l	01/03/2017	N Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	06/03/2017	N Cov	WAS018

## Analyst Comments for 15913878:

This sample has been analysed for Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **P. Johal**

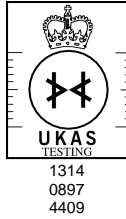
Date: **10 March 2017**

Title: **Microbiology Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366795/2017**

Issue **1**

Laboratory Number: **15913879**

Sample **2** of **10**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **SW02**

Sample Matrix: **Surface Water**

Sample Date/Time: **28 February 2017**

Sample Received: **28 February 2017**

Analysis Complete: **10 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	12.3	mg/l	01/03/2017	Y Cov	WAS036
Arsenic, Ultra Low Total as As	<0.0010	mg/l	10/03/2017	N Cov	WAS060
Calcium , Total as Ca	107	mg/l	09/03/2017	N Cov	WAS049
Iron , Total as Fe	<0.23	mg/l	09/03/2017	N Cov	WAS049
Manganese , Total as Mn	0.013	mg/l	09/03/2017	N Cov	WAS049
Potassium , Total as K	1.37	mg/l	09/03/2017	N Cov	WAS049
Sodium , Total as Na	8.93	mg/l	09/03/2017	N Cov	WAS049
pH	8.1	pH units	02/03/2017	N Cov	WAS039
Conductivity- Electrical 20C	553	uS/cm	02/03/2017	N Cov	WAS039
Alkalinity as CaCO3	268	mg/l	09/03/2017	N Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	01/03/2017	N Cov	WAS067
Chloride as Cl	19.6	mg/l	01/03/2017	Y Cov	WAS036
Sulphate as SO4	18.1	mg/l	01/03/2017	Y Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	06/03/2017	Y Cov	WAS001
COD (Total)	<11.0	mg/l	02/03/2017	Y Cov	WAS040
TOC (Filtered)	1.0	mg/l	01/03/2017	N Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	06/03/2017	N Cov	WAS018

## Analyst Comments for 15913879:

This sample has been analysed for Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **P. Johal**

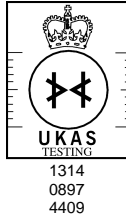
Date: **10 March 2017**

Title: **Microbiology Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366795/2017**

Issue **1**

Laboratory Number: **15913880**

Sample **3** of **10**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **SW03**

Sample Matrix: **Surface Water**

Sample Date/Time: **28 February 2017**

Sample Received: **28 February 2017**

Analysis Complete: **10 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	11.8	mg/l	01/03/2017	Y Cov	WAS036
Arsenic, Ultra Low Total as As	<0.0010	mg/l	10/03/2017	N Cov	WAS060
Calcium , Total as Ca	106	mg/l	09/03/2017	N Cov	WAS049
Iron , Total as Fe	<0.23	mg/l	09/03/2017	N Cov	WAS049
Manganese , Total as Mn	0.020	mg/l	09/03/2017	N Cov	WAS049
Potassium , Total as K	1.41	mg/l	09/03/2017	N Cov	WAS049
Sodium , Total as Na	9.32	mg/l	09/03/2017	N Cov	WAS049
pH	8.1	pH units	02/03/2017	N Cov	WAS039
Conductivity- Electrical 20C	549	uS/cm	02/03/2017	N Cov	WAS039
Alkalinity as CaCO3	274	mg/l	09/03/2017	N Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	01/03/2017	N Cov	WAS067
Chloride as Cl	19.4	mg/l	01/03/2017	Y Cov	WAS036
Sulphate as SO4	17.0	mg/l	01/03/2017	Y Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	06/03/2017	Y Cov	WAS001
COD (Total)	<11.0	mg/l	02/03/2017	Y Cov	WAS040
TOC (Filtered)	1.2	mg/l	01/03/2017	N Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	06/03/2017	N Cov	WAS018

## Analyst Comments for 15913880:

This sample has been analysed for Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **P. Johal**

Date: **10 March 2017**

Title: **Microbiology Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366795/2017**

Issue **1**

Laboratory Number: **15913881**

Sample **4** of **10**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **SW03a**

Sample Matrix: **Surface Water**

Sample Date/Time: **28 February 2017**

Sample Received: **28 February 2017**

Analysis Complete: **10 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	12.0	mg/l	01/03/2017	Y Cov	WAS036
Arsenic, Ultra Low Total as As	<0.0010	mg/l	10/03/2017	N Cov	WAS060
Calcium , Total as Ca	98.1	mg/l	09/03/2017	N Cov	WAS049
Iron , Total as Fe	<0.23	mg/l	09/03/2017	N Cov	WAS049
Manganese , Total as Mn	0.012	mg/l	09/03/2017	N Cov	WAS049
Potassium , Total as K	1.26	mg/l	09/03/2017	N Cov	WAS049
Sodium , Total as Na	8.22	mg/l	09/03/2017	N Cov	WAS049
pH	8.1	pH units	02/03/2017	N Cov	WAS039
Conductivity- Electrical 20C	548	uS/cm	02/03/2017	N Cov	WAS039
Alkalinity as CaCO3	266	mg/l	09/03/2017	N Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	01/03/2017	N Cov	WAS067
Chloride as Cl	19.3	mg/l	01/03/2017	Y Cov	WAS036
Sulphate as SO4	17.1	mg/l	01/03/2017	Y Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	06/03/2017	Y Cov	WAS001
COD (Total)	<11.0	mg/l	02/03/2017	Y Cov	WAS040
TOC (Filtered)	1.1	mg/l	01/03/2017	N Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	06/03/2017	N Cov	WAS018

### Analyst Comments for 15913881:

This sample has been analysed for Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **P. Johal**

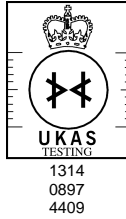
Date: **10 March 2017**

Title: **Microbiology Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366795/2017**

Issue **1**

Laboratory Number: **15913882**

Sample **5** of **10**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **SW05**

Sample Matrix: **Surface Water**

Sample Date/Time: **28 February 2017**

Sample Received: **28 February 2017**

Analysis Complete: **10 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	11.8	mg/l	01/03/2017	Y Cov	WAS036
Arsenic, Ultra Low Total as As	<0.0010	mg/l	10/03/2017	N Cov	WAS060
Calcium , Total as Ca	108	mg/l	09/03/2017	N Cov	WAS049
Iron , Total as Fe	<0.23	mg/l	09/03/2017	N Cov	WAS049
Manganese , Total as Mn	0.018	mg/l	09/03/2017	N Cov	WAS049
Potassium , Total as K	1.36	mg/l	09/03/2017	N Cov	WAS049
Sodium , Total as Na	10.6	mg/l	09/03/2017	N Cov	WAS049
pH	8.2	pH units	02/03/2017	N Cov	WAS039
Conductivity- Electrical 20C	554	uS/cm	02/03/2017	N Cov	WAS039
Alkalinity as CaCO3	268	mg/l	09/03/2017	N Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	01/03/2017	N Cov	WAS067
Chloride as Cl	22.1	mg/l	01/03/2017	Y Cov	WAS036
Sulphate as SO4	17.0	mg/l	01/03/2017	Y Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	06/03/2017	Y Cov	WAS001
COD (Total)	<11.0	mg/l	02/03/2017	Y Cov	WAS040
TOC (Filtered)	1.0	mg/l	01/03/2017	N Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	06/03/2017	N Cov	WAS018

## Analyst Comments for 15913882:

This sample has been analysed for Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **P. Johal**

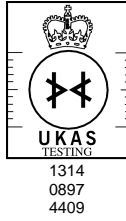
Date: **10 March 2017**

Title: **Microbiology Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366795/2017**

Issue **1**

Laboratory Number: **15913883**

Sample **6** of **10**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **SW11**

Sample Matrix: **Surface Water**

Sample Date/Time: **28 February 2017**

Sample Received: **28 February 2017**

Analysis Complete: **10 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	6.5	mg/l	01/03/2017	Y Cov	WAS036
Arsenic, Ultra Low Total as As	<0.0010	mg/l	10/03/2017	N Cov	WAS060
Calcium , Total as Ca	115	mg/l	09/03/2017	N Cov	WAS049
Iron , Total as Fe	<0.23	mg/l	09/03/2017	N Cov	WAS049
Manganese , Total as Mn	0.064	mg/l	09/03/2017	N Cov	WAS049
Potassium , Total as K	3.76	mg/l	09/03/2017	N Cov	WAS049
Sodium , Total as Na	53.0	mg/l	09/03/2017	N Cov	WAS049
pH	8.0	pH units	02/03/2017	N Cov	WAS039
Conductivity- Electrical 20C	796	uS/cm	02/03/2017	N Cov	WAS039
Alkalinity as CaCO3	295	mg/l	09/03/2017	N Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	01/03/2017	N Cov	WAS067
Chloride as Cl	99.7	mg/l	01/03/2017	Y Cov	WAS036
Sulphate as SO4	28.8	mg/l	01/03/2017	Y Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	06/03/2017	Y Cov	WAS001
COD (Total)	<11.0	mg/l	02/03/2017	Y Cov	WAS040
TOC (Filtered)	2.6	mg/l	01/03/2017	N Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	06/03/2017	N Cov	WAS018

## Analyst Comments for 15913883:

This sample has been analysed for Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **P. Johal**

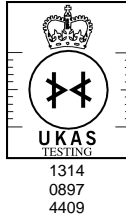
Date: **10 March 2017**

Title: **Microbiology Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366795/2017**

Issue **1**

Laboratory Number: **15913884**

Sample **7** of **10**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **SW13**

Sample Matrix: **Surface Water**

Sample Date/Time: **28 February 2017**

Sample Received: **28 February 2017**

Analysis Complete: **10 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	01/03/2017	Y Cov	WAS036
Arsenic, Ultra Low Total as As	0.0048	mg/l	10/03/2017	N Cov	WAS060
Calcium , Total as Ca	148	mg/l	09/03/2017	N Cov	WAS049
Iron , Total as Fe	2.58	mg/l	09/03/2017	N Cov	WAS049
Manganese , Total as Mn	0.547	mg/l	09/03/2017	N Cov	WAS049
Potassium , Total as K	3.40	mg/l	09/03/2017	N Cov	WAS049
Sodium , Total as Na	55.0	mg/l	09/03/2017	N Cov	WAS049
pH	7.7	pH units	02/03/2017	N Cov	WAS039
Conductivity- Electrical 20C	947	uS/cm	02/03/2017	N Cov	WAS039
Alkalinity as CaCO3	349	mg/l	09/03/2017	N Cov	WAS025
Ammoniacal Nitrogen as N (LL)	1.58	mg/l	01/03/2017	N Cov	WAS067
Chloride as Cl	113	mg/l	01/03/2017	Y Cov	WAS036
Sulphate as SO4	56.5	mg/l	01/03/2017	Y Cov	WAS036
BOD + ATU (5 day)	3	mg/l	06/03/2017	Y Cov	WAS001
COD (Total)	<11.0	mg/l	02/03/2017	Y Cov	WAS040
TOC (Filtered)	6.3	mg/l	01/03/2017	N Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	06/03/2017	N Cov	WAS018

**Analyst Comments for 15913884:**

This sample has been analysed for Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **P. Johal**

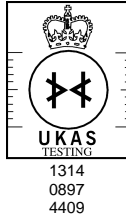
Date: **10 March 2017**

Title: **Microbiology Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366795/2017**

Issue **1**

Laboratory Number: **15913885**

Sample **8** of **10**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **SWMH09 (site discharge)**

Sample Matrix: **Surface Water**

Sample Date/Time: **28 February 2017**

Sample Received: **28 February 2017**

Analysis Complete: **10 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	01/03/2017	Y Cov	WAS036
Arsenic, Ultra Low Total as As	0.0020	mg/l	10/03/2017	N Cov	WAS060
Calcium , Total as Ca	27.1	mg/l	09/03/2017	N Cov	WAS049
Iron , Total as Fe	0.78	mg/l	09/03/2017	N Cov	WAS049
Manganese , Total as Mn	0.088	mg/l	09/03/2017	N Cov	WAS049
Potassium , Total as K	1.63	mg/l	09/03/2017	N Cov	WAS049
Sodium , Total as Na	2.54	mg/l	09/03/2017	N Cov	WAS049
pH	8.0	pH units	02/03/2017	N Cov	WAS039
Conductivity- Electrical 20C	153	uS/cm	02/03/2017	N Cov	WAS039
Alkalinity as CaCO3	67.9	mg/l	09/03/2017	N Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	01/03/2017	N Cov	WAS067
Chloride as Cl	4.9	mg/l	01/03/2017	Y Cov	WAS036
Sulphate as SO4	6.9	mg/l	01/03/2017	Y Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	06/03/2017	Y Cov	WAS001
COD (Total)	<11.0	mg/l	02/03/2017	Y Cov	WAS040
TOC (Filtered)	1.5	mg/l	01/03/2017	N Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	06/03/2017	N Cov	WAS018

## Analyst Comments for 15913885:

This sample has been analysed for Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **P. Johal**

Date: **10 March 2017**

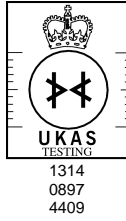
Title: **Microbiology Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575



# Certificate of Analysis



Report Number: **COV/1366795/2017**

Issue **1**

Laboratory Number: **15913886**

Sample **9** of **10**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **SW lagoon**

Sample Matrix: **Surface Water**

Sample Date/Time: **28 February 2017**

Sample Received: **28 February 2017**

Analysis Complete: **10 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	8.1	pH units	02/03/2017	N Cov	WAS039
Conductivity- Electrical 20C	1560	uS/cm	02/03/2017	N Cov	WAS039
Ammoniacal Nitrogen as N	65.3	mg/l	01/03/2017	Y Cov	WAS036
Chloride as Cl	103	mg/l	01/03/2017	Y Cov	WAS036
Nitrogen, Total Oxidised as N	4.0	mg/l	01/03/2017	Y Cov	WAS036
Total Suspended Solids	39.0	mg/l	06/03/2017	N Cov	WAS006
BOD + ATU (5 day)	7	mg/l	06/03/2017	Y Cov	WAS001
COD (Total)	129	mg/l	02/03/2017	Y Cov	WAS040

Analyst Comments for 15913886:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

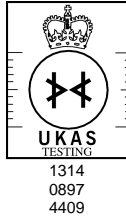
Signed:

Name: **P. Johal**

Date: **10 March 2017**

Title: **Microbiology Manager**

# Certificate of Analysis



Report Number: **COV/1366795/2017**

Issue **1**

Laboratory Number: **15913887**

Sample **10** of **10**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **Sample B**

Sample Matrix: **Land Leachate**

Sample Date/Time: **28 February 2017**

Sample Received: **28 February 2017**

Analysis Complete: **10 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	7.3	pH units	02/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	4870	uS/cm	02/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	2440	mg/l	09/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	268	mg/l	03/03/2017	Y Cov	WAS055
Chloride as Cl	402	mg/l	02/03/2017	Y Cov	WAS036
Nitrogen, Total Oxidised as N	<0.7	mg/l	02/03/2017	Y Cov	WAS036
BOD + ATU (5 day)	62	mg/l	06/03/2017	Y Cov	WAS001
COD (Total)	762	mg/l	02/03/2017	Y Cov	WAS040
Sulphide as S	0.069	mg/l	10/03/2017	N Cov	WAS033
Methane, Dissolved	1.3	mg/l	07/03/2017	N Cov	62

**Analyst Comments for 15913887:**

{/\*}Ammonia analysed by colorimetric method{\*/}

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).  
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **P. Johal**

Date: **10 March 2017**

Title: **Microbiology Manager**

**ALS Environmental Ltd**  
Torrington Avenue  
Coventry  
CV4 9GU

T: +44 (0)24 7642 1213  
F: +44 (0)24 7685 6575  
[www.alsenvironmental.co.uk](http://www.alsenvironmental.co.uk)

**Mr Downes**  
**SKM Ireland c/o Jacobs**  
**Engineering Ireland**  
**Jacobs**  
**Merrion House**  
**Merrion Road**  
**Dublin 4 South Dublin**

14 March 2017

**Test Report: COV/1366798/2017**

Dear Mr Downes

Analysis of your sample(s) submitted on 28 February 2017 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

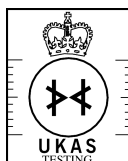
Signed: 

Name: A. Horobin

Title: Organic Operations Manager



# Report Summary



1314  
0897  
4409



**Mr Ultan Downes  
SKM Ireland c/o Jacobs  
Engineering Ireland  
Jacobs  
Merrion House  
Merrion Road  
Dublin 4  
South Dublin**

Date of Issue: **14 March 2017**

Report Number: **COV/1366798/2017**

Issue **1**

This issue replaces  
all previous issues

**Job Description:** Kerdiffstown Landfill

Number of Samples  
included in this report **3**

Job Received: **28 February 2017**

Number of Test Results  
included in this report **840**

Analysis Commenced: **01 March 2017**

Signed: *A I Horobin*

Name: **A. Horobin**

Date: **14 March 2017**

Title: **Organic Operations Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.

Information on the methods of analysis and performance characteristics are available on request.

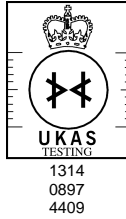
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

(c) ALS Environmental Ltd 2017. All rights reserved. We, ALS Environmental Ltd, are the owner of all copyright in this report. You must not copy, reproduce, amend or adapt this report, its contents or any format in which it is delivered without our prior written agreement. If you copy, reproduce, amend, or adapt this report in any way without our agreement you will be liable for any damage or loss to us. In the event of a dispute the copy of the report held by us shall be the reference copy.

# Certificate of Analysis



Report Number: **COV/1366798/2017**

Issue **1**

Laboratory Number: **15913888**

Sample **1** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM01**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **28 February 2017**

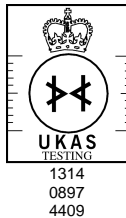
Analysis Complete: **14 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron, Total	2.5	mg/l	03/03/2017	N Cov	WAS043
Nitrate as NO3	<3.1	mg/l	01/03/2017	N Cov	WAS036
Antimony Ultra Low Total as Sb	<0.0012	mg/l	10/03/2017	Y Cov	WAS060
Selenium Ultra Low Total as Se	0.0048	mg/l	13/03/2017	Y Cov	WAS060
Arsenic, Ultra Low Total as As	0.016	mg/l	10/03/2017	Y Cov	WAS060
Fluoride	0.181	mg/l	03/03/2017	Y S	SUBCON
Aluminium, Total as Al	<0.1	mg/l	11/03/2017	Y Cov	WAS049
Barium, Total as Ba	0.154	mg/l	09/03/2017	Y Cov	WAS049
Beryllium, Total as Be	<0.0021	mg/l	09/03/2017	Y Cov	WAS049
Boron, Total as B	<0.23	mg/l	09/03/2017	Y Cov	WAS049
Cadmium , Total as Cd	<0.0006	mg/l	09/03/2017	Y Cov	WAS049
Calcium , Total as Ca	125	mg/l	09/03/2017	Y Cov	WAS049
Chromium , Total as Cr	<0.002	mg/l	09/03/2017	Y Cov	WAS049
Copper, Ultra-low Total as Cu	<1.9	ug/l	10/03/2017	Y Cov	WAS060
Iron , Total as Fe	13.9	mg/l	09/03/2017	Y Cov	WAS049
Ferrous Iron	2.4	mg/l	03/03/2017	N Cov	WAS043
Ferric Iron	<0.5	mg/l	03/03/2017	N Cov	WAS043
Lead , Total as Pb	<0.006	mg/l	09/03/2017	Y Cov	WAS049
Magnesium, Total as Mg	10.9	mg/l	09/03/2017	Y Cov	WAS049
Manganese , Total as Mn	0.673	mg/l	09/03/2017	Y Cov	WAS049
Mercury, Total as Hg	<0.00010	mg/l	03/03/2017	N Cov	WAS013
Nickel, Total as Ni	<0.003	mg/l	09/03/2017	Y Cov	WAS049
Potassium , Total as K	0.97	mg/l	09/03/2017	Y Cov	WAS049
Sodium , Total as Na	11.0	mg/l	09/03/2017	Y Cov	WAS049
Vanadium , Total as V	<0.004	mg/l	09/03/2017	Y Cov	WAS049
Zinc, Total as Zn	<0.018	mg/l	09/03/2017	Y Cov	WAS049
pH	7.7	pH units	01/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	565	uS/cm	01/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	309	mg/l	09/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.08	mg/l	01/03/2017	Y Cov	WAS067
Chloride as Cl	20.3	mg/l	01/03/2017	N Cov	WAS036
Nitrite as N	<0.08	mg/l	01/03/2017	N Cov	WAS036

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366798/2017**

Issue **1**

Laboratory Number: **15913888**

Sample **1** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM01**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **28 February 2017**

Analysis Complete: **14 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Phosphates , Total as P	1.8	mg/l	09/03/2017	Y Cov	WAS049
Sulphate as SO4	12.3	mg/l	01/03/2017	N Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	06/03/2017	Y Cov	WAS001
COD (Total)	<11.0	mg/l	02/03/2017	Y Cov	WAS040
TOC (Filtered)	1.3	mg/l	01/03/2017	Y Cov	WAS005
Cyanide, Free as CN	<0.008	mg/l	06/03/2017	N Cov	WAS018
Cyanide, Total as CN	<0.009	mg/l	06/03/2017	N Cov	WAS018
Sulphide as S	<0.020	mg/l	10/03/2017	N Cov	WAS033
Formaldehyde	0.038	mg/l	09/03/2017	N Cov	WAS030
1,2,3-Trichlorobenzene	<10	ng/l	07/03/2017	Y Cov	GEO47
1,2,4-Trichlorobenzene	<10	ng/l	07/03/2017	Y Cov	GEO47
1,3,5-Trichlorobenzene	<10	ng/l	07/03/2017	N Cov	GEO47
SVOC with TICs	Y	ug/l	06/03/2017	N Cov	GEO40
Aldrin	<4	ng/l	07/03/2017	Y Cov	GEO47
alpha-Endosulphan	<4	ng/l	07/03/2017	Y Cov	GEO47
alpha-HCH	<3	ng/l	07/03/2017	Y Cov	GEO47
beta-Endosulphan	<4	ng/l	07/03/2017	Y Cov	GEO47
beta-HCH	<3	ng/l	07/03/2017	Y Cov	GEO47
alpha-Chlordane	<3	ng/l	07/03/2017	Y Cov	GEO47
Dichlobenil	<2	ng/l	07/03/2017	Y Cov	GEO47
Dieldrin	<4	ng/l	07/03/2017	Y Cov	GEO47
Endrin	<4	ng/l	07/03/2017	Y Cov	GEO47
gamma-HCH	<2.7	ng/l	07/03/2017	Y Cov	GEO47
Heptachlor Epoxide	<4	ng/l	07/03/2017	Y Cov	GEO47
Hexachlorobenzene	<7	ng/l	07/03/2017	Y Cov	GEO47
Hexachlorobutadiene	<7	ng/l	07/03/2017	N Cov	GEO47
Isodrin	<4	ng/l	07/03/2017	Y Cov	GEO47
o,p - DDE	<2	ng/l	07/03/2017	Y Cov	GEO47
p,p - DDE	<2	ng/l	07/03/2017	Y Cov	GEO47
o,p - TDE	<2	ng/l	07/03/2017	Y Cov	GEO47
p,p - TDE	<2	ng/l	07/03/2017	Y Cov	GEO47
o,p - DDT	<2	ng/l	07/03/2017	Y Cov	GEO47
p,p - DDT	<4	ng/l	07/03/2017	Y Cov	GEO47

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366798/2017**

Issue **1**

Laboratory Number: **15913888**

Sample **1** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM01**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **28 February 2017**

Analysis Complete: **14 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Tecnazene	<10	ng/l	07/03/2017	Y Cov	GEO47
gamma-Chlordane	<4	ng/l	07/03/2017	Y Cov	GEO47
Triallate	<10	ng/l	07/03/2017	Y Cov	GEO47
Trifluralin	<30	ng/l	07/03/2017	Y Cov	GEO47
Azinphos-ethyl	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Azinphos-methyl	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Carbophenothion	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Chlorfenvinphos	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Chlorpyrifos	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Diazinon	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Dichlorvos	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Dimethoate	<0.020	ug/l	07/03/2017	Y Cov	GEO47
Fenitrothion	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Fenthion	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Malathion	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Mevinphos	<0.020	ug/l	07/03/2017	Y Cov	GEO47
Parathion-ethyl	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Parathion-methyl	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Phorate	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Phosalone	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Pirimiphos-methyl	<0.005	ug/l	07/03/2017	Y Cov	GEO47
Propetamphos	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Triazophos	<0.002	ug/l	07/03/2017	Y Cov	GEO47
2,3,6 - TBA	<0.05	ug/l	10/03/2017	Y Cov	GEO20
2,4 - D	<0.05	ug/l	10/03/2017	Y Cov	GEO20
2,4 - DB	<0.05	ug/l	10/03/2017	Y Cov	GEO20
2,4,5 - T	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Benazolin	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Bentazone	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Chlopyralid	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Bromoxynil	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Dicamba	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Dichlorprop	<0.05	ug/l	10/03/2017	Y Cov	GEO20

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366798/2017**

Issue **1**

Laboratory Number: **15913888**

Sample **1** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM01**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **28 February 2017**

Analysis Complete: **14 March 2017**

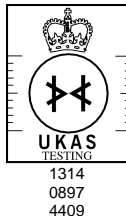
Test Description	Result	Units	Analysis Date	Accreditation	Method
Fenoprop	<0.05	ug/l	10/03/2017	Y Cov	GEO20
loxynil	<0.05	ug/l	10/03/2017	Y Cov	GEO20
MCPA	<0.05	ug/l	10/03/2017	Y Cov	GEO20
MCPB	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Triclopyr	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Mecoprop	<0.04	ug/l	10/03/2017	Y Cov	GEO20
Catechol	<0.10	ug/l	03/03/2017	N Cov	338
Cresol, Total	<0.10	ug/l	03/03/2017	N Cov	338
Xylenol, Total	<0.10	ug/l	03/03/2017	N Cov	338
Naphthol	<0.10	ug/l	03/03/2017	N Cov	338
Phenol	<0.10	ug/l	03/03/2017	N Cov	338
Trimethylphenol, Total	<0.10	ug/l	03/03/2017	N Cov	338
Phenols, Total	<0.50	ug/l	03/03/2017	N Cov	338
Aliphatic VPH >C5 - C6	<10	ug/l	08/03/2017	Y Cov	GEO45
Aliphatic VPH >C6 - C8	<10	ug/l	08/03/2017	Y Cov	GEO45
Aliphatic VPH >C8 - 10	<10	ug/l	08/03/2017	Y Cov	GEO45
Aliphatic VPH >C5 - C10	<10	ug/l	08/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C7	<10	ug/l	08/03/2017	Y Cov	GEO45
Aromatic VPH >C7 - C8	<10	ug/l	08/03/2017	Y Cov	GEO45
Aromatic VPH >C8 - C10	<10	ug/l	08/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C10	<10	ug/l	08/03/2017	Y Cov	GEO45
VPH >C5 - C10	<10	ug/l	08/03/2017	Y Cov	GEO45
Aliphatic EPH >C10 - C12	<10	ug/l	07/03/2017	N Cov	GEO46
Aliphatic EPH >C12 - C16	<10	ug/l	07/03/2017	N Cov	GEO46
Aliphatic EPH >C16 - C35	<10	ug/l	07/03/2017	N Cov	GEO46
Aliphatic EPH >C35 - C44	<10	ug/l	07/03/2017	N Cov	GEO46
Aliphatic EPH >C10 - C44	<10	ug/l	07/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C12	<10	ug/l	07/03/2017	N Cov	GEO46
Aromatic EPH >C12 - C16	<10	ug/l	07/03/2017	N Cov	GEO46
Aromatic EPH >C16 - C21	<10	ug/l	07/03/2017	N Cov	GEO46
Aromatic EPH >C21 - C35	<10	ug/l	07/03/2017	N Cov	GEO46
Aromatic EPH >C35 - C44	<10	ug/l	07/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C44	<10	ug/l	07/03/2017	N Cov	GEO46

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575



# Certificate of Analysis



Report Number: **COV/1366798/2017**

Issue **1**

Laboratory Number: **15913888**

Sample **1** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM01**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **28 February 2017**

Analysis Complete: **14 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
EPH >C10 - C44	<10	ug/l	07/03/2017	N Cov	GEO46
Aliphatic VPH/EPH >C5 - C44	<10	ug/l	08/03/2017	N Cov	GEO45/GEO4
Aromatic VPH/EPH >C5 - C44	<10	ug/l	08/03/2017	N Cov	GEO45/GEO4
VPH/EPH >C5 - C44	<10	ug/l	08/03/2017	N Cov	GEO45/GEO4
Acenaphthene	<0.02	ug/l	03/03/2017	Y Cov	GEO19
Acenaphthylene	<0.02	ug/l	03/03/2017	Y Cov	GEO19
Anthracene	<0.02	ug/l	03/03/2017	Y Cov	GEO19
Benzo (a) anthracene	<0.02	ug/l	03/03/2017	Y Cov	GEO19
Benzo (g,h,i) perylene	<0.02	ug/l	03/03/2017	Y Cov	GEO19
Benzo (a) pyrene	<0.02	ug/l	03/03/2017	Y Cov	GEO19
Benzo (b) fluoranthene	<0.02	ug/l	03/03/2017	Y Cov	GEO19
Benzo (k) fluoranthene	<0.02	ug/l	03/03/2017	Y Cov	GEO19
Chrysene	<0.02	ug/l	03/03/2017	Y Cov	GEO19
Dibenz (a,h) anthracene	<0.02	ug/l	03/03/2017	Y Cov	GEO19
Fluoranthene	<0.02	ug/l	03/03/2017	Y Cov	GEO19
Fluorene	<0.02	ug/l	03/03/2017	Y Cov	GEO19
Indeno (1,2,3) cd pyrene	<0.02	ug/l	03/03/2017	Y Cov	GEO19
Naphthalene	<0.02	ug/l	03/03/2017	Y Cov	GEO19
Phenanthrene	<0.02	ug/l	03/03/2017	Y Cov	GEO19
Pyrene	<0.02	ug/l	03/03/2017	Y Cov	GEO19
PAH, Total	<0.02	ug/l	03/03/2017	N Cov	GEO19
VOC	Y	ug/l	09/03/2017	N Cov	GEO32
Dichlorodifluoromethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Chloromethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Chloroethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Bromomethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Trichlorofluoromethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,1-Dichloroethene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Dichloromethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,1-Dichloroethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
cis-1,2-Dichloroethene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
2,2-Dichloropropane	<1.0	ug/l	09/03/2017	N Cov	GEO32
Chloroform	<1.0	ug/l	09/03/2017	Y Cov	GEO32

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366798/2017**

Issue **1**

Laboratory Number: **15913888**

Sample **1** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM01**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **28 February 2017**

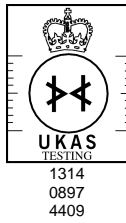
Analysis Complete: **14 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Bromochloromethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,1,1-Trichloroethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,1-Dichloropropene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,2-Dichloroethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Benzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,2-Dichloropropane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Trichloroethene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Bromodichloromethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Dibromomethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
cis-1,3-Dichloropropene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Toluene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
trans-1,3-Dichloropropene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,1,2-Trichloroethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Carbon Tetrachloride	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Vinyl Chloride	<0.5	ug/l	09/03/2017	Y Cov	GEO32
1,3-Dichloropropane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Tetrachloroethene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Dibromochloromethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,2-Dibromoethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Chlorobenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,1,1,2-Tetrachloroethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Ethyl Benzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
m&p-Xylene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
o-Xylene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Styrene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Bromoform	<1.0	ug/l	09/03/2017	Y Cov	GEO32
trans-1,2-Dichloroethene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Isopropylbenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,1,2,2-Tetrachloroethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,2,3-Trichloropropane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
n-Propylbenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Bromobenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
2-Chlorotoluene	<1.0	ug/l	09/03/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366798/2017**

Issue **1**

Laboratory Number: **15913888**

Sample **1** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM01**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **28 February 2017**

Analysis Complete: **14 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
1,3,5-Trimethylbenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
4-Chlorotoluene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
tert-Butylbenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,2,4-Trimethylbenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
sec-Butylbenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
p-Isopropyltoluene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,3-Dichlorobenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,4-Dichlorobenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
n-Butylbenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,2-Dichlorobenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,2-Dibromo-3-chloropropane	<2.0	ug/l	09/03/2017	Y Cov	GEO32
1,2,4-Trichlorobenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Hexachlorobutadiene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Naphthalene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,2,3-Trichlorobenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
MTBE	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Dibromofluoromethane	97.9	%Recovery	09/03/2017	N Cov	GEO32
Toluene-d8	97.9	%Recovery	09/03/2017	N Cov	GEO32
4-Bromofluorobenzene	95.1	%Recovery	09/03/2017	N Cov	GEO32
SVOC	Y	ug/l	06/03/2017	N Cov	GEO40
Phenol	7.5	ug/l	06/03/2017	Y Cov	GEO40
Bis(2-chloroethyl)ether	<1.0	ug/l	06/03/2017	Y Cov	GEO40
2-Chlorophenol	<1.0	ug/l	06/03/2017	Y Cov	GEO40
1,3-Dichlorobenzene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
1,4-Dichlorobenzene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
2-Methylphenol	<1.0	ug/l	06/03/2017	Y Cov	GEO40
3&4-Methylphenol	<1.0	ug/l	06/03/2017	N Cov	GEO40
Dibenzofuran	<1.0	ug/l	06/03/2017	N Cov	GEO40
1,2-Dichlorobenzene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Bis(2-chloroisopropyl)ether	<1.0	ug/l	06/03/2017	Y Cov	GEO40
n-Nitrosodi-n-propylamine	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Hexachloroethane	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Nitrobenzene	<1.0	ug/l	06/03/2017	Y Cov	GEO40

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366798/2017**

Issue **1**

Laboratory Number: **15913888**

Sample **1** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM01**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **28 February 2017**

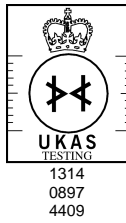
Analysis Complete: **14 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Isophorone	<1.0	ug/l	06/03/2017	Y Cov	GEO40
2,4-Dimethylphenol	<1.0	ug/l	06/03/2017	Y Cov	GEO40
2-Nitrophenol	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Bis(2-chloroethoxy)methane	<1.0	ug/l	06/03/2017	Y Cov	GEO40
2,4-Dichlorophenol	<1.0	ug/l	06/03/2017	Y Cov	GEO40
1,2,4-Trichlorobenzene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Naphthalene	<2.0	ug/l	06/03/2017	Y Cov	GEO40
Hexachlorobutadiene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
4-Chloro-3-methylphenol	<1.0	ug/l	06/03/2017	Y Cov	GEO40
2-Methylnaphthalene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
2,4,6-Trichlorophenol	<1.0	ug/l	06/03/2017	Y Cov	GEO40
2,4,5-Trichlorophenol	<1.0	ug/l	06/03/2017	Y Cov	GEO40
2-Chloronaphthalene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Dimethylphthalate	<1.0	ug/l	06/03/2017	Y Cov	GEO40
2,6-Dinitrotoluene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Acenaphthylene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Acenaphthene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
2,4-Dinitrotoluene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Diethylphthalate	<1.0	ug/l	06/03/2017	Y Cov	GEO40
4-Nitrophenol	<5.0	ug/l	06/03/2017	Y Cov	GEO40
4-Chlorophenyl phenyl ether	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Fluorene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Diphenylamine	<1.0	ug/l	06/03/2017	N Cov	GEO40
4-Bromophenyl Phenyl Ether	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Hexachlorobenzene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Pentachlorophenol	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Phenanthrene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Anthracene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
di-n-Butylphthalate	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Fluoranthene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Pyrene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Benzyl Butyl Phthalate	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Benzo(a)anthracene	<1.0	ug/l	06/03/2017	Y Cov	GEO40

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366798/2017**

Issue **1**

Laboratory Number: **15913888**

Sample **1** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM01**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **28 February 2017**

Analysis Complete: **14 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Chrysene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Bis(2-ethylhexyl)phthalate	<5.0	ug/l	06/03/2017	Y Cov	GEO40
Di-n-octylphthalate	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Benzo(b)fluoranthene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Benzo(k)fluoranthene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Benzo(a)pyrene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Indeno(1,2,3-c,d)pyrene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Dibenz(a,h)anthracene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Benzo(g,h,i)perylene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
2-Fluorophenol	90.5	%Recovery	06/03/2017	N Cov	GEO40
Phenol-d6	80.2	%Recovery	06/03/2017	N Cov	GEO40
Nitrobenzene-d5	88.9	%Recovery	06/03/2017	N Cov	GEO40
2-Fluorobiphenyl	89.1	%Recovery	06/03/2017	N Cov	GEO40
2,4,6-Tribromophenol	87.6	%Recovery	06/03/2017	N Cov	GEO40
Terphenyl-d14	90.0	%Recovery	06/03/2017	N Cov	GEO40
Nitrite as NO2	<0.28	mg/l	03/03/2017	N Cov	WAS036
Fluoroxypyr	<0.05	ug/l	10/03/2017	Y Cov	GEO20

## Analyst Comments for 15913888:

This sample has been analysed for Sodium Total as Na, Boron, Total as B outside recommended stability times. It is therefore possible that the results provided may be compromised. Reporting limits raised for PAH due to nature of sample matrix. {(\*)}The ferrous iron analysis was not carried out on site and there is the possibility of change in ferrous-ferric ratio between sampling and analysis.{(\*)} Reporting limit raised for Hexachlorobenzene due to interferences.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed: *A I Horobin*

Name: **A. Horobin**

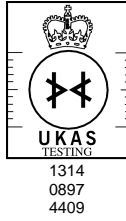
Date: **14 March 2017**

Title: **Organic Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366798/2017**

Issue **1**

Laboratory Number: **15913889**

Sample **2** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM02**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **28 February 2017**

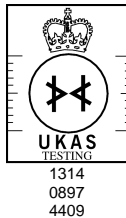
Analysis Complete: **14 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron, Total	<0.5	mg/l	03/03/2017	N Cov	WAS043
Nitrate as NO3	8.9	mg/l	01/03/2017	N Cov	WAS036
Antimony Ultra Low Total as Sb	<0.0012	mg/l	10/03/2017	Y Cov	WAS060
Selenium Ultra Low Total as Se	0.0065	mg/l	10/03/2017	Y Cov	WAS060
Arsenic, Ultra Low Total as As	0.0036	mg/l	10/03/2017	Y Cov	WAS060
Fluoride	0.090	mg/l	03/03/2017	Y S	SUBCON
Aluminium, Total as Al	0.4	mg/l	11/03/2017	Y Cov	WAS049
Barium, Total as Ba	0.068	mg/l	09/03/2017	Y Cov	WAS049
Beryllium, Total as Be	<0.0021	mg/l	09/03/2017	Y Cov	WAS049
Boron, Total as B	<0.23	mg/l	09/03/2017	Y Cov	WAS049
Cadmium , Total as Cd	<0.0006	mg/l	09/03/2017	Y Cov	WAS049
Calcium , Total as Ca	113	mg/l	09/03/2017	Y Cov	WAS049
Chromium , Total as Cr	0.003	mg/l	09/03/2017	Y Cov	WAS049
Copper, Ultra-low Total as Cu	4.9	ug/l	10/03/2017	Y Cov	WAS060
Iron , Total as Fe	2.95	mg/l	09/03/2017	Y Cov	WAS049
Ferrous Iron	<0.5	mg/l	03/03/2017	N Cov	WAS043
Ferric Iron	<0.5	mg/l	03/03/2017	N Cov	WAS043
Lead , Total as Pb	0.009	mg/l	09/03/2017	Y Cov	WAS049
Magnesium, Total as Mg	10.5	mg/l	09/03/2017	Y Cov	WAS049
Manganese , Total as Mn	0.412	mg/l	09/03/2017	Y Cov	WAS049
Mercury, Total as Hg	<0.00010	mg/l	03/03/2017	N Cov	WAS013
Nickel, Total as Ni	0.006	mg/l	09/03/2017	Y Cov	WAS049
Potassium , Total as K	1.34	mg/l	09/03/2017	Y Cov	WAS049
Sodium , Total as Na	8.65	mg/l	09/03/2017	Y Cov	WAS049
Vanadium , Total as V	<0.004	mg/l	09/03/2017	Y Cov	WAS049
Zinc, Total as Zn	0.02	mg/l	09/03/2017	Y Cov	WAS049
pH	7.9	pH units	01/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	528	uS/cm	01/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	291	mg/l	09/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	01/03/2017	Y Cov	WAS067
Chloride as Cl	17.2	mg/l	01/03/2017	N Cov	WAS036
Nitrite as N	<0.08	mg/l	01/03/2017	N Cov	WAS036

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366798/2017**

Issue **1**

Laboratory Number: **15913889**

Sample **2** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM02**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **28 February 2017**

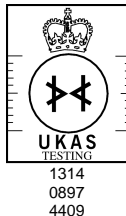
Analysis Complete: **14 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Phosphates , Total as P	0.25	mg/l	09/03/2017	Y Cov	WAS049
Sulphate as SO4	18.3	mg/l	01/03/2017	N Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	06/03/2017	Y Cov	WAS001
COD (Total)	<11.0	mg/l	02/03/2017	Y Cov	WAS040
TOC (Filtered)	0.9	mg/l	01/03/2017	Y Cov	WAS005
Cyanide, Free as CN	<0.008	mg/l	06/03/2017	N Cov	WAS018
Cyanide, Total as CN	<0.009	mg/l	06/03/2017	N Cov	WAS018
Sulphide as S	<0.020	mg/l	10/03/2017	N Cov	WAS033
Formaldehyde	<0.029	mg/l	09/03/2017	N Cov	WAS030
1,2,3-Trichlorobenzene	<10	ng/l	07/03/2017	Y Cov	GEO47
1,2,4-Trichlorobenzene	<10	ng/l	07/03/2017	Y Cov	GEO47
1,3,5-Trichlorobenzene	<10	ng/l	07/03/2017	N Cov	GEO47
SVOC with TICs	Y	ug/l	06/03/2017	N Cov	GEO40
Aldrin	<4	ng/l	07/03/2017	Y Cov	GEO47
alpha-Endosulphan	<4	ng/l	07/03/2017	Y Cov	GEO47
alpha-HCH	<3	ng/l	07/03/2017	Y Cov	GEO47
beta-Endosulphan	<4	ng/l	07/03/2017	Y Cov	GEO47
beta-HCH	<3	ng/l	07/03/2017	Y Cov	GEO47
alpha-Chlordane	<3	ng/l	07/03/2017	Y Cov	GEO47
Dichlobenil	<2	ng/l	07/03/2017	Y Cov	GEO47
Dieldrin	<4	ng/l	07/03/2017	Y Cov	GEO47
Endrin	<4	ng/l	07/03/2017	Y Cov	GEO47
gamma-HCH	<2.7	ng/l	07/03/2017	Y Cov	GEO47
Heptachlor Epoxide	<4	ng/l	07/03/2017	Y Cov	GEO47
Hexachlorobenzene	<30	ng/l	07/03/2017	Y Cov	GEO47
Hexachlorobutadiene	<7	ng/l	07/03/2017	N Cov	GEO47
Isodrin	<4	ng/l	07/03/2017	Y Cov	GEO47
o,p - DDE	<2	ng/l	07/03/2017	Y Cov	GEO47
p,p - DDE	<2	ng/l	07/03/2017	Y Cov	GEO47
o,p - TDE	<2	ng/l	07/03/2017	Y Cov	GEO47
p,p - TDE	<2	ng/l	07/03/2017	Y Cov	GEO47
o,p - DDT	<2	ng/l	07/03/2017	Y Cov	GEO47
p,p - DDT	<4	ng/l	07/03/2017	Y Cov	GEO47

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366798/2017**

Issue **1**

Laboratory Number: **15913889**

Sample **2** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM02**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **28 February 2017**

Analysis Complete: **14 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Tecnazene	<10	ng/l	07/03/2017	Y Cov	GEO47
gamma-Chlordane	<4	ng/l	07/03/2017	Y Cov	GEO47
Triallate	<10	ng/l	07/03/2017	Y Cov	GEO47
Trifluralin	<30	ng/l	07/03/2017	Y Cov	GEO47
Azinphos-ethyl	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Azinphos-methyl	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Carbophenothion	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Chlorfenvinphos	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Chlorpyrifos	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Diazinon	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Dichlorvos	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Dimethoate	<0.020	ug/l	07/03/2017	Y Cov	GEO47
Fenitrothion	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Fenthion	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Malathion	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Mevinphos	<0.020	ug/l	07/03/2017	Y Cov	GEO47
Parathion-ethyl	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Parathion-methyl	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Phorate	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Phosalone	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Pirimiphos-methyl	<0.005	ug/l	07/03/2017	Y Cov	GEO47
Propetamphos	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Triazophos	<0.002	ug/l	07/03/2017	Y Cov	GEO47
2,3,6 - TBA	<0.05	ug/l	10/03/2017	Y Cov	GEO20
2,4 - D	<0.05	ug/l	10/03/2017	Y Cov	GEO20
2,4 - DB	<0.05	ug/l	10/03/2017	Y Cov	GEO20
2,4,5 - T	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Benazolin	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Bentazone	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Chlopyralid	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Bromoxynil	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Dicamba	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Dichlorprop	<0.05	ug/l	10/03/2017	Y Cov	GEO20

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575



# Certificate of Analysis



Report Number: **COV/1366798/2017**

Issue **1**

Laboratory Number: **15913889**

Sample **2** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM02**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **28 February 2017**

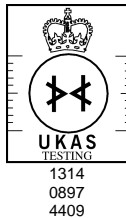
Analysis Complete: **14 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Fenoprop	<0.05	ug/l	10/03/2017	Y Cov	GEO20
loxynil	<0.05	ug/l	10/03/2017	Y Cov	GEO20
MCPA	<0.05	ug/l	10/03/2017	Y Cov	GEO20
MCPB	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Triclopyr	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Mecoprop	<0.04	ug/l	10/03/2017	Y Cov	GEO20
Catechol	<0.10	ug/l	03/03/2017	N Cov	338
Cresol, Total	<0.10	ug/l	03/03/2017	N Cov	338
Xylenol, Total	<0.10	ug/l	03/03/2017	N Cov	338
Naphthol	<0.10	ug/l	03/03/2017	N Cov	338
Phenol	<0.10	ug/l	03/03/2017	N Cov	338
Trimethylphenol, Total	<0.10	ug/l	03/03/2017	N Cov	338
Phenols, Total	<0.50	ug/l	03/03/2017	N Cov	338
Aliphatic VPH >C5 - C6	<10	ug/l	08/03/2017	Y Cov	GEO45
Aliphatic VPH >C6 - C8	<10	ug/l	08/03/2017	Y Cov	GEO45
Aliphatic VPH >C8 - 10	<10	ug/l	08/03/2017	Y Cov	GEO45
Aliphatic VPH >C5 - C10	<10	ug/l	08/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C7	<10	ug/l	08/03/2017	Y Cov	GEO45
Aromatic VPH >C7 - C8	<10	ug/l	08/03/2017	Y Cov	GEO45
Aromatic VPH >C8 - C10	<10	ug/l	08/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C10	<10	ug/l	08/03/2017	Y Cov	GEO45
VPH >C5 - C10	<10	ug/l	08/03/2017	Y Cov	GEO45
Aliphatic EPH >C10 - C12	<10	ug/l	07/03/2017	N Cov	GEO46
Aliphatic EPH >C12 - C16	<10	ug/l	07/03/2017	N Cov	GEO46
Aliphatic EPH >C16 - C35	<10	ug/l	07/03/2017	N Cov	GEO46
Aliphatic EPH >C35 - C44	<10	ug/l	07/03/2017	N Cov	GEO46
Aliphatic EPH >C10 - C44	<10	ug/l	07/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C12	<10	ug/l	07/03/2017	N Cov	GEO46
Aromatic EPH >C12 - C16	<10	ug/l	07/03/2017	N Cov	GEO46
Aromatic EPH >C16 - C21	<10	ug/l	07/03/2017	N Cov	GEO46
Aromatic EPH >C21 - C35	<10	ug/l	07/03/2017	N Cov	GEO46
Aromatic EPH >C35 - C44	<10	ug/l	07/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C44	<10	ug/l	07/03/2017	N Cov	GEO46

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366798/2017**

Issue **1**

Laboratory Number: **15913889**

Sample **2** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM02**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **28 February 2017**

Analysis Complete: **14 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
EPH >C10 - C44	<10	ug/l	07/03/2017	N Cov	GEO46
Aliphatic VPH/EPH >C5 - C44	<10	ug/l	08/03/2017	N Cov	GEO45/GEO4
Aromatic VPH/EPH >C5 - C44	<10	ug/l	08/03/2017	N Cov	GEO45/GEO4
VPH/EPH >C5 - C44	<10	ug/l	08/03/2017	N Cov	GEO45/GEO4
Acenaphthene	<0.02	ug/l	03/03/2017	Y Cov	GEO19
Acenaphthylene	<0.02	ug/l	03/03/2017	Y Cov	GEO19
Anthracene	<0.02	ug/l	03/03/2017	Y Cov	GEO19
Benzo (a) anthracene	<0.02	ug/l	03/03/2017	Y Cov	GEO19
Benzo (g,h,i) perylene	<0.02	ug/l	03/03/2017	Y Cov	GEO19
Benzo (a) pyrene	<0.02	ug/l	03/03/2017	Y Cov	GEO19
Benzo (b) fluoranthene	<0.02	ug/l	03/03/2017	Y Cov	GEO19
Benzo (k) fluoranthene	<0.02	ug/l	03/03/2017	Y Cov	GEO19
Chrysene	<0.02	ug/l	03/03/2017	Y Cov	GEO19
Dibenz (a,h) anthracene	<0.02	ug/l	03/03/2017	Y Cov	GEO19
Fluoranthene	<0.02	ug/l	03/03/2017	Y Cov	GEO19
Fluorene	<0.02	ug/l	03/03/2017	Y Cov	GEO19
Indeno (1,2,3) cd pyrene	<0.02	ug/l	03/03/2017	Y Cov	GEO19
Naphthalene	<0.02	ug/l	03/03/2017	Y Cov	GEO19
Phenanthrene	<0.02	ug/l	03/03/2017	Y Cov	GEO19
Pyrene	<0.02	ug/l	03/03/2017	Y Cov	GEO19
PAH, Total	<0.02	ug/l	03/03/2017	N Cov	GEO19
VOC	Y	ug/l	09/03/2017	N Cov	GEO32
Dichlorodifluoromethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Chloromethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Chloroethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Bromomethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Trichlorofluoromethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,1-Dichloroethene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Dichloromethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,1-Dichloroethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
cis-1,2-Dichloroethene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
2,2-Dichloropropane	<1.0	ug/l	09/03/2017	N Cov	GEO32
Chloroform	<1.0	ug/l	09/03/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366798/2017**

Issue **1**

Laboratory Number: **15913889**

Sample **2** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM02**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **28 February 2017**

Analysis Complete: **14 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Bromochloromethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,1,1-Trichloroethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,1-Dichloropropene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,2-Dichloroethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Benzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,2-Dichloropropane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Trichloroethene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Bromodichloromethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Dibromomethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
cis-1,3-Dichloropropene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Toluene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
trans-1,3-Dichloropropene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,1,2-Trichloroethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Carbon Tetrachloride	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Vinyl Chloride	<0.5	ug/l	09/03/2017	Y Cov	GEO32
1,3-Dichloropropane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Tetrachloroethene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Dibromochloromethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,2-Dibromoethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Chlorobenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,1,1,2-Tetrachloroethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Ethyl Benzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
m&p-Xylene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
o-Xylene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Styrene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Bromoform	<1.0	ug/l	09/03/2017	Y Cov	GEO32
trans-1,2-Dichloroethene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Isopropylbenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,1,2,2-Tetrachloroethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,2,3-Trichloropropane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
n-Propylbenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Bromobenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
2-Chlorotoluene	<1.0	ug/l	09/03/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366798/2017**

Issue **1**

Laboratory Number: **15913889**

Sample **2** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM02**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **28 February 2017**

Analysis Complete: **14 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
1,3,5-Trimethylbenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
4-Chlorotoluene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
tert-Butylbenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,2,4-Trimethylbenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
sec-Butylbenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
p-Isopropyltoluene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,3-Dichlorobenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,4-Dichlorobenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
n-Butylbenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,2-Dichlorobenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,2-Dibromo-3-chloropropane	<2.0	ug/l	09/03/2017	Y Cov	GEO32
1,2,4-Trichlorobenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Hexachlorobutadiene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Naphthalene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,2,3-Trichlorobenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
MTBE	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Dibromofluoromethane	100.4	%Recovery	09/03/2017	N Cov	GEO32
Toluene-d8	99.0	%Recovery	09/03/2017	N Cov	GEO32
4-Bromofluorobenzene	96.5	%Recovery	09/03/2017	N Cov	GEO32
SVOC	Y	ug/l	06/03/2017	N Cov	GEO40
Phenol	10.6	ug/l	06/03/2017	Y Cov	GEO40
Bis(2-chloroethyl)ether	<1.0	ug/l	06/03/2017	Y Cov	GEO40
2-Chlorophenol	<1.0	ug/l	06/03/2017	Y Cov	GEO40
1,3-Dichlorobenzene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
1,4-Dichlorobenzene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
2-Methylphenol	<1.0	ug/l	06/03/2017	Y Cov	GEO40
3&4-Methylphenol	<1.0	ug/l	06/03/2017	N Cov	GEO40
Dibenzofuran	<1.0	ug/l	06/03/2017	N Cov	GEO40
1,2-Dichlorobenzene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Bis(2-chloroisopropyl)ether	<1.0	ug/l	06/03/2017	Y Cov	GEO40
n-Nitrosodi-n-propylamine	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Hexachloroethane	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Nitrobenzene	<1.0	ug/l	06/03/2017	Y Cov	GEO40

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366798/2017**

Issue **1**

Laboratory Number: **15913889**

Sample **2** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM02**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **28 February 2017**

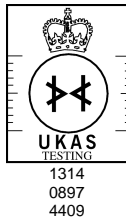
Analysis Complete: **14 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Isophorone	<1.0	ug/l	06/03/2017	Y Cov	GEO40
2,4-Dimethylphenol	<1.0	ug/l	06/03/2017	Y Cov	GEO40
2-Nitrophenol	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Bis(2-chloroethoxy)methane	<1.0	ug/l	06/03/2017	Y Cov	GEO40
2,4-Dichlorophenol	<1.0	ug/l	06/03/2017	Y Cov	GEO40
1,2,4-Trichlorobenzene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Naphthalene	<2.0	ug/l	06/03/2017	Y Cov	GEO40
Hexachlorobutadiene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
4-Chloro-3-methylphenol	<1.0	ug/l	06/03/2017	Y Cov	GEO40
2-Methylnaphthalene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
2,4,6-Trichlorophenol	<1.0	ug/l	06/03/2017	Y Cov	GEO40
2,4,5-Trichlorophenol	<1.0	ug/l	06/03/2017	Y Cov	GEO40
2-Chloronaphthalene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Dimethylphthalate	<1.0	ug/l	06/03/2017	Y Cov	GEO40
2,6-Dinitrotoluene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Acenaphthylene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Acenaphthene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
2,4-Dinitrotoluene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Diethylphthalate	<1.0	ug/l	06/03/2017	Y Cov	GEO40
4-Nitrophenol	<5.0	ug/l	06/03/2017	Y Cov	GEO40
4-Chlorophenyl phenyl ether	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Fluorene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Diphenylamine	<1.0	ug/l	06/03/2017	N Cov	GEO40
4-Bromophenyl Phenyl Ether	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Hexachlorobenzene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Pentachlorophenol	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Phenanthrene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Anthracene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
di-n-Butylphthalate	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Fluoranthene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Pyrene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Benzyl Butyl Phthalate	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Benzo(a)anthracene	<1.0	ug/l	06/03/2017	Y Cov	GEO40

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366798/2017**

Issue **1**

Laboratory Number: **15913889**

Sample **2** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM02**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **28 February 2017**

Analysis Complete: **14 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Chrysene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Bis(2-ethylhexyl)phthalate	<5.0	ug/l	06/03/2017	Y Cov	GEO40
Di-n-octylphthalate	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Benzo(b)fluoranthene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Benzo(k)fluoranthene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Benzo(a)pyrene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Indeno(1,2,3-c,d)pyrene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Dibenz(a,h)anthracene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Benzo(g,h,i)perylene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
2-Fluorophenol	90.5	%Recovery	06/03/2017	N Cov	GEO40
Phenol-d6	79.3	%Recovery	06/03/2017	N Cov	GEO40
Nitrobenzene-d5	88.3	%Recovery	06/03/2017	N Cov	GEO40
2-Fluorobiphenyl	88.2	%Recovery	06/03/2017	N Cov	GEO40
2,4,6-Tribromophenol	86.5	%Recovery	06/03/2017	N Cov	GEO40
Terphenyl-d14	84.7	%Recovery	06/03/2017	N Cov	GEO40
Nitrite as NO2	<0.28	mg/l	03/03/2017	N Cov	WAS036
Fluoroxypyr	<0.05	ug/l	10/03/2017	Y Cov	GEO20

## Analyst Comments for 15913889:

This sample has been analysed for Sodium Total as Na, Boron, Total as B outside recommended stability times. It is therefore possible that the results provided may be compromised. Reporting limits raised for PAH due to nature of sample matrix. {(\*)}The ferrous iron analysis was not carried out on site and there is the possibility of change in ferrous-ferric ratio between sampling and analysis.{(\*)} Reporting limit raised for Hexachlorobenzene due to interferences.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed: *A I Horobin*

Name: **A. Horobin**

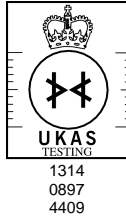
Date: **14 March 2017**

Title: **Organic Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366798/2017**

Issue **1**

Laboratory Number: **15913890**

Sample **3** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB03**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **28 February 2017**

Analysis Complete: **14 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron, Total	<0.5	mg/l	03/03/2017	N Cov	WAS043
Nitrate as NO3	28.5	mg/l	01/03/2017	N Cov	WAS036
Antimony Ultra Low Total as Sb	<0.0012	mg/l	10/03/2017	Y Cov	WAS060
Selenium Ultra Low Total as Se	<0.0008	mg/l	10/03/2017	Y Cov	WAS060
Arsenic, Ultra Low Total as As	0.0089	mg/l	10/03/2017	Y Cov	WAS060
Fluoride	0.167	mg/l	03/03/2017	Y S	SUBCON
Aluminium, Total as Al	8.2	mg/l	13/03/2017	Y Cov	WAS049
Barium, Total as Ba	0.400	mg/l	13/03/2017	Y Cov	WAS049
Beryllium, Total as Be	<0.0210	mg/l	13/03/2017	Y Cov	WAS049
Boron, Total as B	3.19	mg/l	13/03/2017	Y Cov	WAS049
Cadmium , Total as Cd	<0.0060	mg/l	13/03/2017	Y Cov	WAS049
Calcium , Total as Ca	618	mg/l	13/03/2017	Y Cov	WAS049
Chromium , Total as Cr	<0.020	mg/l	13/03/2017	Y Cov	WAS049
Copper, Ultra-low Total as Cu	71	ug/l	10/03/2017	Y Cov	WAS060
Iron , Total as Fe	18.2	mg/l	13/03/2017	Y Cov	WAS049
Ferrous Iron	<0.5	mg/l	03/03/2017	N Cov	WAS043
Ferric Iron	<0.5	mg/l	03/03/2017	N Cov	WAS043
Lead , Total as Pb	<0.060	mg/l	13/03/2017	Y Cov	WAS049
Magnesium, Total as Mg	29.9	mg/l	13/03/2017	Y Cov	WAS049
Manganese , Total as Mn	5.16	mg/l	13/03/2017	Y Cov	WAS049
Mercury, Total as Hg	0.00054	mg/l	03/03/2017	N Cov	WAS013
Nickel, Total as Ni	<0.030	mg/l	13/03/2017	Y Cov	WAS049
Potassium , Total as K	7.69	mg/l	13/03/2017	Y Cov	WAS049
Sodium , Total as Na	46.8	mg/l	13/03/2017	Y Cov	WAS049
Vanadium , Total as V	<0.040	mg/l	13/03/2017	Y Cov	WAS049
Zinc, Total as Zn	<0.180	mg/l	13/03/2017	Y Cov	WAS049
pH	7.2	pH units	01/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	984	uS/cm	01/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	1020	mg/l	09/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	6.38	mg/l	01/03/2017	Y Cov	WAS067
Chloride as Cl	111	mg/l	01/03/2017	N Cov	WAS036
Nitrite as N	0.19	mg/l	01/03/2017	N Cov	WAS036

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366798/2017**

Issue **1**

Laboratory Number: **15913890**

Sample **3** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB03**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **28 February 2017**

Analysis Complete: **14 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Phosphates , Total as P	1.7	mg/l	13/03/2017	Y Cov	WAS049
Sulphate as SO4	55.5	mg/l	01/03/2017	N Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	06/03/2017	Y Cov	WAS001
COD (Total)	196	mg/l	02/03/2017	Y Cov	WAS040
TOC (Filtered)	2.6	mg/l	01/03/2017	Y Cov	WAS005
Cyanide, Free as CN	<0.008	mg/l	06/03/2017	N Cov	WAS018
Cyanide, Total as CN	<0.009	mg/l	06/03/2017	N Cov	WAS018
Sulphide as S	<0.020	mg/l	10/03/2017	N Cov	WAS033
Formaldehyde	<0.029	mg/l	09/03/2017	N Cov	WAS030
1,2,3-Trichlorobenzene	<10	ng/l	07/03/2017	Y Cov	GEO47
1,2,4-Trichlorobenzene	<10	ng/l	07/03/2017	Y Cov	GEO47
1,3,5-Trichlorobenzene	<10	ng/l	07/03/2017	N Cov	GEO47
SVOC with TICs	Y	ug/l	06/03/2017	N Cov	GEO40
Aldrin	<4	ng/l	07/03/2017	Y Cov	GEO47
alpha-Endosulphan	<4	ng/l	07/03/2017	Y Cov	GEO47
alpha-HCH	<3	ng/l	07/03/2017	Y Cov	GEO47
beta-Endosulphan	<4	ng/l	07/03/2017	Y Cov	GEO47
beta-HCH	<3	ng/l	07/03/2017	Y Cov	GEO47
alpha-Chlordane	<3	ng/l	07/03/2017	Y Cov	GEO47
Dichlobenil	<2	ng/l	07/03/2017	Y Cov	GEO47
Dieldrin	<4	ng/l	07/03/2017	Y Cov	GEO47
Endrin	<4	ng/l	07/03/2017	Y Cov	GEO47
gamma-HCH	<2.7	ng/l	07/03/2017	Y Cov	GEO47
Heptachlor Epoxide	<4	ng/l	07/03/2017	Y Cov	GEO47
Hexachlorobenzene	<4	ng/l	07/03/2017	Y Cov	GEO47
Hexachlorobutadiene	<7	ng/l	07/03/2017	N Cov	GEO47
Isodrin	<4	ng/l	07/03/2017	Y Cov	GEO47
o,p - DDE	<2	ng/l	07/03/2017	Y Cov	GEO47
p,p - DDE	<2	ng/l	07/03/2017	Y Cov	GEO47
o,p - TDE	<2	ng/l	07/03/2017	Y Cov	GEO47
p,p - TDE	<2	ng/l	07/03/2017	Y Cov	GEO47
o,p - DDT	<2	ng/l	07/03/2017	Y Cov	GEO47
p,p - DDT	<4	ng/l	07/03/2017	Y Cov	GEO47

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575



# Certificate of Analysis



Report Number: **COV/1366798/2017**

Issue **1**

Laboratory Number: **15913890**

Sample **3** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB03**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **28 February 2017**

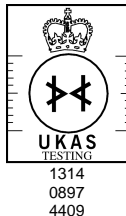
Analysis Complete: **14 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Tecnazene	<10	ng/l	07/03/2017	Y Cov	GEO47
gamma-Chlordane	<4	ng/l	07/03/2017	Y Cov	GEO47
Triallate	<10	ng/l	07/03/2017	Y Cov	GEO47
Trifluralin	<30	ng/l	07/03/2017	Y Cov	GEO47
Azinphos-ethyl	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Azinphos-methyl	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Carbophenothion	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Chlorfenvinphos	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Chlorpyrifos	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Diazinon	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Dichlorvos	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Dimethoate	<0.020	ug/l	07/03/2017	Y Cov	GEO47
Fenitrothion	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Fenthion	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Malathion	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Mevinphos	<0.020	ug/l	07/03/2017	Y Cov	GEO47
Parathion-ethyl	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Parathion-methyl	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Phorate	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Phosalone	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Pirimiphos-methyl	<0.005	ug/l	07/03/2017	Y Cov	GEO47
Propetamphos	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Triazophos	<0.002	ug/l	07/03/2017	Y Cov	GEO47
2,3,6 - TBA	<0.05	ug/l	10/03/2017	Y Cov	GEO20
2,4 - D	<0.05	ug/l	10/03/2017	Y Cov	GEO20
2,4 - DB	<0.05	ug/l	10/03/2017	Y Cov	GEO20
2,4,5 - T	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Benazolin	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Bentazone	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Chlopyralid	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Bromoxynil	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Dicamba	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Dichlorprop	<0.05	ug/l	10/03/2017	Y Cov	GEO20

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366798/2017**

Issue **1**

Laboratory Number: **15913890**

Sample **3** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB03**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **28 February 2017**

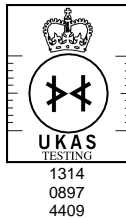
Analysis Complete: **14 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Fenoprop	<0.05	ug/l	10/03/2017	Y Cov	GEO20
loxynil	<0.05	ug/l	10/03/2017	Y Cov	GEO20
MCPA	<0.05	ug/l	10/03/2017	Y Cov	GEO20
MCPB	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Triclopyr	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Mecoprop	0.73	ug/l	10/03/2017	Y Cov	GEO20
Catechol	<0.10	ug/l	03/03/2017	N Cov	338
Cresol, Total	<0.10	ug/l	03/03/2017	N Cov	338
Xylenol, Total	<0.10	ug/l	03/03/2017	N Cov	338
Naphthol	<0.10	ug/l	03/03/2017	N Cov	338
Phenol	<0.10	ug/l	03/03/2017	N Cov	338
Trimethylphenol, Total	<0.10	ug/l	03/03/2017	N Cov	338
Phenols, Total	<0.50	ug/l	03/03/2017	N Cov	338
Aliphatic VPH >C5 - C6	<10	ug/l	08/03/2017	Y Cov	GEO45
Aliphatic VPH >C6 - C8	<10	ug/l	08/03/2017	Y Cov	GEO45
Aliphatic VPH >C8 - 10	<10	ug/l	08/03/2017	Y Cov	GEO45
Aliphatic VPH >C5 - C10	<10	ug/l	08/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C7	<10	ug/l	08/03/2017	Y Cov	GEO45
Aromatic VPH >C7 - C8	<10	ug/l	08/03/2017	Y Cov	GEO45
Aromatic VPH >C8 - C10	<10	ug/l	08/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C10	<10	ug/l	08/03/2017	Y Cov	GEO45
VPH >C5 - C10	<10	ug/l	08/03/2017	Y Cov	GEO45
Aliphatic EPH >C10 - C12	<10	ug/l	07/03/2017	N Cov	GEO46
Aliphatic EPH >C12 - C16	<10	ug/l	07/03/2017	N Cov	GEO46
Aliphatic EPH >C16 - C35	<10	ug/l	07/03/2017	N Cov	GEO46
Aliphatic EPH >C35 - C44	<10	ug/l	07/03/2017	N Cov	GEO46
Aliphatic EPH >C10 - C44	<10	ug/l	07/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C12	<10	ug/l	07/03/2017	N Cov	GEO46
Aromatic EPH >C12 - C16	<10	ug/l	07/03/2017	N Cov	GEO46
Aromatic EPH >C16 - C21	<10	ug/l	07/03/2017	N Cov	GEO46
Aromatic EPH >C21 - C35	<10	ug/l	07/03/2017	N Cov	GEO46
Aromatic EPH >C35 - C44	<10	ug/l	07/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C44	<10	ug/l	07/03/2017	N Cov	GEO46

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366798/2017**

Issue **1**

Laboratory Number: **15913890**

Sample **3** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB03**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **28 February 2017**

Analysis Complete: **14 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
EPH >C10 - C44	<10	ug/l	07/03/2017	N Cov	GEO46
Aliphatic VPH/EPH >C5 - C44	<10	ug/l	08/03/2017	N Cov	GEO45/GEO4
Aromatic VPH/EPH >C5 - C44	<10	ug/l	08/03/2017	N Cov	GEO45/GEO4
VPH/EPH >C5 - C44	<10	ug/l	08/03/2017	N Cov	GEO45/GEO4
Acenaphthene	<0.01	ug/l	03/03/2017	Y Cov	GEO19
Acenaphthylene	<0.01	ug/l	03/03/2017	Y Cov	GEO19
Anthracene	<0.01	ug/l	03/03/2017	Y Cov	GEO19
Benzo (a) anthracene	<0.01	ug/l	03/03/2017	Y Cov	GEO19
Benzo (g,h,i) perylene	<0.01	ug/l	03/03/2017	Y Cov	GEO19
Benzo (a) pyrene	<0.01	ug/l	03/03/2017	Y Cov	GEO19
Benzo (b) fluoranthene	<0.01	ug/l	03/03/2017	Y Cov	GEO19
Benzo (k) fluoranthene	<0.01	ug/l	03/03/2017	Y Cov	GEO19
Chrysene	<0.01	ug/l	03/03/2017	Y Cov	GEO19
Dibenz (a,h) anthracene	<0.01	ug/l	03/03/2017	Y Cov	GEO19
Fluoranthene	<0.01	ug/l	03/03/2017	Y Cov	GEO19
Fluorene	<0.01	ug/l	03/03/2017	Y Cov	GEO19
Indeno (1,2,3) cd pyrene	<0.01	ug/l	03/03/2017	Y Cov	GEO19
Naphthalene	<0.01	ug/l	03/03/2017	Y Cov	GEO19
Phenanthrene	<0.01	ug/l	03/03/2017	Y Cov	GEO19
Pyrene	<0.01	ug/l	03/03/2017	Y Cov	GEO19
PAH, Total	<0.01	ug/l	03/03/2017	N Cov	GEO19
VOC	Y	ug/l	09/03/2017	N Cov	GEO32
Dichlorodifluoromethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Chloromethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Chloroethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Bromomethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Trichlorofluoromethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,1-Dichloroethene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Dichloromethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,1-Dichloroethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
cis-1,2-Dichloroethene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
2,2-Dichloropropane	<1.0	ug/l	09/03/2017	N Cov	GEO32
Chloroform	<1.0	ug/l	09/03/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366798/2017**

Issue **1**

Laboratory Number: **15913890**

Sample **3** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB03**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **28 February 2017**

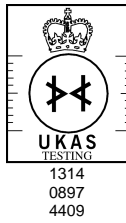
Analysis Complete: **14 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Bromochloromethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,1,1-Trichloroethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,1-Dichloropropene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,2-Dichloroethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Benzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,2-Dichloropropane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Trichloroethene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Bromodichloromethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Dibromomethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
cis-1,3-Dichloropropene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Toluene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
trans-1,3-Dichloropropene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,1,2-Trichloroethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Carbon Tetrachloride	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Vinyl Chloride	<0.5	ug/l	09/03/2017	Y Cov	GEO32
1,3-Dichloropropane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Tetrachloroethene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Dibromochloromethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,2-Dibromoethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Chlorobenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,1,1,2-Tetrachloroethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Ethyl Benzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
m&p-Xylene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
o-Xylene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Styrene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Bromoform	<1.0	ug/l	09/03/2017	Y Cov	GEO32
trans-1,2-Dichloroethene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Isopropylbenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,1,2,2-Tetrachloroethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,2,3-Trichloropropane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
n-Propylbenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Bromobenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
2-Chlorotoluene	<1.0	ug/l	09/03/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366798/2017**

Issue **1**

Laboratory Number: **15913890**

Sample **3** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB03**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **28 February 2017**

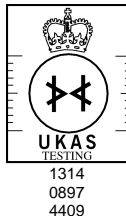
Analysis Complete: **14 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
1,3,5-Trimethylbenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
4-Chlorotoluene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
tert-Butylbenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,2,4-Trimethylbenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
sec-Butylbenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
p-Isopropyltoluene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,3-Dichlorobenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,4-Dichlorobenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
n-Butylbenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,2-Dichlorobenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,2-Dibromo-3-chloropropane	<2.0	ug/l	09/03/2017	Y Cov	GEO32
1,2,4-Trichlorobenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Hexachlorobutadiene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Naphthalene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,2,3-Trichlorobenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
MTBE	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Dibromofluoromethane	101.4	%Recovery	09/03/2017	N Cov	GEO32
Toluene-d8	100.4	%Recovery	09/03/2017	N Cov	GEO32
4-Bromofluorobenzene	95.2	%Recovery	09/03/2017	N Cov	GEO32
SVOC	Y	ug/l	06/03/2017	N Cov	GEO40
Phenol	18.8	ug/l	06/03/2017	Y Cov	GEO40
Bis(2-chloroethyl)ether	<1.0	ug/l	06/03/2017	Y Cov	GEO40
2-Chlorophenol	<1.0	ug/l	06/03/2017	Y Cov	GEO40
1,3-Dichlorobenzene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
1,4-Dichlorobenzene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
2-Methylphenol	<1.0	ug/l	06/03/2017	Y Cov	GEO40
3&4-Methylphenol	<1.0	ug/l	06/03/2017	N Cov	GEO40
Dibenzofuran	<1.0	ug/l	06/03/2017	N Cov	GEO40
1,2-Dichlorobenzene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Bis(2-chloroisopropyl)ether	<1.0	ug/l	06/03/2017	Y Cov	GEO40
n-Nitrosodi-n-propylamine	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Hexachloroethane	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Nitrobenzene	<1.0	ug/l	06/03/2017	Y Cov	GEO40

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366798/2017**

Issue **1**

Laboratory Number: **15913890**

Sample **3** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB03**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **28 February 2017**

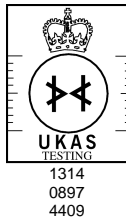
Analysis Complete: **14 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Isophorone	<1.0	ug/l	06/03/2017	Y Cov	GEO40
2,4-Dimethylphenol	<1.0	ug/l	06/03/2017	Y Cov	GEO40
2-Nitrophenol	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Bis(2-chloroethoxy)methane	<1.0	ug/l	06/03/2017	Y Cov	GEO40
2,4-Dichlorophenol	<1.0	ug/l	06/03/2017	Y Cov	GEO40
1,2,4-Trichlorobenzene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Naphthalene	<2.0	ug/l	06/03/2017	Y Cov	GEO40
Hexachlorobutadiene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
4-Chloro-3-methylphenol	<1.0	ug/l	06/03/2017	Y Cov	GEO40
2-Methylnaphthalene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
2,4,6-Trichlorophenol	<1.0	ug/l	06/03/2017	Y Cov	GEO40
2,4,5-Trichlorophenol	<1.0	ug/l	06/03/2017	Y Cov	GEO40
2-Chloronaphthalene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Dimethylphthalate	<1.0	ug/l	06/03/2017	Y Cov	GEO40
2,6-Dinitrotoluene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Acenaphthylene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Acenaphthene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
2,4-Dinitrotoluene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Diethylphthalate	<1.0	ug/l	06/03/2017	Y Cov	GEO40
4-Nitrophenol	<5.0	ug/l	06/03/2017	Y Cov	GEO40
4-Chlorophenyl phenyl ether	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Fluorene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Diphenylamine	<1.0	ug/l	06/03/2017	N Cov	GEO40
4-Bromophenyl Phenyl Ether	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Hexachlorobenzene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Pentachlorophenol	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Phenanthrene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Anthracene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
di-n-Butylphthalate	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Fluoranthene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Pyrene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Benzyl Butyl Phthalate	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Benzo(a)anthracene	<1.0	ug/l	06/03/2017	Y Cov	GEO40

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1366798/2017**

Issue **1**

Laboratory Number: **15913890**

Sample **3** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB03**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 February 2017**

Sample Received: **28 February 2017**

Analysis Complete: **14 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Chrysene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Bis(2-ethylhexyl)phthalate	<5.0	ug/l	06/03/2017	Y Cov	GEO40
Di-n-octylphthalate	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Benzo(b)fluoranthene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Benzo(k)fluoranthene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Benzo(a)pyrene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Indeno(1,2,3-c,d)pyrene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Dibenz(a,h)anthracene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
Benzo(g,h,i)perylene	<1.0	ug/l	06/03/2017	Y Cov	GEO40
2-Fluorophenol	90.9	%Recovery	06/03/2017	N Cov	GEO40
Phenol-d6	79.6	%Recovery	06/03/2017	N Cov	GEO40
Nitrobenzene-d5	89.1	%Recovery	06/03/2017	N Cov	GEO40
2-Fluorobiphenyl	89.8	%Recovery	06/03/2017	N Cov	GEO40
2,4,6-Tribromophenol	90.2	%Recovery	06/03/2017	N Cov	GEO40
Terphenyl-d14	90.5	%Recovery	06/03/2017	N Cov	GEO40
Nitrite as NO2	0.63	mg/l	03/03/2017	N Cov	WAS036
Fluoroxypyr	<0.05	ug/l	10/03/2017	Y Cov	GEO20

## Analyst Comments for 15913890:

This sample has been analysed for Magnesium, Total as Mg, Sodium Total as Na, Boron, Total as B, Barium, Total as Ba outside recommended stability times. It is therefore possible that the results provided may be compromised. {\*/}The ferrous iron analysis was not carried out on site and there is the possibility of change in ferrous-ferric ratio between sampling and analysis.{\*/}  
Reporting limit raised for Hexachlorobenzene due to interferences.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed: *A I Horobin*

Name: **A. Horobin**

Date: **14 March 2017**

Title: **Organic Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

**ALS Environmental Ltd**  
Torrington Avenue  
Coventry  
CV4 9GU

T: +44 (0)24 7642 1213  
F: +44 (0)24 7685 6575  
[www.alsenvironmental.co.uk](http://www.alsenvironmental.co.uk)

**Mr Downes**  
**SKM Ireland c/o Jacobs**  
**Engineering Ireland**  
**Jacobs**  
**Merrion House**  
**Merrion Road**  
**Dublin 4 South Dublin**

16 March 2017

**Test Report: COV/1367265/2017**

Dear Mr Downes

Analysis of your sample(s) submitted on 01 March 2017 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed: 

Name: C. Law

Title: Inorganics Operations Manager





# Report Summary



1314  
0897  
4409



**Mr Ultan Downes**  
**SKM Ireland c/o Jacobs**  
**Engineering Ireland**  
**Jacobs**  
**Merrion House**  
**Merrion Road**  
**Dublin 4**  
**South Dublin**

Date of Issue: **16 March 2017**

Report Number: **COV/1367265/2017**

Issue **1**

This issue replaces  
all previous issues

**Job Description:** Kerdiffstown Landfill

Number of Samples  
included in this report **7**

Job Received: **01 March 2017**

Number of Test Results  
included in this report **1880**

Analysis Commenced: **02 March 2017**

Signed:

Name: **C. Law**

Date: **16 March 2017**

Title: **Inorganics Operations Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.

Information on the methods of analysis and performance characteristics are available on request.

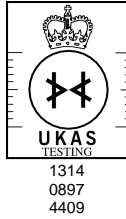
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

(c) ALS Environmental Ltd 2017. All rights reserved. We, ALS Environmental Ltd, are the owner of all copyright in this report. You must not copy, reproduce, amend or adapt this report, its contents or any format in which it is delivered without our prior written agreement. If you copy, reproduce, amend, or adapt this report in any way without our agreement you will be liable for any damage or loss to us. In the event of a dispute the copy of the report held by us shall be the reference copy.

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917037**

Sample **1** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH70**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 February 2017**

Sample Received: **01 March 2017**

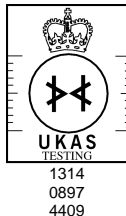
Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron, Total	2.0	mg/l	10/03/2017	N Cov	WAS043
Nitrate as NO3	<3.1	mg/l	02/03/2017	N Cov	WAS036
Antimony Ultra Low Total as Sb	<0.0012	mg/l	13/03/2017	Y Cov	WAS060
Selenium Ultra Low Total as Se	<0.0008	mg/l	13/03/2017	Y Cov	WAS060
Arsenic, Ultra Low Total as As	0.0043	mg/l	13/03/2017	Y Cov	WAS060
Fluoride	0.170	mg/l	08/03/2017	Y S	SUBCON
Aluminium, Total as Al	<0.1	mg/l	08/03/2017	Y Cov	WAS049
Barium, Total as Ba	0.108	mg/l	08/03/2017	Y Cov	WAS049
Beryllium, Total as Be	<0.0021	mg/l	08/03/2017	Y Cov	WAS049
Boron, Total as B	0.29	mg/l	08/03/2017	Y Cov	WAS049
Cadmium , Total as Cd	<0.0006	mg/l	08/03/2017	Y Cov	WAS049
Calcium , Total as Ca	173	mg/l	08/03/2017	Y Cov	WAS049
Chromium , Total as Cr	<0.002	mg/l	08/03/2017	Y Cov	WAS049
Copper, Ultra-low Total as Cu	<1.9	ug/l	13/03/2017	Y Cov	WAS060
Iron , Total as Fe	2.03	mg/l	08/03/2017	Y Cov	WAS049
Ferrous Iron	1.9	mg/l	10/03/2017	N Cov	WAS043
Ferric Iron	<0.5	mg/l	10/03/2017	N Cov	WAS043
Lead , Total as Pb	<0.006	mg/l	08/03/2017	Y Cov	WAS049
Magnesium, Total as Mg	16.6	mg/l	08/03/2017	Y Cov	WAS049
Manganese , Total as Mn	4.81	mg/l	08/03/2017	Y Cov	WAS049
Mercury, Total as Hg	<0.00010	mg/l	03/03/2017	N Cov	WAS013
Nickel, Total as Ni	0.010	mg/l	08/03/2017	Y Cov	WAS049
Potassium , Total as K	22.1	mg/l	08/03/2017	Y Cov	WAS049
Sodium , Total as Na	31.7	mg/l	08/03/2017	Y Cov	WAS049
Vanadium , Total as V	<0.004	mg/l	08/03/2017	Y Cov	WAS049
Zinc, Total as Zn	<0.018	mg/l	08/03/2017	Y Cov	WAS049
pH	7.4	pH units	02/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	973	uS/cm	02/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	351	mg/l	10/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	6.73	mg/l	02/03/2017	Y Cov	WAS067
Chloride as Cl	32.6	mg/l	02/03/2017	N Cov	WAS036
Nitrite as N	<0.08	mg/l	02/03/2017	N Cov	WAS036

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917037**

Sample **1** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH70**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 February 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Phosphates , Total as P	<0.120	mg/l	08/03/2017	Y Cov	WAS049
Sulphate as SO4	230	mg/l	02/03/2017	N Cov	WAS036
BOD + ATU (5 day)	4	mg/l	07/03/2017	Y Cov	WAS001
COD (Total)	23.0	mg/l	03/03/2017	Y Cov	WAS040
TOC (Filtered)	6.0	mg/l	02/03/2017	Y Cov	WAS005
Cyanide, Free as CN	<0.008	mg/l	06/03/2017	N Cov	WAS018
Cyanide, Total as CN	<0.009	mg/l	06/03/2017	N Cov	WAS018
Sulphide as S	<0.020	mg/l	10/03/2017	N Cov	WAS033
Formaldehyde	<0.029	mg/l	09/03/2017	N Cov	WAS030
1,2,3-Trichlorobenzene	<10	ng/l	07/03/2017	Y Cov	GEO47
1,2,4-Trichlorobenzene	<10	ng/l	07/03/2017	Y Cov	GEO47
1,3,5-Trichlorobenzene	<10	ng/l	07/03/2017	N Cov	GEO47
SVOC with TICs	Y	ug/l	08/03/2017	N Cov	GEO40
Aldrin	<4	ng/l	07/03/2017	Y Cov	GEO47
alpha-Endosulphan	<4	ng/l	07/03/2017	Y Cov	GEO47
alpha-HCH	<3	ng/l	07/03/2017	Y Cov	GEO47
beta-Endosulphan	<4	ng/l	07/03/2017	Y Cov	GEO47
beta-HCH	<3	ng/l	07/03/2017	Y Cov	GEO47
alpha-Chlordane	<3	ng/l	07/03/2017	Y Cov	GEO47
Dichlobenil	30	ng/l	07/03/2017	Y Cov	GEO47
Dieldrin	<4	ng/l	07/03/2017	Y Cov	GEO47
Endrin	<4	ng/l	07/03/2017	Y Cov	GEO47
gamma-HCH	<2.7	ng/l	07/03/2017	Y Cov	GEO47
Heptachlor Epoxide	<4	ng/l	07/03/2017	Y Cov	GEO47
Hexachlorobenzene	<2	ng/l	07/03/2017	Y Cov	GEO47
Hexachlorobutadiene	<7	ng/l	07/03/2017	N Cov	GEO47
Isodrin	<4	ng/l	07/03/2017	Y Cov	GEO47
o,p - DDE	<2	ng/l	07/03/2017	Y Cov	GEO47
p,p - DDE	<2	ng/l	07/03/2017	Y Cov	GEO47
o,p - TDE	<2	ng/l	07/03/2017	Y Cov	GEO47
p,p - TDE	<2	ng/l	07/03/2017	Y Cov	GEO47
o,p - DDT	<2	ng/l	07/03/2017	Y Cov	GEO47
p,p - DDT	<4	ng/l	07/03/2017	Y Cov	GEO47

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917037**

Sample **1** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH70**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 February 2017**

Sample Received: **01 March 2017**

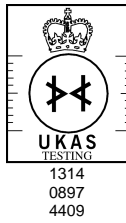
Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Tecnazene	<10	ng/l	07/03/2017	Y Cov	GEO47
gamma-Chlordane	<4	ng/l	07/03/2017	Y Cov	GEO47
Triallate	<10	ng/l	07/03/2017	Y Cov	GEO47
Trifluralin	<30	ng/l	07/03/2017	Y Cov	GEO47
Azinphos-ethyl	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Azinphos-methyl	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Carbophenothion	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Chlorfenvinphos	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Chlorpyrifos	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Diazinon	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Dichlorvos	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Dimethoate	<0.020	ug/l	07/03/2017	Y Cov	GEO47
Fenitrothion	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Fenthion	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Malathion	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Mevinphos	<0.020	ug/l	07/03/2017	Y Cov	GEO47
Parathion-ethyl	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Parathion-methyl	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Phorate	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Phosalone	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Pirimiphos-methyl	<0.005	ug/l	07/03/2017	Y Cov	GEO47
Propetamphos	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Triazophos	<0.002	ug/l	07/03/2017	Y Cov	GEO47
2,3,6 - TBA	<0.05	ug/l	10/03/2017	Y Cov	GEO20
2,4 - D	<0.05	ug/l	10/03/2017	Y Cov	GEO20
2,4 - DB	<0.05	ug/l	10/03/2017	Y Cov	GEO20
2,4,5 - T	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Benazolin	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Bentazone	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Chlopyralid	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Bromoxynil	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Dicamba	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Dichlorprop	0.06	ug/l	10/03/2017	Y Cov	GEO20

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917037**

Sample **1** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH70**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 February 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Fenoprop	<0.05	ug/l	10/03/2017	Y Cov	GEO20
loxylnil	<0.05	ug/l	10/03/2017	Y Cov	GEO20
MCPA	<0.05	ug/l	10/03/2017	Y Cov	GEO20
MCPB	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Triclopyr	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Mecoprop	0.70	ug/l	10/03/2017	Y Cov	GEO20
Catechol	<0.10	ug/l	03/03/2017	N Cov	338
Cresol, Total	<0.10	ug/l	03/03/2017	N Cov	338
Xylenol, Total	<0.10	ug/l	03/03/2017	N Cov	338
Naphthol	<0.10	ug/l	03/03/2017	N Cov	338
Phenol	2.1	ug/l	03/03/2017	N Cov	338
Trimethylphenol, Total	2.9	ug/l	03/03/2017	N Cov	338
Phenols, Total	5.0	ug/l	03/03/2017	N Cov	338
Aliphatic VPH >C5 - C6	<10	ug/l	09/03/2017	Y Cov	GEO45
Aliphatic VPH >C6 - C8	<10	ug/l	09/03/2017	Y Cov	GEO45
Aliphatic VPH >C8 - 10	<10	ug/l	09/03/2017	Y Cov	GEO45
Aliphatic VPH >C5 - C10	<10	ug/l	09/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C7	<10	ug/l	09/03/2017	Y Cov	GEO45
Aromatic VPH >C7 - C8	<10	ug/l	09/03/2017	Y Cov	GEO45
Aromatic VPH >C8 - C10	<10	ug/l	09/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C10	<10	ug/l	09/03/2017	Y Cov	GEO45
VPH >C5 - C10	<10	ug/l	09/03/2017	Y Cov	GEO45
Aliphatic EPH >C10 - C12	<10	ug/l	08/03/2017	N Cov	GEO46
Aliphatic EPH >C12 - C16	<10	ug/l	08/03/2017	N Cov	GEO46
Aliphatic EPH >C16 - C35	<10	ug/l	08/03/2017	N Cov	GEO46
Aliphatic EPH >C35 - C44	<10	ug/l	08/03/2017	N Cov	GEO46
Aliphatic EPH >C10 - C44	<10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C12	<10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C12 - C16	<10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C16 - C21	<10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C21 - C35	<10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C35 - C44	<10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C44	<10	ug/l	08/03/2017	N Cov	GEO46

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917037**

Sample **1** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH70**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 February 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
EPH >C10 - C44	<10	ug/l	08/03/2017	N Cov	GEO46
Aliphatic VPH/EPH >C5 - C44	<10	ug/l	09/03/2017	N Cov	GEO45/GEO4
Aromatic VPH/EPH >C5 - C44	<10	ug/l	09/03/2017	N Cov	GEO45/GEO4
VPH/EPH >C5 - C44	<10	ug/l	09/03/2017	N Cov	GEO45/GEO4
Acenaphthene	0.020	ug/l	06/03/2017	Y Cov	GEO19
Acenaphthylene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Anthracene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Benzo (a) anthracene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Benzo (g,h,i) perylene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Benzo (a) pyrene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Benzo (b) fluoranthene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Benzo (k) fluoranthene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Chrysene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Dibenz (a,h) anthracene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Fluoranthene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Fluorene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Indeno (1,2,3) cd pyrene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Naphthalene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Phenanthrene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Pyrene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
PAH, Total	0.020	ug/l	06/03/2017	N Cov	GEO19
VOC	Y	ug/l	10/03/2017	N Cov	GEO32
Dichlorodifluoromethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Chloromethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Chloroethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Bromomethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Trichlorofluoromethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,1-Dichloroethene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Dichloromethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,1-Dichloroethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
cis-1,2-Dichloroethene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
2,2-Dichloropropane	<1.0	ug/l	10/03/2017	N Cov	GEO32
Chloroform	<1.0	ug/l	10/03/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917037**

Sample **1** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH70**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 February 2017**

Sample Received: **01 March 2017**

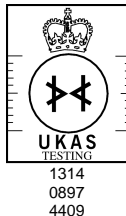
Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Bromochloromethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,1,1-Trichloroethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,1-Dichloropropene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,2-Dichloroethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Benzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,2-Dichloropropane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Trichloroethene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Bromodichloromethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Dibromomethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
cis-1,3-Dichloropropene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Toluene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
trans-1,3-Dichloropropene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,1,2-Trichloroethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Carbon Tetrachloride	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Vinyl Chloride	<0.5	ug/l	10/03/2017	Y Cov	GEO32
1,3-Dichloropropane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Tetrachloroethene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Dibromochloromethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,2-Dibromoethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Chlorobenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,1,1,2-Tetrachloroethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Ethyl Benzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
m&p-Xylene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
o-Xylene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Styrene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Bromoform	<1.0	ug/l	10/03/2017	Y Cov	GEO32
trans-1,2-Dichloroethene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Isopropylbenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,1,2,2-Tetrachloroethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,2,3-Trichloropropane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
n-Propylbenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Bromobenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
2-Chlorotoluene	<1.0	ug/l	10/03/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917037**

Sample **1** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH70**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 February 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

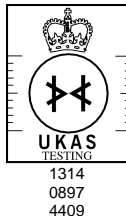
Test Description	Result	Units	Analysis Date	Accreditation	Method
1,3,5-Trimethylbenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
4-Chlorotoluene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
tert-Butylbenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,2,4-Trimethylbenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
sec-Butylbenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
p-Isopropyltoluene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,3-Dichlorobenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,4-Dichlorobenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
n-Butylbenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,2-Dichlorobenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,2-Dibromo-3-chloropropane	<2.0	ug/l	10/03/2017	Y Cov	GEO32
1,2,4-Trichlorobenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Hexachlorobutadiene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Naphthalene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,2,3-Trichlorobenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
MTBE	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Dibromofluoromethane	99.9	%Recovery	10/03/2017	N Cov	GEO32
Toluene-d8	100.9	%Recovery	10/03/2017	N Cov	GEO32
4-Bromofluorobenzene	96.2	%Recovery	10/03/2017	N Cov	GEO32
SVOC	Y	ug/l	08/03/2017	N Cov	GEO40
Phenol	30.5	ug/l	08/03/2017	Y Cov	GEO40
Bis(2-chloroethyl)ether	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Chlorophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
1,3-Dichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
1,4-Dichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Methylphenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
3&4-Methylphenol	<1.0	ug/l	08/03/2017	N Cov	GEO40
Dibenzofuran	<1.0	ug/l	08/03/2017	N Cov	GEO40
1,2-Dichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Bis(2-chloroisopropyl)ether	<1.0	ug/l	08/03/2017	Y Cov	GEO40
n-Nitrosodi-n-propylamine	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Hexachloroethane	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Nitrobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575



# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917037**

Sample **1** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH70**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 February 2017**

Sample Received: **01 March 2017**

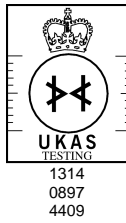
Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Isophorone	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,4-Dimethylphenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Nitrophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Bis(2-chloroethoxy)methane	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,4-Dichlorophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
1,2,4-Trichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Naphthalene	<2.0	ug/l	08/03/2017	Y Cov	GEO40
Hexachlorobutadiene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
4-Chloro-3-methylphenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Methylnaphthalene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,4,6-Trichlorophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,4,5-Trichlorophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Chloronaphthalene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Dimethylphthalate	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,6-Dinitrotoluene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Acenaphthylene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Acenaphthene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,4-Dinitrotoluene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Diethylphthalate	<1.0	ug/l	08/03/2017	Y Cov	GEO40
4-Nitrophenol	<5.0	ug/l	08/03/2017	Y Cov	GEO40
4-Chlorophenyl phenyl ether	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Fluorene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Diphenylamine	<1.0	ug/l	08/03/2017	N Cov	GEO40
4-Bromophenyl Phenyl Ether	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Hexachlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Pentachlorophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Phenanthrene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Anthracene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
di-n-Butylphthalate	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Fluoranthene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Pyrene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzyl Butyl Phthalate	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzo(a)anthracene	<1.0	ug/l	08/03/2017	Y Cov	GEO40

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917037**

Sample **1** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH70**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 February 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Chrysene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Bis(2-ethylhexyl)phthalate	<5.0	ug/l	08/03/2017	Y Cov	GEO40
Di-n-octylphthalate	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzo(b)fluoranthene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzo(k)fluoranthene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzo(a)pyrene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Indeno(1,2,3-c,d)pyrene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Dibenz(a,h)anthracene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzo(g,h,i)perylene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Fluorophenol	91.4	%Recovery	08/03/2017	N Cov	GEO40
Phenol-d6	78.2	%Recovery	08/03/2017	N Cov	GEO40
Nitrobenzene-d5	87.4	%Recovery	08/03/2017	N Cov	GEO40
2-Fluorobiphenyl	87.4	%Recovery	08/03/2017	N Cov	GEO40
2,4,6-Tribromophenol	85.4	%Recovery	08/03/2017	N Cov	GEO40
Terphenyl-d14	82.1	%Recovery	08/03/2017	N Cov	GEO40
Nitrite as NO2	<0.28	mg/l	03/03/2017	N Cov	WAS036
Fluoroxypyr	<0.05	ug/l	10/03/2017	Y Cov	GEO20

**Analyst Comments for 15917037:**


This sample has been analysed for Sodium Total as Na, Boron, Total as B outside recommended stability times. It is therefore possible that the results provided may be compromised. Reporting limits raised for PAH due to nature of sample matrix.

GEO40 SVOC Waters: See attached SVOC-TIC Report. {\*/}The ferrous iron analysis was not carried out on site and there is the possibility of change in ferrous-ferric ratio between sampling and analysis.{\*/}

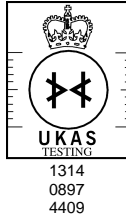
This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG). For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:  Name: **C. Law** Date: **16 March 2017**  
 Title: **Inorganics Operations Manager**

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917038**

Sample **2** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH71**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 February 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron, Total	<0.5	mg/l	10/03/2017	N Cov	WAS043
Nitrate as NO3	<3.1	mg/l	02/03/2017	N Cov	WAS036
Antimony Ultra Low Total as Sb	<0.0012	mg/l	13/03/2017	Y Cov	WAS060
Selenium Ultra Low Total as Se	<0.0008	mg/l	13/03/2017	Y Cov	WAS060
Arsenic, Ultra Low Total as As	0.0059	mg/l	13/03/2017	Y Cov	WAS060
Fluoride	0.293	mg/l	08/03/2017	Y S	SUBCON
Aluminium, Total as Al	0.8	mg/l	08/03/2017	Y Cov	WAS049
Barium, Total as Ba	0.048	mg/l	08/03/2017	Y Cov	WAS049
Beryllium, Total as Be	<0.0021	mg/l	08/03/2017	Y Cov	WAS049
Boron, Total as B	0.45	mg/l	08/03/2017	Y Cov	WAS049
Cadmium , Total as Cd	<0.0006	mg/l	08/03/2017	Y Cov	WAS049
Calcium , Total as Ca	315	mg/l	08/03/2017	Y Cov	WAS049
Chromium , Total as Cr	0.004	mg/l	08/03/2017	Y Cov	WAS049
Copper, Ultra-low Total as Cu	7.5	ug/l	13/03/2017	Y Cov	WAS060
Iron , Total as Fe	0.68	mg/l	08/03/2017	Y Cov	WAS049
Ferrous Iron	<0.5	mg/l	10/03/2017	N Cov	WAS043
Ferric Iron	<0.5	mg/l	10/03/2017	N Cov	WAS043
Lead , Total as Pb	<0.006	mg/l	08/03/2017	Y Cov	WAS049
Magnesium, Total as Mg	15.1	mg/l	08/03/2017	Y Cov	WAS049
Manganese , Total as Mn	0.657	mg/l	08/03/2017	Y Cov	WAS049
Mercury, Total as Hg	<0.00010	mg/l	03/03/2017	N Cov	WAS013
Nickel, Total as Ni	0.015	mg/l	08/03/2017	Y Cov	WAS049
Potassium , Total as K	32.2	mg/l	08/03/2017	Y Cov	WAS049
Sodium , Total as Na	49.2	mg/l	08/03/2017	Y Cov	WAS049
Vanadium , Total as V	<0.004	mg/l	08/03/2017	Y Cov	WAS049
Zinc, Total as Zn	0.02	mg/l	08/03/2017	Y Cov	WAS049
pH	8.0	pH units	02/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	1450	uS/cm	02/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	152	mg/l	10/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	6.75	mg/l	02/03/2017	Y Cov	WAS067
Chloride as Cl	46.3	mg/l	02/03/2017	N Cov	WAS036
Nitrite as N	<0.08	mg/l	02/03/2017	N Cov	WAS036

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917038**

Sample **2** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH71**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 February 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Phosphates , Total as P	<0.120	mg/l	08/03/2017	Y Cov	WAS049
Sulphate as SO4	774	mg/l	02/03/2017	N Cov	WAS036
BOD + ATU (5 day)	4	mg/l	07/03/2017	Y Cov	WAS001
COD (Total)	59.0	mg/l	03/03/2017	Y Cov	WAS040
TOC (Filtered)	15.3	mg/l	02/03/2017	Y Cov	WAS005
Cyanide, Free as CN	<0.008	mg/l	06/03/2017	N Cov	WAS018
Cyanide, Total as CN	<0.009	mg/l	06/03/2017	N Cov	WAS018
Sulphide as S	<0.020	mg/l	10/03/2017	N Cov	WAS033
Formaldehyde	<0.029	mg/l	09/03/2017	N Cov	WAS030
1,2,3-Trichlorobenzene	<10	ng/l	07/03/2017	Y Cov	GEO47
1,2,4-Trichlorobenzene	<10	ng/l	07/03/2017	Y Cov	GEO47
1,3,5-Trichlorobenzene	<10	ng/l	07/03/2017	N Cov	GEO47
SVOC with TICs	Y	ug/l	08/03/2017	N Cov	GEO40
Aldrin	<4	ng/l	07/03/2017	Y Cov	GEO47
alpha-Endosulphan	<4	ng/l	07/03/2017	Y Cov	GEO47
alpha-HCH	<3	ng/l	07/03/2017	Y Cov	GEO47
beta-Endosulphan	<4	ng/l	07/03/2017	Y Cov	GEO47
beta-HCH	<3	ng/l	07/03/2017	Y Cov	GEO47
alpha-Chlordane	<3	ng/l	07/03/2017	Y Cov	GEO47
Dichlobenil	11	ng/l	07/03/2017	Y Cov	GEO47
Dieldrin	7	ng/l	07/03/2017	Y Cov	GEO47
Endrin	<4	ng/l	07/03/2017	Y Cov	GEO47
gamma-HCH	<2.7	ng/l	07/03/2017	Y Cov	GEO47
Heptachlor Epoxide	<4	ng/l	07/03/2017	Y Cov	GEO47
Hexachlorobenzene	<6	ng/l	07/03/2017	Y Cov	GEO47
Hexachlorobutadiene	<7	ng/l	07/03/2017	N Cov	GEO47
Isodrin	<4	ng/l	07/03/2017	Y Cov	GEO47
o,p - DDE	<2	ng/l	07/03/2017	Y Cov	GEO47
p,p - DDE	<2	ng/l	07/03/2017	Y Cov	GEO47
o,p - TDE	<2	ng/l	07/03/2017	Y Cov	GEO47
p,p - TDE	<2	ng/l	07/03/2017	Y Cov	GEO47
o,p - DDT	<2	ng/l	07/03/2017	Y Cov	GEO47
p,p - DDT	<4	ng/l	07/03/2017	Y Cov	GEO47

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917038**

Sample **2** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH71**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 February 2017**

Sample Received: **01 March 2017**

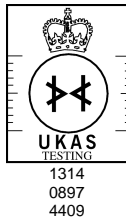
Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Tecnazene	<10	ng/l	07/03/2017	Y Cov	GEO47
gamma-Chlordane	<4	ng/l	07/03/2017	Y Cov	GEO47
Triallate	<10	ng/l	07/03/2017	Y Cov	GEO47
Trifluralin	<30	ng/l	07/03/2017	Y Cov	GEO47
Azinphos-ethyl	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Azinphos-methyl	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Carbophenothion	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Chlorfenvinphos	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Chlorpyrifos	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Diazinon	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Dichlorvos	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Dimethoate	<0.020	ug/l	07/03/2017	Y Cov	GEO47
Fenitrothion	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Fenthion	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Malathion	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Mevinphos	<0.020	ug/l	07/03/2017	Y Cov	GEO47
Parathion-ethyl	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Parathion-methyl	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Phorate	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Phosalone	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Pirimiphos-methyl	<0.005	ug/l	07/03/2017	Y Cov	GEO47
Propetamphos	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Triazophos	<0.002	ug/l	07/03/2017	Y Cov	GEO47
2,3,6 - TBA	<0.05	ug/l	10/03/2017	Y Cov	GEO20
2,4 - D	<0.05	ug/l	10/03/2017	Y Cov	GEO20
2,4 - DB	<0.05	ug/l	10/03/2017	Y Cov	GEO20
2,4,5 - T	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Benazolin	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Bentazone	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Chlopyralid	0.36	ug/l	10/03/2017	Y Cov	GEO20
Bromoxynil	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Dicamba	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Dichlorprop	<0.15	ug/l	10/03/2017	Y Cov	GEO20

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917038**

Sample **2** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH71**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 February 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Fenoprop	<0.05	ug/l	10/03/2017	Y Cov	GEO20
loxynil	<0.05	ug/l	10/03/2017	Y Cov	GEO20
MCPA	<0.05	ug/l	10/03/2017	Y Cov	GEO20
MCPB	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Triclopyr	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Mecoprop	0.69	ug/l	10/03/2017	Y Cov	GEO20
Catechol	<0.10	ug/l	03/03/2017	N Cov	338
Cresol, Total	<0.10	ug/l	03/03/2017	N Cov	338
Xylenol, Total	<0.10	ug/l	03/03/2017	N Cov	338
Naphthol	<0.10	ug/l	03/03/2017	N Cov	338
Phenol	<0.10	ug/l	03/03/2017	N Cov	338
Trimethylphenol, Total	5.1	ug/l	03/03/2017	N Cov	338
Phenols, Total	5.1	ug/l	03/03/2017	N Cov	338
Aliphatic VPH >C5 - C6	<10	ug/l	09/03/2017	Y Cov	GEO45
Aliphatic VPH >C6 - C8	<10	ug/l	09/03/2017	Y Cov	GEO45
Aliphatic VPH >C8 - 10	<10	ug/l	09/03/2017	Y Cov	GEO45
Aliphatic VPH >C5 - C10	<10	ug/l	09/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C7	<10	ug/l	09/03/2017	Y Cov	GEO45
Aromatic VPH >C7 - C8	<10	ug/l	09/03/2017	Y Cov	GEO45
Aromatic VPH >C8 - C10	<10	ug/l	09/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C10	<10	ug/l	09/03/2017	Y Cov	GEO45
VPH >C5 - C10	<10	ug/l	09/03/2017	Y Cov	GEO45
Aliphatic EPH >C10 - C12	<10	ug/l	08/03/2017	N Cov	GEO46
Aliphatic EPH >C12 - C16	<10	ug/l	08/03/2017	N Cov	GEO46
Aliphatic EPH >C16 - C35	<10	ug/l	08/03/2017	N Cov	GEO46
Aliphatic EPH >C35 - C44	<10	ug/l	08/03/2017	N Cov	GEO46
Aliphatic EPH >C10 - C44	<10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C12	<10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C12 - C16	<10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C16 - C21	<10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C21 - C35	<10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C35 - C44	<10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C44	<10	ug/l	08/03/2017	N Cov	GEO46

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917038**

Sample **2** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH71**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 February 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
EPH >C10 - C44	<10	ug/l	08/03/2017	N Cov	GEO46
Aliphatic VPH/EPH >C5 - C44	<10	ug/l	09/03/2017	N Cov	GEO45/GEO4
Aromatic VPH/EPH >C5 - C44	<10	ug/l	09/03/2017	N Cov	GEO45/GEO4
VPH/EPH >C5 - C44	<10	ug/l	09/03/2017	N Cov	GEO45/GEO4
Acenaphthene	0.120	ug/l	06/03/2017	Y Cov	GEO19
Acenaphthylene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Anthracene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Benzo (a) anthracene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Benzo (g,h,i) perylene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Benzo (a) pyrene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Benzo (b) fluoranthene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Benzo (k) fluoranthene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Chrysene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Dibenz (a,h) anthracene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Fluoranthene	0.025	ug/l	06/03/2017	Y Cov	GEO19
Fluorene	0.071	ug/l	06/03/2017	Y Cov	GEO19
Indeno (1,2,3) cd pyrene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Naphthalene	0.283	ug/l	06/03/2017	Y Cov	GEO19
Phenanthrene	0.067	ug/l	06/03/2017	Y Cov	GEO19
Pyrene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
PAH, Total	0.567	ug/l	06/03/2017	N Cov	GEO19
VOC	Y	ug/l	10/03/2017	N Cov	GEO32
Dichlorodifluoromethane	<4.0	ug/l	10/03/2017	Y Cov	GEO32
Chloromethane	<4.0	ug/l	10/03/2017	Y Cov	GEO32
Chloroethane	<4.0	ug/l	10/03/2017	Y Cov	GEO32
Bromomethane	<4.0	ug/l	10/03/2017	Y Cov	GEO32
Trichlorofluoromethane	<4.0	ug/l	10/03/2017	Y Cov	GEO32
1,1-Dichloroethene	<4.0	ug/l	10/03/2017	Y Cov	GEO32
Dichloromethane	<4.0	ug/l	10/03/2017	Y Cov	GEO32
1,1-Dichloroethane	<4.0	ug/l	10/03/2017	Y Cov	GEO32
cis-1,2-Dichloroethene	<4.0	ug/l	10/03/2017	Y Cov	GEO32
2,2-Dichloropropane	<4.0	ug/l	10/03/2017	N Cov	GEO32
Chloroform	<4.0	ug/l	10/03/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917038**

Sample **2** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH71**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 February 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

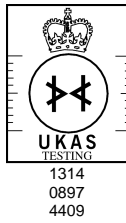
Test Description	Result	Units	Analysis Date	Accreditation	Method
Bromochloromethane	<4.0	ug/l	10/03/2017	Y Cov	GEO32
1,1,1-Trichloroethane	<4.0	ug/l	10/03/2017	Y Cov	GEO32
1,1-Dichloropropene	<4.0	ug/l	10/03/2017	Y Cov	GEO32
1,2-Dichloroethane	<4.0	ug/l	10/03/2017	Y Cov	GEO32
Benzene	<4.0	ug/l	10/03/2017	Y Cov	GEO32
1,2-Dichloropropane	<4.0	ug/l	10/03/2017	Y Cov	GEO32
Trichloroethene	<4.0	ug/l	10/03/2017	Y Cov	GEO32
Bromodichloromethane	<4.0	ug/l	10/03/2017	Y Cov	GEO32
Dibromomethane	<4.0	ug/l	10/03/2017	Y Cov	GEO32
cis-1,3-Dichloropropene	<4.0	ug/l	10/03/2017	Y Cov	GEO32
Toluene	<4.0	ug/l	10/03/2017	Y Cov	GEO32
trans-1,3-Dichloropropene	<4.0	ug/l	10/03/2017	Y Cov	GEO32
1,1,2-Trichloroethane	<4.0	ug/l	10/03/2017	Y Cov	GEO32
Carbon Tetrachloride	<4.0	ug/l	10/03/2017	Y Cov	GEO32
Vinyl Chloride	<2.0	ug/l	10/03/2017	Y Cov	GEO32
1,3-Dichloropropane	<4.0	ug/l	10/03/2017	Y Cov	GEO32
Tetrachloroethene	<4.0	ug/l	10/03/2017	Y Cov	GEO32
Dibromochloromethane	<4.0	ug/l	10/03/2017	Y Cov	GEO32
1,2-Dibromoethane	<4.0	ug/l	10/03/2017	Y Cov	GEO32
Chlorobenzene	<4.0	ug/l	10/03/2017	Y Cov	GEO32
1,1,1,2-Tetrachloroethane	<4.0	ug/l	10/03/2017	Y Cov	GEO32
Ethyl Benzene	<4.0	ug/l	10/03/2017	Y Cov	GEO32
m&p-Xylene	<4.0	ug/l	10/03/2017	Y Cov	GEO32
o-Xylene	<4.0	ug/l	10/03/2017	Y Cov	GEO32
Styrene	<4.0	ug/l	10/03/2017	Y Cov	GEO32
Bromoform	<4.0	ug/l	10/03/2017	Y Cov	GEO32
trans-1,2-Dichloroethene	<4.0	ug/l	10/03/2017	Y Cov	GEO32
Isopropylbenzene	<4.0	ug/l	10/03/2017	Y Cov	GEO32
1,1,2,2-Tetrachloroethane	<4.0	ug/l	10/03/2017	Y Cov	GEO32
1,2,3-Trichloropropane	<4.0	ug/l	10/03/2017	Y Cov	GEO32
n-Propylbenzene	<4.0	ug/l	10/03/2017	Y Cov	GEO32
Bromobenzene	<4.0	ug/l	10/03/2017	Y Cov	GEO32
2-Chlorotoluene	<4.0	ug/l	10/03/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575



# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917038**

Sample **2** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH71**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 February 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
1,3,5-Trimethylbenzene	<4.0	ug/l	10/03/2017	Y Cov	GEO32
4-Chlorotoluene	<4.0	ug/l	10/03/2017	Y Cov	GEO32
tert-Butylbenzene	<4.0	ug/l	10/03/2017	Y Cov	GEO32
1,2,4-Trimethylbenzene	<4.0	ug/l	10/03/2017	Y Cov	GEO32
sec-Butylbenzene	<4.0	ug/l	10/03/2017	Y Cov	GEO32
p-Isopropyltoluene	<4.0	ug/l	10/03/2017	Y Cov	GEO32
1,3-Dichlorobenzene	<4.0	ug/l	10/03/2017	Y Cov	GEO32
1,4-Dichlorobenzene	<4.0	ug/l	10/03/2017	Y Cov	GEO32
n-Butylbenzene	<4.0	ug/l	10/03/2017	Y Cov	GEO32
1,2-Dichlorobenzene	<4.0	ug/l	10/03/2017	Y Cov	GEO32
1,2-Dibromo-3-chloropropane	<8.0	ug/l	10/03/2017	Y Cov	GEO32
1,2,4-Trichlorobenzene	<4.0	ug/l	10/03/2017	Y Cov	GEO32
Hexachlorobutadiene	<4.0	ug/l	10/03/2017	Y Cov	GEO32
Naphthalene	<4.0	ug/l	10/03/2017	Y Cov	GEO32
1,2,3-Trichlorobenzene	<4.0	ug/l	10/03/2017	Y Cov	GEO32
MTBE	<4.0	ug/l	10/03/2017	Y Cov	GEO32
Dibromofluoromethane	100.4	%Recovery	10/03/2017	N Cov	GEO32
Toluene-d8	99.7	%Recovery	10/03/2017	N Cov	GEO32
4-Bromofluorobenzene	95.4	%Recovery	10/03/2017	N Cov	GEO32
SVOC	Y	ug/l	08/03/2017	N Cov	GEO40
Phenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Bis(2-chloroethyl)ether	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Chlorophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
1,3-Dichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
1,4-Dichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Methylphenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
3&4-Methylphenol	<1.0	ug/l	08/03/2017	N Cov	GEO40
Dibenzofuran	<1.0	ug/l	08/03/2017	N Cov	GEO40
1,2-Dichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Bis(2-chloroisopropyl)ether	<1.0	ug/l	08/03/2017	Y Cov	GEO40
n-Nitrosodi-n-propylamine	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Hexachloroethane	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Nitrobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917038**

Sample **2** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH71**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 February 2017**

Sample Received: **01 March 2017**

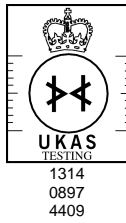
Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Isophorone	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,4-Dimethylphenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Nitrophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Bis(2-chloroethoxy)methane	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,4-Dichlorophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
1,2,4-Trichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Naphthalene	<2.0	ug/l	08/03/2017	Y Cov	GEO40
Hexachlorobutadiene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
4-Chloro-3-methylphenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Methylnaphthalene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,4,6-Trichlorophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,4,5-Trichlorophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Chloronaphthalene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Dimethylphthalate	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,6-Dinitrotoluene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Acenaphthylene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Acenaphthene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,4-Dinitrotoluene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Diethylphthalate	<1.0	ug/l	08/03/2017	Y Cov	GEO40
4-Nitrophenol	<5.0	ug/l	08/03/2017	Y Cov	GEO40
4-Chlorophenyl phenyl ether	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Fluorene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Diphenylamine	<1.0	ug/l	08/03/2017	N Cov	GEO40
4-Bromophenyl Phenyl Ether	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Hexachlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Pentachlorophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Phenanthrene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Anthracene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
di-n-Butylphthalate	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Fluoranthene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Pyrene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzyl Butyl Phthalate	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzo(a)anthracene	<1.0	ug/l	08/03/2017	Y Cov	GEO40

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917038**

Sample **2** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH71**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 February 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Chrysene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Bis(2-ethylhexyl)phthalate	<5.0	ug/l	08/03/2017	Y Cov	GEO40
Di-n-octylphthalate	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzo(b)fluoranthene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzo(k)fluoranthene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzo(a)pyrene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Indeno(1,2,3-c,d)pyrene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Dibenz(a,h)anthracene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzo(g,h,i)perylene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Fluorophenol	87.7	%Recovery	08/03/2017	N Cov	GEO40
Phenol-d6	79.0	%Recovery	08/03/2017	N Cov	GEO40
Nitrobenzene-d5	84.1	%Recovery	08/03/2017	N Cov	GEO40
2-Fluorobiphenyl	85.9	%Recovery	08/03/2017	N Cov	GEO40
2,4,6-Tribromophenol	81.7	%Recovery	08/03/2017	N Cov	GEO40
Terphenyl-d14	78.6	%Recovery	08/03/2017	N Cov	GEO40
Nitrite as NO2	<0.28	mg/l	03/03/2017	N Cov	WAS036
Fluoroxypyr	<0.05	ug/l	10/03/2017	Y Cov	GEO20

## Analyst Comments for 15917038:

This sample has been analysed for Sodium Total as Na, Boron, Total as B outside recommended stability times. It is therefore possible that the results provided may be compromised. Reporting limits raised for PAH due to nature of sample matrix.  
Reporting limit raised for Hexachlorobenzene due to interferences.  
GEO40 SVOC Waters: See attached SVOC-TIC Report. Reporting limit raised for Acid Herbs due to interference. {\*/}The ferrous iron analysis was not carried out on site and there is the possibility of change in ferrous-ferric ratio between sampling and analysis. {\*/}  
VOC reporting limits raised due to nature of sample matrix.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **C. Law**

Date: **16 March 2017**

Title: **Inorganics Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917039**

Sample **3** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH78**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 February 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron, Total	<0.5	mg/l	10/03/2017	N Cov	WAS043
Nitrate as NO3	<3.1	mg/l	02/03/2017	N Cov	WAS036
Antimony Ultra Low Total as Sb	0.0024	mg/l	13/03/2017	Y Cov	WAS060
Selenium Ultra Low Total as Se	<0.0008	mg/l	13/03/2017	Y Cov	WAS060
Arsenic, Ultra Low Total as As	0.0088	mg/l	13/03/2017	Y Cov	WAS060
Fluoride	0.239	mg/l	08/03/2017	Y S	SUBCON
Aluminium, Total as Al	2.1	mg/l	08/03/2017	Y Cov	WAS049
Barium, Total as Ba	0.083	mg/l	08/03/2017	Y Cov	WAS049
Beryllium, Total as Be	<0.0021	mg/l	08/03/2017	Y Cov	WAS049
Boron, Total as B	<0.23	mg/l	08/03/2017	Y Cov	WAS049
Cadmium , Total as Cd	0.0012	mg/l	08/03/2017	Y Cov	WAS049
Calcium , Total as Ca	131	mg/l	08/03/2017	Y Cov	WAS049
Chromium , Total as Cr	0.007	mg/l	08/03/2017	Y Cov	WAS049
Copper, Ultra-low Total as Cu	40	ug/l	13/03/2017	Y Cov	WAS060
Iron , Total as Fe	7.90	mg/l	08/03/2017	Y Cov	WAS049
Ferrous Iron	<0.5	mg/l	10/03/2017	N Cov	WAS043
Ferric Iron	<0.5	mg/l	10/03/2017	N Cov	WAS043
Lead , Total as Pb	0.055	mg/l	08/03/2017	Y Cov	WAS049
Magnesium, Total as Mg	5.1	mg/l	08/03/2017	Y Cov	WAS049
Manganese , Total as Mn	0.444	mg/l	08/03/2017	Y Cov	WAS049
Mercury, Total as Hg	0.00100	mg/l	03/03/2017	N Cov	WAS013
Nickel, Total as Ni	0.021	mg/l	08/03/2017	Y Cov	WAS049
Potassium , Total as K	7.92	mg/l	08/03/2017	Y Cov	WAS049
Sodium , Total as Na	9.65	mg/l	08/03/2017	Y Cov	WAS049
Vanadium , Total as V	0.009	mg/l	08/03/2017	Y Cov	WAS049
Zinc, Total as Zn	0.200	mg/l	08/03/2017	Y Cov	WAS049
pH	7.4	pH units	02/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	547	uS/cm	02/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	221	mg/l	10/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.09	mg/l	02/03/2017	Y Cov	WAS067
Chloride as Cl	10.7	mg/l	02/03/2017	N Cov	WAS036
Nitrite as N	<0.08	mg/l	02/03/2017	N Cov	WAS036

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917039**

Sample **3** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH78**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 February 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Phosphates , Total as P	0.28	mg/l	08/03/2017	Y Cov	WAS049
Sulphate as SO4	111	mg/l	02/03/2017	N Cov	WAS036
BOD + ATU (5 day)	4	mg/l	07/03/2017	Y Cov	WAS001
COD (Total)	87.0	mg/l	03/03/2017	Y Cov	WAS040
TOC (Filtered)	4.1	mg/l	02/03/2017	Y Cov	WAS005
Cyanide, Free as CN	<0.008	mg/l	06/03/2017	N Cov	WAS018
Cyanide, Total as CN	<0.009	mg/l	06/03/2017	N Cov	WAS018
Sulphide as S	<0.020	mg/l	10/03/2017	N Cov	WAS033
Formaldehyde	<0.029	mg/l	09/03/2017	N Cov	WAS030
1,2,3-Trichlorobenzene	<10	ng/l	07/03/2017	Y Cov	GEO47
1,2,4-Trichlorobenzene	<10	ng/l	07/03/2017	Y Cov	GEO47
1,3,5-Trichlorobenzene	<10	ng/l	07/03/2017	N Cov	GEO47
SVOC with TICs	Y	ug/l	08/03/2017	N Cov	GEO40
Aldrin	<4	ng/l	07/03/2017	Y Cov	GEO47
alpha-Endosulphan	<4	ng/l	07/03/2017	Y Cov	GEO47
alpha-HCH	<3	ng/l	07/03/2017	Y Cov	GEO47
beta-Endosulphan	<4	ng/l	07/03/2017	Y Cov	GEO47
beta-HCH	<3	ng/l	07/03/2017	Y Cov	GEO47
alpha-Chlordane	<3	ng/l	07/03/2017	Y Cov	GEO47
Dichlobenil	5	ng/l	07/03/2017	Y Cov	GEO47
Dieldrin	11	ng/l	07/03/2017	Y Cov	GEO47
Endrin	<4	ng/l	07/03/2017	Y Cov	GEO47
gamma-HCH	<2.7	ng/l	07/03/2017	Y Cov	GEO47
Heptachlor Epoxide	<4	ng/l	07/03/2017	Y Cov	GEO47
Hexachlorobenzene	<13	ng/l	07/03/2017	Y Cov	GEO47
Hexachlorobutadiene	<7	ng/l	07/03/2017	N Cov	GEO47
Isodrin	<4	ng/l	07/03/2017	Y Cov	GEO47
o,p - DDE	<2	ng/l	07/03/2017	Y Cov	GEO47
p,p - DDE	<2	ng/l	07/03/2017	Y Cov	GEO47
o,p - TDE	<2	ng/l	07/03/2017	Y Cov	GEO47
p,p - TDE	<2	ng/l	07/03/2017	Y Cov	GEO47
o,p - DDT	<2	ng/l	07/03/2017	Y Cov	GEO47
p,p - DDT	<4	ng/l	07/03/2017	Y Cov	GEO47

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917039**

Sample **3** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH78**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 February 2017**

Sample Received: **01 March 2017**

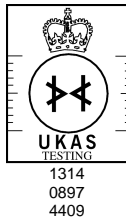
Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Tecnazene	<10	ng/l	07/03/2017	Y Cov	GEO47
gamma-Chlordane	<4	ng/l	07/03/2017	Y Cov	GEO47
Triallate	<10	ng/l	07/03/2017	Y Cov	GEO47
Trifluralin	<30	ng/l	07/03/2017	Y Cov	GEO47
Azinphos-ethyl	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Azinphos-methyl	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Carbophenothion	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Chlorfenvinphos	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Chlorpyrifos	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Diazinon	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Dichlorvos	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Dimethoate	<0.020	ug/l	07/03/2017	Y Cov	GEO47
Fenitrothion	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Fenthion	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Malathion	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Mevinphos	<0.020	ug/l	07/03/2017	Y Cov	GEO47
Parathion-ethyl	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Parathion-methyl	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Phorate	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Phosalone	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Pirimiphos-methyl	<0.005	ug/l	07/03/2017	Y Cov	GEO47
Propetamphos	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Triazophos	<0.002	ug/l	07/03/2017	Y Cov	GEO47
2,3,6 - TBA	<0.05	ug/l	10/03/2017	Y Cov	GEO20
2,4 - D	<0.05	ug/l	10/03/2017	Y Cov	GEO20
2,4 - DB	<0.05	ug/l	10/03/2017	Y Cov	GEO20
2,4,5 - T	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Benazolin	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Bentazone	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Chlopyralid	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Bromoxynil	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Dicamba	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Dichlorprop	<0.05	ug/l	10/03/2017	Y Cov	GEO20

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917039**

Sample **3** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH78**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 February 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Fenoprop	<0.05	ug/l	10/03/2017	Y Cov	GEO20
loxynil	<0.05	ug/l	10/03/2017	Y Cov	GEO20
MCPA	<0.05	ug/l	10/03/2017	Y Cov	GEO20
MCPB	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Triclopyr	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Mecoprop	<0.04	ug/l	10/03/2017	Y Cov	GEO20
Catechol	<0.10	ug/l	03/03/2017	N Cov	338
Cresol, Total	<0.10	ug/l	03/03/2017	N Cov	338
Xylenol, Total	<0.10	ug/l	03/03/2017	N Cov	338
Naphthol	<0.10	ug/l	03/03/2017	N Cov	338
Phenol	<0.10	ug/l	03/03/2017	N Cov	338
Trimethylphenol, Total	<0.10	ug/l	03/03/2017	N Cov	338
Phenols, Total	<0.50	ug/l	03/03/2017	N Cov	338
Aliphatic VPH >C5 - C6	<10	ug/l	09/03/2017	Y Cov	GEO45
Aliphatic VPH >C6 - C8	<10	ug/l	09/03/2017	Y Cov	GEO45
Aliphatic VPH >C8 - 10	<10	ug/l	09/03/2017	Y Cov	GEO45
Aliphatic VPH >C5 - C10	<10	ug/l	09/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C7	<10	ug/l	09/03/2017	Y Cov	GEO45
Aromatic VPH >C7 - C8	<10	ug/l	09/03/2017	Y Cov	GEO45
Aromatic VPH >C8 - C10	<10	ug/l	09/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C10	<10	ug/l	09/03/2017	Y Cov	GEO45
VPH >C5 - C10	<10	ug/l	09/03/2017	Y Cov	GEO45
Aliphatic EPH >C10 - C12	<10	ug/l	08/03/2017	N Cov	GEO46
Aliphatic EPH >C12 - C16	<10	ug/l	08/03/2017	N Cov	GEO46
Aliphatic EPH >C16 - C35	10	ug/l	08/03/2017	N Cov	GEO46
Aliphatic EPH >C35 - C44	<10	ug/l	08/03/2017	N Cov	GEO46
Aliphatic EPH >C10 - C44	10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C12	<10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C12 - C16	<10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C16 - C21	11	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C21 - C35	<10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C35 - C44	<10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C44	11	ug/l	08/03/2017	N Cov	GEO46

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917039**

Sample **3** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH78**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 February 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
EPH >C10 - C44	22	ug/l	08/03/2017	N Cov	GEO46
Aliphatic VPH/EPH >C5 - C44	10	ug/l	09/03/2017	N Cov	GEO45/GEO4
Aromatic VPH/EPH >C5 - C44	11	ug/l	09/03/2017	N Cov	GEO45/GEO4
VPH/EPH >C5 - C44	21	ug/l	09/03/2017	N Cov	GEO45/GEO4
Acenaphthene	0.026	ug/l	06/03/2017	Y Cov	GEO19
Acenaphthylene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Anthracene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Benzo (a) anthracene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Benzo (g,h,i) perylene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Benzo (a) pyrene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Benzo (b) fluoranthene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Benzo (k) fluoranthene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Chrysene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Dibenz (a,h) anthracene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Fluoranthene	0.041	ug/l	06/03/2017	Y Cov	GEO19
Fluorene	0.020	ug/l	06/03/2017	Y Cov	GEO19
Indeno (1,2,3) cd pyrene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Naphthalene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Phenanthrene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Pyrene	0.055	ug/l	06/03/2017	Y Cov	GEO19
PAH, Total	0.142	ug/l	06/03/2017	N Cov	GEO19
VOC	Y	ug/l	10/03/2017	N Cov	GEO32
Dichlorodifluoromethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Chloromethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Chloroethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Bromomethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Trichlorofluoromethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,1-Dichloroethene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Dichloromethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,1-Dichloroethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
cis-1,2-Dichloroethene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
2,2-Dichloropropane	<1.0	ug/l	10/03/2017	N Cov	GEO32
Chloroform	<1.0	ug/l	10/03/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575



# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917039**

Sample **3** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH78**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 February 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Bromochloromethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,1,1-Trichloroethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,1-Dichloropropene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,2-Dichloroethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Benzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,2-Dichloropropane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Trichloroethene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Bromodichloromethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Dibromomethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
cis-1,3-Dichloropropene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Toluene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
trans-1,3-Dichloropropene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,1,2-Trichloroethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Carbon Tetrachloride	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Vinyl Chloride	<0.5	ug/l	10/03/2017	Y Cov	GEO32
1,3-Dichloropropane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Tetrachloroethene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Dibromochloromethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,2-Dibromoethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Chlorobenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,1,1,2-Tetrachloroethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Ethyl Benzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
m&p-Xylene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
o-Xylene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Styrene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Bromoform	<1.0	ug/l	10/03/2017	Y Cov	GEO32
trans-1,2-Dichloroethene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Isopropylbenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,1,2,2-Tetrachloroethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,2,3-Trichloropropane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
n-Propylbenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Bromobenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
2-Chlorotoluene	<1.0	ug/l	10/03/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917039**

Sample **3** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH78**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 February 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
1,3,5-Trimethylbenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
4-Chlorotoluene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
tert-Butylbenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,2,4-Trimethylbenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
sec-Butylbenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
p-Isopropyltoluene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,3-Dichlorobenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,4-Dichlorobenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
n-Butylbenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,2-Dichlorobenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,2-Dibromo-3-chloropropane	<2.0	ug/l	10/03/2017	Y Cov	GEO32
1,2,4-Trichlorobenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Hexachlorobutadiene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Naphthalene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,2,3-Trichlorobenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
MTBE	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Dibromofluoromethane	102.0	%Recovery	10/03/2017	N Cov	GEO32
Toluene-d8	100.3	%Recovery	10/03/2017	N Cov	GEO32
4-Bromofluorobenzene	94.9	%Recovery	10/03/2017	N Cov	GEO32
SVOC	Y	ug/l	08/03/2017	N Cov	GEO40
Phenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Bis(2-chloroethyl)ether	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Chlorophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
1,3-Dichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
1,4-Dichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Methylphenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
3&4-Methylphenol	<1.0	ug/l	08/03/2017	N Cov	GEO40
Dibenzofuran	<1.0	ug/l	08/03/2017	N Cov	GEO40
1,2-Dichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Bis(2-chloroisopropyl)ether	<1.0	ug/l	08/03/2017	Y Cov	GEO40
n-Nitrosodi-n-propylamine	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Hexachloroethane	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Nitrobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917039**

Sample **3** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH78**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 February 2017**

Sample Received: **01 March 2017**

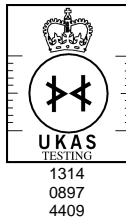
Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Isophorone	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,4-Dimethylphenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Nitrophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Bis(2-chloroethoxy)methane	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,4-Dichlorophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
1,2,4-Trichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Naphthalene	<2.0	ug/l	08/03/2017	Y Cov	GEO40
Hexachlorobutadiene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
4-Chloro-3-methylphenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Methylnaphthalene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,4,6-Trichlorophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,4,5-Trichlorophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Chloronaphthalene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Dimethylphthalate	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,6-Dinitrotoluene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Acenaphthylene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Acenaphthene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,4-Dinitrotoluene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Diethylphthalate	<1.0	ug/l	08/03/2017	Y Cov	GEO40
4-Nitrophenol	<5.0	ug/l	08/03/2017	Y Cov	GEO40
4-Chlorophenyl phenyl ether	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Fluorene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Diphenylamine	<1.0	ug/l	08/03/2017	N Cov	GEO40
4-Bromophenyl Phenyl Ether	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Hexachlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Pentachlorophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Phenanthrene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Anthracene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
di-n-Butylphthalate	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Fluoranthene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Pyrene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzyl Butyl Phthalate	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzo(a)anthracene	<1.0	ug/l	08/03/2017	Y Cov	GEO40

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917039**

Sample **3** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH78**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 February 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Chrysene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Bis(2-ethylhexyl)phthalate	<5.0	ug/l	08/03/2017	Y Cov	GEO40
Di-n-octylphthalate	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzo(b)fluoranthene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzo(k)fluoranthene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzo(a)pyrene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Indeno(1,2,3-c,d)pyrene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Dibenz(a,h)anthracene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzo(g,h,i)perylene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Fluorophenol	90.8	%Recovery	08/03/2017	N Cov	GEO40
Phenol-d6	78.4	%Recovery	08/03/2017	N Cov	GEO40
Nitrobenzene-d5	86.6	%Recovery	08/03/2017	N Cov	GEO40
2-Fluorobiphenyl	86.5	%Recovery	08/03/2017	N Cov	GEO40
2,4,6-Tribromophenol	88.2	%Recovery	08/03/2017	N Cov	GEO40
Terphenyl-d14	78.1	%Recovery	08/03/2017	N Cov	GEO40
Nitrite as NO2	<0.28	mg/l	03/03/2017	N Cov	WAS036
Fluoroxypyr	<0.05	ug/l	10/03/2017	Y Cov	GEO20

**Analyst Comments for 15917039:**

This sample has been analysed for Sodium Total as Na, Boron, Total as B outside recommended stability times. It is therefore possible that the results provided may be compromised. Reporting limits raised for PAH due to nature of sample matrix.

Reporting limit raised for Hexachlorobenzene due to interferences.

GEO40 SVOC Waters: See attached SVOC-TIC Report. {\*/}The ferrous iron analysis was not carried out on site and there is the possibility of change in ferrous-ferric ratio between sampling and analysis.{\*/}

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

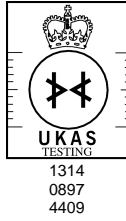
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:	Name: <b>C. Law</b>	Date: <b>16 March 2017</b>
	Title: <b>Inorganics Operations Manager</b>	

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917040**

Sample **4** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB10**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 February 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron, Total	<0.5	mg/l	10/03/2017	N Cov	WAS043
Nitrate as NO3	<3.1	mg/l	02/03/2017	N Cov	WAS036
Antimony Ultra Low Total as Sb	<0.0012	mg/l	13/03/2017	Y Cov	WAS060
Selenium Ultra Low Total as Se	<0.0008	mg/l	13/03/2017	Y Cov	WAS060
Arsenic, Ultra Low Total as As	0.0046	mg/l	13/03/2017	Y Cov	WAS060
Fluoride	0.150	mg/l	08/03/2017	Y S	SUBCON
Aluminium, Total as Al	8.5	mg/l	13/03/2017	Y Cov	WAS049
Barium, Total as Ba	0.194	mg/l	13/03/2017	Y Cov	WAS049
Beryllium, Total as Be	<0.0210	mg/l	13/03/2017	Y Cov	WAS049
Boron, Total as B	<2.30	mg/l	13/03/2017	Y Cov	WAS049
Cadmium , Total as Cd	<0.0060	mg/l	13/03/2017	Y Cov	WAS049
Calcium , Total as Ca	592	mg/l	13/03/2017	Y Cov	WAS049
Chromium , Total as Cr	<0.020	mg/l	13/03/2017	Y Cov	WAS049
Copper, Ultra-low Total as Cu	36	ug/l	13/03/2017	Y Cov	WAS060
Iron , Total as Fe	16.4	mg/l	13/03/2017	Y Cov	WAS049
Ferrous Iron	<0.5	mg/l	10/03/2017	N Cov	WAS043
Ferric Iron	<0.5	mg/l	10/03/2017	N Cov	WAS043
Lead , Total as Pb	<0.060	mg/l	13/03/2017	Y Cov	WAS049
Magnesium, Total as Mg	24.6	mg/l	13/03/2017	Y Cov	WAS049
Manganese , Total as Mn	4.58	mg/l	13/03/2017	Y Cov	WAS049
Mercury, Total as Hg	0.00031	mg/l	03/03/2017	N Cov	WAS013
Nickel, Total as Ni	<0.030	mg/l	13/03/2017	Y Cov	WAS049
Potassium , Total as K	1.81	mg/l	13/03/2017	Y Cov	WAS049
Sodium , Total as Na	4.77	mg/l	13/03/2017	Y Cov	WAS049
Vanadium , Total as V	<0.040	mg/l	13/03/2017	Y Cov	WAS049
Zinc, Total as Zn	<0.180	mg/l	13/03/2017	Y Cov	WAS049
pH	7.5	pH units	02/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	495	uS/cm	02/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	1380	mg/l	10/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	02/03/2017	Y Cov	WAS067
Chloride as Cl	18.3	mg/l	02/03/2017	N Cov	WAS036
Nitrite as N	<0.08	mg/l	02/03/2017	N Cov	WAS036

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917040**

Sample **4** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB10**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 February 2017**

Sample Received: **01 March 2017**

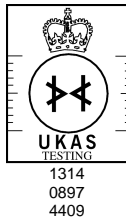
Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Phosphates , Total as P	<1.2	mg/l	13/03/2017	Y Cov	WAS049
Sulphate, total as SO4 by I.C.	26.99	mg/l	06/03/2017	Y Cov	CON27
BOD + ATU (5 day)	2	mg/l	07/03/2017	Y Cov	WAS001
COD (Total)	227	mg/l	03/03/2017	Y Cov	WAS040
TOC (Filtered)	0.8	mg/l	02/03/2017	Y Cov	WAS005
Cyanide, Free as CN	<0.008	mg/l	06/03/2017	N Cov	WAS018
Cyanide, Total as CN	<0.009	mg/l	06/03/2017	N Cov	WAS018
Sulphide as S	0.197	mg/l	10/03/2017	N Cov	WAS033
Formaldehyde	<0.029	mg/l	09/03/2017	N Cov	WAS030
1,2,3-Trichlorobenzene	<10	ng/l	07/03/2017	Y Cov	GEO47
1,2,4-Trichlorobenzene	<10	ng/l	07/03/2017	Y Cov	GEO47
1,3,5-Trichlorobenzene	<10	ng/l	07/03/2017	N Cov	GEO47
SVOC with TICs	Y	ug/l	08/03/2017	N Cov	GEO40
Aldrin	<4	ng/l	07/03/2017	Y Cov	GEO47
alpha-Endosulphan	<4	ng/l	07/03/2017	Y Cov	GEO47
alpha-HCH	<3	ng/l	07/03/2017	Y Cov	GEO47
beta-Endosulphan	<4	ng/l	07/03/2017	Y Cov	GEO47
beta-HCH	<3	ng/l	07/03/2017	Y Cov	GEO47
alpha-Chlordane	<3	ng/l	07/03/2017	Y Cov	GEO47
Dichlobenil	<2	ng/l	07/03/2017	Y Cov	GEO47
Dieldrin	<4	ng/l	07/03/2017	Y Cov	GEO47
Endrin	<4	ng/l	07/03/2017	Y Cov	GEO47
gamma-HCH	<2.7	ng/l	07/03/2017	Y Cov	GEO47
Heptachlor Epoxide	<4	ng/l	07/03/2017	Y Cov	GEO47
Hexachlorobenzene	<8	ng/l	07/03/2017	Y Cov	GEO47
Hexachlorobutadiene	<7	ng/l	07/03/2017	N Cov	GEO47
Isodrin	<4	ng/l	07/03/2017	Y Cov	GEO47
o,p - DDE	<2	ng/l	07/03/2017	Y Cov	GEO47
p,p - DDE	<2	ng/l	07/03/2017	Y Cov	GEO47
o,p - TDE	<2	ng/l	07/03/2017	Y Cov	GEO47
p,p - TDE	<2	ng/l	07/03/2017	Y Cov	GEO47
o,p - DDT	<2	ng/l	07/03/2017	Y Cov	GEO47
p,p - DDT	<4	ng/l	07/03/2017	Y Cov	GEO47

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917040**

Sample **4** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB10**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 February 2017**

Sample Received: **01 March 2017**

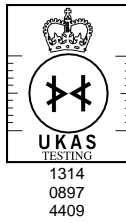
Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Tecnazene	<10	ng/l	07/03/2017	Y Cov	GEO47
gamma-Chlordane	<4	ng/l	07/03/2017	Y Cov	GEO47
Triallate	<10	ng/l	07/03/2017	Y Cov	GEO47
Trifluralin	<30	ng/l	07/03/2017	Y Cov	GEO47
Azinphos-ethyl	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Azinphos-methyl	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Carbophenothion	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Chlorfenvinphos	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Chlorpyrifos	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Diazinon	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Dichlorvos	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Dimethoate	<0.020	ug/l	07/03/2017	Y Cov	GEO47
Fenitrothion	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Fenthion	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Malathion	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Mevinphos	<0.020	ug/l	07/03/2017	Y Cov	GEO47
Parathion-ethyl	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Parathion-methyl	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Phorate	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Phosalone	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Pirimiphos-methyl	<0.005	ug/l	07/03/2017	Y Cov	GEO47
Propetamphos	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Triazophos	<0.002	ug/l	07/03/2017	Y Cov	GEO47
2,3,6 - TBA	<0.05	ug/l	10/03/2017	Y Cov	GEO20
2,4 - D	<0.05	ug/l	10/03/2017	Y Cov	GEO20
2,4 - DB	<0.05	ug/l	10/03/2017	Y Cov	GEO20
2,4,5 - T	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Benazolin	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Bentazone	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Chlopyralid	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Bromoxynil	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Dicamba	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Dichlorprop	<0.05	ug/l	10/03/2017	Y Cov	GEO20

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917040**

Sample **4** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB10**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 February 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Fenoprop	<0.05	ug/l	10/03/2017	Y Cov	GEO20
loxynil	<0.05	ug/l	10/03/2017	Y Cov	GEO20
MCPA	<0.05	ug/l	10/03/2017	Y Cov	GEO20
MCPB	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Triclopyr	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Mecoprop	<0.04	ug/l	10/03/2017	Y Cov	GEO20
Catechol	<0.10	ug/l	03/03/2017	N Cov	338
Cresol, Total	<0.10	ug/l	03/03/2017	N Cov	338
Xylenol, Total	<0.10	ug/l	03/03/2017	N Cov	338
Naphthol	<0.10	ug/l	03/03/2017	N Cov	338
Phenol	0.70	ug/l	03/03/2017	N Cov	338
Trimethylphenol, Total	<0.10	ug/l	03/03/2017	N Cov	338
Phenols, Total	0.70	ug/l	03/03/2017	N Cov	338
Aliphatic VPH >C5 - C6	<10	ug/l	14/03/2017	Y Cov	GEO45
Aliphatic VPH >C6 - C8	<10	ug/l	14/03/2017	Y Cov	GEO45
Aliphatic VPH >C8 - 10	<10	ug/l	14/03/2017	Y Cov	GEO45
Aliphatic VPH >C5 - C10	<10	ug/l	14/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C7	<10	ug/l	14/03/2017	Y Cov	GEO45
Aromatic VPH >C7 - C8	<10	ug/l	14/03/2017	Y Cov	GEO45
Aromatic VPH >C8 - C10	<10	ug/l	14/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C10	<10	ug/l	14/03/2017	Y Cov	GEO45
VPH >C5 - C10	<10	ug/l	14/03/2017	Y Cov	GEO45
Aliphatic EPH >C10 - C12	<10	ug/l	08/03/2017	N Cov	GEO46
Aliphatic EPH >C12 - C16	<10	ug/l	08/03/2017	N Cov	GEO46
Aliphatic EPH >C16 - C35	<10	ug/l	08/03/2017	N Cov	GEO46
Aliphatic EPH >C35 - C44	<10	ug/l	08/03/2017	N Cov	GEO46
Aliphatic EPH >C10 - C44	<10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C12	<10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C12 - C16	<10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C16 - C21	<10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C21 - C35	<10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C35 - C44	<10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C44	<10	ug/l	08/03/2017	N Cov	GEO46

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575



# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917040**

Sample **4** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB10**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 February 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
EPH >C10 - C44	<10	ug/l	08/03/2017	N Cov	GEO46
Aliphatic VPH/EPH >C5 - C44	<10	ug/l	14/03/2017	N Cov	GEO45/GEO4
Aromatic VPH/EPH >C5 - C44	<10	ug/l	14/03/2017	N Cov	GEO45/GEO4
VPH/EPH >C5 - C44	<10	ug/l	14/03/2017	N Cov	GEO45/GEO4
Acenaphthene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
Acenaphthylene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
Anthracene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
Benzo (a) anthracene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
Benzo (g,h,i) perylene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
Benzo (a) pyrene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
Benzo (b) fluoranthene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
Benzo (k) fluoranthene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
Chrysene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
Dibenz (a,h) anthracene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
Fluoranthene	0.017	ug/l	06/03/2017	Y Cov	GEO19
Fluorene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
Indeno (1,2,3) cd pyrene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
Naphthalene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
Phenanthrene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
Pyrene	0.011	ug/l	06/03/2017	Y Cov	GEO19
PAH, Total	0.028	ug/l	06/03/2017	N Cov	GEO19
VOC	Y	ug/l	10/03/2017	N Cov	GEO32
Dichlorodifluoromethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Chloromethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Chloroethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Bromomethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Trichlorofluoromethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,1-Dichloroethene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Dichloromethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,1-Dichloroethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
cis-1,2-Dichloroethene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
2,2-Dichloropropane	<1.0	ug/l	10/03/2017	N Cov	GEO32
Chloroform	<1.0	ug/l	10/03/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917040**

Sample **4** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB10**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 February 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Bromochloromethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,1,1-Trichloroethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,1-Dichloropropene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,2-Dichloroethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Benzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,2-Dichloropropane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Trichloroethene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Bromodichloromethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Dibromomethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
cis-1,3-Dichloropropene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Toluene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
trans-1,3-Dichloropropene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,1,2-Trichloroethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Carbon Tetrachloride	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Vinyl Chloride	<0.5	ug/l	10/03/2017	Y Cov	GEO32
1,3-Dichloropropane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Tetrachloroethene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Dibromochloromethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,2-Dibromoethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Chlorobenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,1,1,2-Tetrachloroethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Ethyl Benzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
m&p-Xylene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
o-Xylene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Styrene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Bromoform	<1.0	ug/l	10/03/2017	Y Cov	GEO32
trans-1,2-Dichloroethene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Isopropylbenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,1,2,2-Tetrachloroethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,2,3-Trichloropropane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
n-Propylbenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Bromobenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
2-Chlorotoluene	<1.0	ug/l	10/03/2017	Y Cov	GEO32

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917040**

Sample **4** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB10**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 February 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
1,3,5-Trimethylbenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
4-Chlorotoluene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
tert-Butylbenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,2,4-Trimethylbenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
sec-Butylbenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
p-Isopropyltoluene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,3-Dichlorobenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,4-Dichlorobenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
n-Butylbenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,2-Dichlorobenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,2-Dibromo-3-chloropropane	<2.0	ug/l	10/03/2017	Y Cov	GEO32
1,2,4-Trichlorobenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Hexachlorobutadiene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Naphthalene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,2,3-Trichlorobenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
MTBE	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Dibromofluoromethane	101.0	%Recovery	10/03/2017	N Cov	GEO32
Toluene-d8	100.6	%Recovery	10/03/2017	N Cov	GEO32
4-Bromofluorobenzene	97.3	%Recovery	10/03/2017	N Cov	GEO32
SVOC	Y	ug/l	08/03/2017	N Cov	GEO40
Phenol	20.6	ug/l	08/03/2017	Y Cov	GEO40
Bis(2-chloroethyl)ether	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Chlorophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
1,3-Dichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
1,4-Dichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Methylphenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
3&4-Methylphenol	<1.0	ug/l	08/03/2017	N Cov	GEO40
Dibenzofuran	<1.0	ug/l	08/03/2017	N Cov	GEO40
1,2-Dichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Bis(2-chloroisopropyl)ether	<1.0	ug/l	08/03/2017	Y Cov	GEO40
n-Nitrosodi-n-propylamine	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Hexachloroethane	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Nitrobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917040**

Sample **4** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB10**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 February 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Isophorone	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,4-Dimethylphenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Nitrophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Bis(2-chloroethoxy)methane	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,4-Dichlorophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
1,2,4-Trichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Naphthalene	<2.0	ug/l	08/03/2017	Y Cov	GEO40
Hexachlorobutadiene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
4-Chloro-3-methylphenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Methylnaphthalene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,4,6-Trichlorophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,4,5-Trichlorophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Chloronaphthalene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Dimethylphthalate	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,6-Dinitrotoluene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Acenaphthylene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Acenaphthene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,4-Dinitrotoluene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Diethylphthalate	<1.0	ug/l	08/03/2017	Y Cov	GEO40
4-Nitrophenol	<5.0	ug/l	08/03/2017	Y Cov	GEO40
4-Chlorophenyl phenyl ether	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Fluorene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Diphenylamine	<1.0	ug/l	08/03/2017	N Cov	GEO40
4-Bromophenyl Phenyl Ether	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Hexachlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Pentachlorophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Phenanthrene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Anthracene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
di-n-Butylphthalate	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Fluoranthene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Pyrene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzyl Butyl Phthalate	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzo(a)anthracene	<1.0	ug/l	08/03/2017	Y Cov	GEO40

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917040**

Sample **4** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB10**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 February 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Chrysene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Bis(2-ethylhexyl)phthalate	<5.0	ug/l	08/03/2017	Y Cov	GEO40
Di-n-octylphthalate	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzo(b)fluoranthene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzo(k)fluoranthene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzo(a)pyrene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Indeno(1,2,3-c,d)pyrene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Dibenz(a,h)anthracene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzo(g,h,i)perylene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Fluorophenol	91.9	%Recovery	08/03/2017	N Cov	GEO40
Phenol-d6	76.2	%Recovery	08/03/2017	N Cov	GEO40
Nitrobenzene-d5	86.3	%Recovery	08/03/2017	N Cov	GEO40
2-Fluorobiphenyl	85.9	%Recovery	08/03/2017	N Cov	GEO40
2,4,6-Tribromophenol	84.5	%Recovery	08/03/2017	N Cov	GEO40
Terphenyl-d14	89.9	%Recovery	08/03/2017	N Cov	GEO40
Nitrite as NO2	<0.28	mg/l	03/03/2017	N Cov	WAS036
Fluoroxypyr	<0.05	ug/l	10/03/2017	Y Cov	GEO20

#### Analyst Comments for 15917040:

This sample has been analysed for Sodium Total as Na, Boron, Total as B, Barium, Total as Ba outside recommended stability times. It is therefore possible that the results provided may be compromised. {(\*)} Sulphate analysed by ion chromatography due to interference with turbidmetric determination  
The ferrous iron analysis was not carried out on site and there is the possibility of change in ferrous-ferric ratio between sampling and analysis.{(\*)}  
Reporting limit raised for Hexachlorobenzene due to interferences.  
GEO40 SVOC Waters: See attached SVOC-TIC Report.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **C. Law**

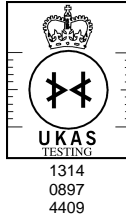
Date: **16 March 2017**

Title: **Inorganics Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917041**

Sample **5** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB05**

Sample Matrix: **Ground Water**

Sample Date/Time: **01 March 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron, Total	<0.5	mg/l	10/03/2017	N Cov	WAS043
Nitrate as NO3	<3.1	mg/l	02/03/2017	N Cov	WAS036
Antimony Ultra Low Total as Sb	<0.0012	mg/l	13/03/2017	Y Cov	WAS060
Selenium Ultra Low Total as Se	0.0015	mg/l	13/03/2017	Y Cov	WAS060
Arsenic, Ultra Low Total as As	0.0043	mg/l	13/03/2017	Y Cov	WAS060
Fluoride	0.053	mg/l	08/03/2017	Y S	SUBCON
Aluminium, Total as Al	1.9	mg/l	08/03/2017	Y Cov	WAS049
Barium, Total as Ba	0.115	mg/l	08/03/2017	Y Cov	WAS049
Beryllium, Total as Be	<0.0021	mg/l	08/03/2017	Y Cov	WAS049
Boron, Total as B	<0.23	mg/l	08/03/2017	Y Cov	WAS049
Cadmium , Total as Cd	0.0011	mg/l	08/03/2017	Y Cov	WAS049
Calcium , Total as Ca	164	mg/l	08/03/2017	Y Cov	WAS049
Chromium , Total as Cr	0.005	mg/l	08/03/2017	Y Cov	WAS049
Copper, Ultra-low Total as Cu	8.4	ug/l	13/03/2017	Y Cov	WAS060
Iron , Total as Fe	3.55	mg/l	08/03/2017	Y Cov	WAS049
Ferrous Iron	<0.5	mg/l	10/03/2017	N Cov	WAS043
Ferric Iron	<0.5	mg/l	10/03/2017	N Cov	WAS043
Lead , Total as Pb	0.010	mg/l	08/03/2017	Y Cov	WAS049
Magnesium, Total as Mg	5.4	mg/l	08/03/2017	Y Cov	WAS049
Manganese , Total as Mn	0.699	mg/l	08/03/2017	Y Cov	WAS049
Mercury, Total as Hg	<0.00010	mg/l	03/03/2017	N Cov	WAS013
Nickel, Total as Ni	0.017	mg/l	08/03/2017	Y Cov	WAS049
Potassium , Total as K	0.75	mg/l	08/03/2017	Y Cov	WAS049
Sodium , Total as Na	7.38	mg/l	08/03/2017	Y Cov	WAS049
Vanadium , Total as V	0.007	mg/l	08/03/2017	Y Cov	WAS049
Zinc, Total as Zn	0.04	mg/l	08/03/2017	Y Cov	WAS049
pH	7.1	pH units	03/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	631	uS/cm	03/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	410	mg/l	10/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	03/03/2017	Y Cov	WAS067
Chloride as Cl	12.7	mg/l	02/03/2017	N Cov	WAS036
Nitrite as N	<0.08	mg/l	02/03/2017	N Cov	WAS036

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917041**

Sample **5** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB05**

Sample Matrix: **Ground Water**

Sample Date/Time: **01 March 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Phosphates , Total as P	1.4	mg/l	08/03/2017	Y Cov	WAS049
Sulphate as SO4	10.3	mg/l	02/03/2017	N Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	08/03/2017	Y Cov	WAS001
COD (Total)	56.0	mg/l	06/03/2017	Y Cov	WAS040
TOC (Filtered)	1.2	mg/l	02/03/2017	Y Cov	WAS005
Cyanide, Free as CN	<0.008	mg/l	06/03/2017	N Cov	WAS018
Cyanide, Total as CN	<0.009	mg/l	06/03/2017	N Cov	WAS018
Sulphide as S	0.022	mg/l	10/03/2017	N Cov	WAS033
Formaldehyde	<0.029	mg/l	09/03/2017	N Cov	WAS030
1,2,3-Trichlorobenzene	<10	ng/l	07/03/2017	Y Cov	GEO47
1,2,4-Trichlorobenzene	<10	ng/l	07/03/2017	Y Cov	GEO47
1,3,5-Trichlorobenzene	<10	ng/l	07/03/2017	N Cov	GEO47
SVOC with TICs	Y	ug/l	08/03/2017	N Cov	GEO40
Aldrin	<4	ng/l	07/03/2017	Y Cov	GEO47
alpha-Endosulphan	<4	ng/l	07/03/2017	Y Cov	GEO47
alpha-HCH	<3	ng/l	07/03/2017	Y Cov	GEO47
beta-Endosulphan	<4	ng/l	07/03/2017	Y Cov	GEO47
beta-HCH	<3	ng/l	07/03/2017	Y Cov	GEO47
alpha-Chlordane	<3	ng/l	07/03/2017	Y Cov	GEO47
Dichlobenil	<2	ng/l	07/03/2017	Y Cov	GEO47
Dieldrin	<4	ng/l	07/03/2017	Y Cov	GEO47
Endrin	<4	ng/l	07/03/2017	Y Cov	GEO47
gamma-HCH	<2.7	ng/l	07/03/2017	Y Cov	GEO47
Heptachlor Epoxide	<4	ng/l	07/03/2017	Y Cov	GEO47
Hexachlorobenzene	<15	ng/l	07/03/2017	Y Cov	GEO47
Hexachlorobutadiene	<7	ng/l	07/03/2017	N Cov	GEO47
Isodrin	<4	ng/l	07/03/2017	Y Cov	GEO47
o,p - DDE	<2	ng/l	07/03/2017	Y Cov	GEO47
p,p - DDE	<2	ng/l	07/03/2017	Y Cov	GEO47
o,p - TDE	<2	ng/l	07/03/2017	Y Cov	GEO47
p,p - TDE	<2	ng/l	07/03/2017	Y Cov	GEO47
o,p - DDT	<2	ng/l	07/03/2017	Y Cov	GEO47
p,p - DDT	<4	ng/l	07/03/2017	Y Cov	GEO47

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917041**

Sample **5** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB05**

Sample Matrix: **Ground Water**

Sample Date/Time: **01 March 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

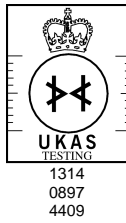
Test Description	Result	Units	Analysis Date	Accreditation	Method
Tecnazene	<10	ng/l	07/03/2017	Y Cov	GEO47
gamma-Chlordane	<4	ng/l	07/03/2017	Y Cov	GEO47
Triallate	<10	ng/l	07/03/2017	Y Cov	GEO47
Trifluralin	<30	ng/l	07/03/2017	Y Cov	GEO47
Azinphos-ethyl	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Azinphos-methyl	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Carbophenothion	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Chlorfenvinphos	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Chlorpyrifos	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Diazinon	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Dichlorvos	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Dimethoate	<0.020	ug/l	07/03/2017	Y Cov	GEO47
Fenitrothion	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Fenthion	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Malathion	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Mevinphos	<0.020	ug/l	07/03/2017	Y Cov	GEO47
Parathion-ethyl	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Parathion-methyl	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Phorate	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Phosalone	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Pirimiphos-methyl	<0.005	ug/l	07/03/2017	Y Cov	GEO47
Propetamphos	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Triazophos	<0.002	ug/l	07/03/2017	Y Cov	GEO47
2,3,6 - TBA	<0.05	ug/l	10/03/2017	Y Cov	GEO20
2,4 - D	<0.05	ug/l	10/03/2017	Y Cov	GEO20
2,4 - DB	<0.05	ug/l	10/03/2017	Y Cov	GEO20
2,4,5 - T	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Benazolin	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Bentazone	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Chlopyralid	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Bromoxynil	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Dicamba	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Dichlorprop	<0.05	ug/l	10/03/2017	Y Cov	GEO20

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575



# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917041**

Sample **5** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB05**

Sample Matrix: **Ground Water**

Sample Date/Time: **01 March 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Fenoprop	<0.05	ug/l	10/03/2017	Y Cov	GEO20
loxynil	<0.05	ug/l	10/03/2017	Y Cov	GEO20
MCPA	<0.05	ug/l	10/03/2017	Y Cov	GEO20
MCPB	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Triclopyr	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Mecoprop	<0.04	ug/l	10/03/2017	Y Cov	GEO20
Catechol	<0.10	ug/l	03/03/2017	N Cov	338
Cresol, Total	<0.10	ug/l	03/03/2017	N Cov	338
Xylenol, Total	<0.10	ug/l	03/03/2017	N Cov	338
Naphthol	<0.10	ug/l	03/03/2017	N Cov	338
Phenol	0.67	ug/l	03/03/2017	N Cov	338
Trimethylphenol, Total	<0.10	ug/l	03/03/2017	N Cov	338
Phenols, Total	0.67	ug/l	03/03/2017	N Cov	338
Aliphatic VPH >C5 - C6	<10	ug/l	09/03/2017	Y Cov	GEO45
Aliphatic VPH >C6 - C8	<10	ug/l	09/03/2017	Y Cov	GEO45
Aliphatic VPH >C8 - 10	<10	ug/l	09/03/2017	Y Cov	GEO45
Aliphatic VPH >C5 - C10	<10	ug/l	09/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C7	<10	ug/l	09/03/2017	Y Cov	GEO45
Aromatic VPH >C7 - C8	<10	ug/l	09/03/2017	Y Cov	GEO45
Aromatic VPH >C8 - C10	<10	ug/l	09/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C10	<10	ug/l	09/03/2017	Y Cov	GEO45
VPH >C5 - C10	<10	ug/l	09/03/2017	Y Cov	GEO45
Aliphatic EPH >C10 - C12	<10	ug/l	08/03/2017	N Cov	GEO46
Aliphatic EPH >C12 - C16	<10	ug/l	08/03/2017	N Cov	GEO46
Aliphatic EPH >C16 - C35	<10	ug/l	08/03/2017	N Cov	GEO46
Aliphatic EPH >C35 - C44	<10	ug/l	08/03/2017	N Cov	GEO46
Aliphatic EPH >C10 - C44	<10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C12	<10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C12 - C16	<10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C16 - C21	<10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C21 - C35	<10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C35 - C44	<10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C44	<10	ug/l	08/03/2017	N Cov	GEO46

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917041**

Sample **5** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB05**

Sample Matrix: **Ground Water**

Sample Date/Time: **01 March 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
EPH >C10 - C44	<10	ug/l	08/03/2017	N Cov	GEO46
Aliphatic VPH/EPH >C5 - C44	<10	ug/l	09/03/2017	N Cov	GEO45/GEO4
Aromatic VPH/EPH >C5 - C44	<10	ug/l	09/03/2017	N Cov	GEO45/GEO4
VPH/EPH >C5 - C44	<10	ug/l	09/03/2017	N Cov	GEO45/GEO4
Acenaphthene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
Acenaphthylene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
Anthracene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
Benzo (a) anthracene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
Benzo (g,h,i) perylene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
Benzo (a) pyrene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
Benzo (b) fluoranthene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
Benzo (k) fluoranthene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
Chrysene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
Dibenz (a,h) anthracene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
Fluoranthene	0.022	ug/l	06/03/2017	Y Cov	GEO19
Fluorene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
Indeno (1,2,3) cd pyrene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
Naphthalene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
Phenanthrene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
Pyrene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
PAH, Total	0.022	ug/l	06/03/2017	N Cov	GEO19
VOC	Y	ug/l	10/03/2017	N Cov	GEO32
Dichlorodifluoromethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Chloromethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Chloroethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Bromomethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Trichlorofluoromethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,1-Dichloroethene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Dichloromethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,1-Dichloroethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
cis-1,2-Dichloroethene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
2,2-Dichloropropane	<1.0	ug/l	10/03/2017	N Cov	GEO32
Chloroform	<1.0	ug/l	10/03/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917041**

Sample **5** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB05**

Sample Matrix: **Ground Water**

Sample Date/Time: **01 March 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Bromochloromethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,1,1-Trichloroethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,1-Dichloropropene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,2-Dichloroethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Benzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,2-Dichloropropane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Trichloroethene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Bromodichloromethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Dibromomethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
cis-1,3-Dichloropropene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Toluene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
trans-1,3-Dichloropropene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,1,2-Trichloroethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Carbon Tetrachloride	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Vinyl Chloride	<0.5	ug/l	10/03/2017	Y Cov	GEO32
1,3-Dichloropropane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Tetrachloroethene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Dibromochloromethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,2-Dibromoethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Chlorobenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,1,1,2-Tetrachloroethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Ethyl Benzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
m&p-Xylene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
o-Xylene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Styrene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Bromoform	<1.0	ug/l	10/03/2017	Y Cov	GEO32
trans-1,2-Dichloroethene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Isopropylbenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,1,2,2-Tetrachloroethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,2,3-Trichloropropane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
n-Propylbenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Bromobenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
2-Chlorotoluene	<1.0	ug/l	10/03/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917041**

Sample **5** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB05**

Sample Matrix: **Ground Water**

Sample Date/Time: **01 March 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
1,3,5-Trimethylbenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
4-Chlorotoluene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
tert-Butylbenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,2,4-Trimethylbenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
sec-Butylbenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
p-Isopropyltoluene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,3-Dichlorobenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,4-Dichlorobenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
n-Butylbenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,2-Dichlorobenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,2-Dibromo-3-chloropropane	<2.0	ug/l	10/03/2017	Y Cov	GEO32
1,2,4-Trichlorobenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Hexachlorobutadiene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Naphthalene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,2,3-Trichlorobenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
MTBE	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Dibromofluoromethane	101.2	%Recovery	10/03/2017	N Cov	GEO32
Toluene-d8	98.3	%Recovery	10/03/2017	N Cov	GEO32
4-Bromofluorobenzene	93.7	%Recovery	10/03/2017	N Cov	GEO32
SVOC	Y	ug/l	08/03/2017	N Cov	GEO40
Phenol	6.7	ug/l	08/03/2017	Y Cov	GEO40
Bis(2-chloroethyl)ether	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Chlorophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
1,3-Dichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
1,4-Dichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Methylphenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
3&4-Methylphenol	<1.0	ug/l	08/03/2017	N Cov	GEO40
Dibenzofuran	<1.0	ug/l	08/03/2017	N Cov	GEO40
1,2-Dichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Bis(2-chloroisopropyl)ether	<1.0	ug/l	08/03/2017	Y Cov	GEO40
n-Nitrosodi-n-propylamine	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Hexachloroethane	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Nitrobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917041**

Sample **5** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB05**

Sample Matrix: **Ground Water**

Sample Date/Time: **01 March 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Isophorone	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,4-Dimethylphenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Nitrophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Bis(2-chloroethoxy)methane	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,4-Dichlorophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
1,2,4-Trichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Naphthalene	<2.0	ug/l	08/03/2017	Y Cov	GEO40
Hexachlorobutadiene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
4-Chloro-3-methylphenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Methylnaphthalene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,4,6-Trichlorophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,4,5-Trichlorophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Chloronaphthalene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Dimethylphthalate	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,6-Dinitrotoluene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Acenaphthylene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Acenaphthene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,4-Dinitrotoluene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Diethylphthalate	<1.0	ug/l	08/03/2017	Y Cov	GEO40
4-Nitrophenol	<5.0	ug/l	08/03/2017	Y Cov	GEO40
4-Chlorophenyl phenyl ether	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Fluorene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Diphenylamine	<1.0	ug/l	08/03/2017	N Cov	GEO40
4-Bromophenyl Phenyl Ether	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Hexachlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Pentachlorophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Phenanthrene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Anthracene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
di-n-Butylphthalate	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Fluoranthene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Pyrene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzyl Butyl Phthalate	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzo(a)anthracene	<1.0	ug/l	08/03/2017	Y Cov	GEO40

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917041**

Sample **5** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB05**

Sample Matrix: **Ground Water**

Sample Date/Time: **01 March 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Chrysene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Bis(2-ethylhexyl)phthalate	<5.0	ug/l	08/03/2017	Y Cov	GEO40
Di-n-octylphthalate	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzo(b)fluoranthene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzo(k)fluoranthene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzo(a)pyrene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Indeno(1,2,3-c,d)pyrene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Dibenz(a,h)anthracene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzo(g,h,i)perylene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Fluorophenol	82.0	%Recovery	08/03/2017	N Cov	GEO40
Phenol-d6	64.9	%Recovery	08/03/2017	N Cov	GEO40
Nitrobenzene-d5	82.9	%Recovery	08/03/2017	N Cov	GEO40
2-Fluorobiphenyl	86.0	%Recovery	08/03/2017	N Cov	GEO40
2,4,6-Tribromophenol	82.2	%Recovery	08/03/2017	N Cov	GEO40
Terphenyl-d14	85.7	%Recovery	08/03/2017	N Cov	GEO40
Nitrite as NO2	<0.28	mg/l	03/03/2017	N Cov	WAS036
Fluoroxypyr	<0.05	ug/l	10/03/2017	Y Cov	GEO20

### Analyst Comments for 15917041:

Reporting limit raised for Hexachlorobenzene due to interferences.  
GEO40 SVOC Waters: See attached SVOC-TIC Report. {/\*}The ferrous iron analysis was not carried out on site and there is the possibility of change in ferrous-ferric ratio between sampling and analysis.{\*/}

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **C. Law**

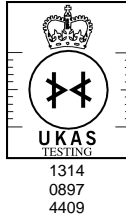
Date: **16 March 2017**

Title: **Inorganics Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917042**

Sample **6** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB08**

Sample Matrix: **Ground Water**

Sample Date/Time: **01 March 2017**

Sample Received: **01 March 2017**

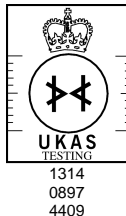
Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron, Total	<0.5	mg/l	10/03/2017	N Cov	WAS043
Nitrate as NO3	<3.1	mg/l	02/03/2017	N Cov	WAS036
Antimony Ultra Low Total as Sb	<0.0012	mg/l	13/03/2017	Y Cov	WAS060
Selenium Ultra Low Total as Se	<0.0008	mg/l	13/03/2017	Y Cov	WAS060
Arsenic, Ultra Low Total as As	<0.0010	mg/l	13/03/2017	Y Cov	WAS060
Fluoride	0.064	mg/l	08/03/2017	Y S	SUBCON
Aluminium, Total as Al	0.3	mg/l	08/03/2017	Y Cov	WAS049
Barium, Total as Ba	0.036	mg/l	08/03/2017	Y Cov	WAS049
Beryllium, Total as Be	<0.0021	mg/l	08/03/2017	Y Cov	WAS049
Boron, Total as B	<0.23	mg/l	08/03/2017	Y Cov	WAS049
Cadmium , Total as Cd	<0.0006	mg/l	08/03/2017	Y Cov	WAS049
Calcium , Total as Ca	103	mg/l	08/03/2017	Y Cov	WAS049
Chromium , Total as Cr	<0.002	mg/l	08/03/2017	Y Cov	WAS049
Copper, Ultra-low Total as Cu	<1.9	ug/l	13/03/2017	Y Cov	WAS060
Iron , Total as Fe	0.42	mg/l	08/03/2017	Y Cov	WAS049
Ferrous Iron	<0.5	mg/l	10/03/2017	N Cov	WAS043
Ferric Iron	<0.5	mg/l	10/03/2017	N Cov	WAS043
Lead , Total as Pb	<0.006	mg/l	08/03/2017	Y Cov	WAS049
Magnesium, Total as Mg	24.7	mg/l	08/03/2017	Y Cov	WAS049
Manganese , Total as Mn	0.433	mg/l	08/03/2017	Y Cov	WAS049
Mercury, Total as Hg	<0.00010	mg/l	03/03/2017	N Cov	WAS013
Nickel, Total as Ni	0.007	mg/l	08/03/2017	Y Cov	WAS049
Potassium , Total as K	2.55	mg/l	08/03/2017	Y Cov	WAS049
Sodium , Total as Na	16.9	mg/l	08/03/2017	Y Cov	WAS049
Vanadium , Total as V	<0.004	mg/l	08/03/2017	Y Cov	WAS049
Zinc, Total as Zn	<0.018	mg/l	08/03/2017	Y Cov	WAS049
pH	7.4	pH units	03/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	608	uS/cm	03/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	312	mg/l	10/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	03/03/2017	Y Cov	WAS067
Chloride as Cl	30.4	mg/l	02/03/2017	N Cov	WAS036
Nitrite as N	<0.08	mg/l	02/03/2017	N Cov	WAS036

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917042**

Sample **6** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB08**

Sample Matrix: **Ground Water**

Sample Date/Time: **01 March 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Phosphates , Total as P	<0.120	mg/l	08/03/2017	Y Cov	WAS049
Sulphate as SO4	17.2	mg/l	02/03/2017	N Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	08/03/2017	Y Cov	WAS001
COD (Total)	<11.0	mg/l	06/03/2017	Y Cov	WAS040
TOC (Filtered)	0.8	mg/l	02/03/2017	Y Cov	WAS005
Cyanide, Free as CN	<0.008	mg/l	06/03/2017	N Cov	WAS018
Cyanide, Total as CN	<0.009	mg/l	06/03/2017	N Cov	WAS018
Sulphide as S	<0.020	mg/l	10/03/2017	N Cov	WAS033
Formaldehyde	<0.029	mg/l	09/03/2017	N Cov	WAS030
1,2,3-Trichlorobenzene	<10	ng/l	07/03/2017	Y Cov	GEO47
1,2,4-Trichlorobenzene	<10	ng/l	07/03/2017	Y Cov	GEO47
1,3,5-Trichlorobenzene	<10	ng/l	07/03/2017	N Cov	GEO47
SVOC with TICs	Y	ug/l	08/03/2017	N Cov	GEO40
Aldrin	<4	ng/l	07/03/2017	Y Cov	GEO47
alpha-Endosulphan	<4	ng/l	07/03/2017	Y Cov	GEO47
alpha-HCH	<3	ng/l	07/03/2017	Y Cov	GEO47
beta-Endosulphan	<4	ng/l	07/03/2017	Y Cov	GEO47
beta-HCH	<3	ng/l	07/03/2017	Y Cov	GEO47
alpha-Chlordane	<3	ng/l	07/03/2017	Y Cov	GEO47
Dichlobenil	<2	ng/l	07/03/2017	Y Cov	GEO47
Dieldrin	<4	ng/l	07/03/2017	Y Cov	GEO47
Endrin	<4	ng/l	07/03/2017	Y Cov	GEO47
gamma-HCH	<2.7	ng/l	07/03/2017	Y Cov	GEO47
Heptachlor Epoxide	<4	ng/l	07/03/2017	Y Cov	GEO47
Hexachlorobenzene	<3	ng/l	07/03/2017	Y Cov	GEO47
Hexachlorobutadiene	<7	ng/l	07/03/2017	N Cov	GEO47
Isodrin	<4	ng/l	07/03/2017	Y Cov	GEO47
o,p - DDE	<2	ng/l	07/03/2017	Y Cov	GEO47
p,p - DDE	<2	ng/l	07/03/2017	Y Cov	GEO47
o,p - TDE	<2	ng/l	07/03/2017	Y Cov	GEO47
p,p - TDE	<2	ng/l	07/03/2017	Y Cov	GEO47
o,p - DDT	<2	ng/l	07/03/2017	Y Cov	GEO47
p,p - DDT	<4	ng/l	07/03/2017	Y Cov	GEO47

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575



# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917042**

Sample **6** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB08**

Sample Matrix: **Ground Water**

Sample Date/Time: **01 March 2017**

Sample Received: **01 March 2017**

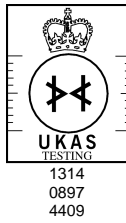
Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Tecnazene	<10	ng/l	07/03/2017	Y Cov	GEO47
gamma-Chlordane	<4	ng/l	07/03/2017	Y Cov	GEO47
Triallate	<10	ng/l	07/03/2017	Y Cov	GEO47
Trifluralin	<30	ng/l	07/03/2017	Y Cov	GEO47
Azinphos-ethyl	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Azinphos-methyl	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Carbophenothion	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Chlorfenvinphos	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Chlorpyrifos	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Diazinon	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Dichlorvos	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Dimethoate	<0.020	ug/l	07/03/2017	Y Cov	GEO47
Fenitrothion	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Fenthion	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Malathion	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Mevinphos	<0.020	ug/l	07/03/2017	Y Cov	GEO47
Parathion-ethyl	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Parathion-methyl	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Phorate	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Phosalone	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Pirimiphos-methyl	<0.005	ug/l	07/03/2017	Y Cov	GEO47
Propetamphos	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Triazophos	<0.002	ug/l	07/03/2017	Y Cov	GEO47
2,3,6 - TBA	<0.05	ug/l	10/03/2017	Y Cov	GEO20
2,4 - D	<0.05	ug/l	10/03/2017	Y Cov	GEO20
2,4 - DB	<0.05	ug/l	10/03/2017	Y Cov	GEO20
2,4,5 - T	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Benazolin	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Bentazone	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Chlopyralid	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Bromoxynil	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Dicamba	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Dichlorprop	<0.05	ug/l	10/03/2017	Y Cov	GEO20

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917042**

Sample **6** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB08**

Sample Matrix: **Ground Water**

Sample Date/Time: **01 March 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Fenoprop	<0.05	ug/l	10/03/2017	Y Cov	GEO20
loxynil	<0.05	ug/l	10/03/2017	Y Cov	GEO20
MCPA	<0.05	ug/l	10/03/2017	Y Cov	GEO20
MCPB	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Triclopyr	<0.05	ug/l	10/03/2017	Y Cov	GEO20
Mecoprop	<0.04	ug/l	10/03/2017	Y Cov	GEO20
Catechol	<0.10	ug/l	03/03/2017	N Cov	338
Cresol, Total	<0.10	ug/l	03/03/2017	N Cov	338
Xylenol, Total	<0.10	ug/l	03/03/2017	N Cov	338
Naphthol	<0.10	ug/l	03/03/2017	N Cov	338
Phenol	4.6	ug/l	03/03/2017	N Cov	338
Trimethylphenol, Total	<0.10	ug/l	03/03/2017	N Cov	338
Phenols, Total	6.4	ug/l	03/03/2017	N Cov	338
Aliphatic VPH >C5 - C6	<10	ug/l	09/03/2017	Y Cov	GEO45
Aliphatic VPH >C6 - C8	<10	ug/l	09/03/2017	Y Cov	GEO45
Aliphatic VPH >C8 - 10	<10	ug/l	09/03/2017	Y Cov	GEO45
Aliphatic VPH >C5 - C10	<10	ug/l	09/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C7	<10	ug/l	09/03/2017	Y Cov	GEO45
Aromatic VPH >C7 - C8	<10	ug/l	09/03/2017	Y Cov	GEO45
Aromatic VPH >C8 - C10	<10	ug/l	09/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C10	<10	ug/l	09/03/2017	Y Cov	GEO45
VPH >C5 - C10	<10	ug/l	09/03/2017	Y Cov	GEO45
Aliphatic EPH >C10 - C12	<10	ug/l	08/03/2017	N Cov	GEO46
Aliphatic EPH >C12 - C16	<10	ug/l	08/03/2017	N Cov	GEO46
Aliphatic EPH >C16 - C35	<10	ug/l	08/03/2017	N Cov	GEO46
Aliphatic EPH >C35 - C44	<10	ug/l	08/03/2017	N Cov	GEO46
Aliphatic EPH >C10 - C44	<10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C12	<10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C12 - C16	<10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C16 - C21	<10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C21 - C35	<10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C35 - C44	<10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C44	<10	ug/l	08/03/2017	N Cov	GEO46

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917042**

Sample **6** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB08**

Sample Matrix: **Ground Water**

Sample Date/Time: **01 March 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
EPH >C10 - C44	<10	ug/l	08/03/2017	N Cov	GEO46
Aliphatic VPH/EPH >C5 - C44	<10	ug/l	09/03/2017	N Cov	GEO45/GEO4
Aromatic VPH/EPH >C5 - C44	<10	ug/l	09/03/2017	N Cov	GEO45/GEO4
VPH/EPH >C5 - C44	<10	ug/l	09/03/2017	N Cov	GEO45/GEO4
Acenaphthene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
Acenaphthylene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
Anthracene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
Benzo (a) anthracene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
Benzo (g,h,i) perylene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
Benzo (a) pyrene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
Benzo (b) fluoranthene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
Benzo (k) fluoranthene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
Chrysene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
Dibenz (a,h) anthracene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
Fluoranthene	0.014	ug/l	06/03/2017	Y Cov	GEO19
Fluorene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
Indeno (1,2,3) cd pyrene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
Naphthalene	0.017	ug/l	06/03/2017	Y Cov	GEO19
Phenanthrene	0.010	ug/l	06/03/2017	Y Cov	GEO19
Pyrene	<0.01	ug/l	06/03/2017	Y Cov	GEO19
PAH, Total	0.040	ug/l	06/03/2017	N Cov	GEO19
VOC	Y	ug/l	10/03/2017	N Cov	GEO32
Dichlorodifluoromethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Chloromethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Chloroethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Bromomethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Trichlorofluoromethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,1-Dichloroethene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Dichloromethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,1-Dichloroethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
cis-1,2-Dichloroethene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
2,2-Dichloropropane	<1.0	ug/l	10/03/2017	N Cov	GEO32
Chloroform	<1.0	ug/l	10/03/2017	Y Cov	GEO32

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917042**

Sample **6** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB08**

Sample Matrix: **Ground Water**

Sample Date/Time: **01 March 2017**

Sample Received: **01 March 2017**

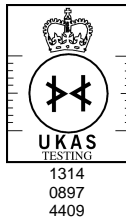
Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Bromochloromethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,1,1-Trichloroethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,1-Dichloropropene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,2-Dichloroethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Benzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,2-Dichloropropane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Trichloroethene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Bromodichloromethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Dibromomethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
cis-1,3-Dichloropropene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Toluene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
trans-1,3-Dichloropropene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,1,2-Trichloroethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Carbon Tetrachloride	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Vinyl Chloride	<0.5	ug/l	10/03/2017	Y Cov	GEO32
1,3-Dichloropropane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Tetrachloroethene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Dibromochloromethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,2-Dibromoethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Chlorobenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,1,1,2-Tetrachloroethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Ethyl Benzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
m&p-Xylene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
o-Xylene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Styrene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Bromoform	<1.0	ug/l	10/03/2017	Y Cov	GEO32
trans-1,2-Dichloroethene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Isopropylbenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,1,2,2-Tetrachloroethane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,2,3-Trichloropropane	<1.0	ug/l	10/03/2017	Y Cov	GEO32
n-Propylbenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Bromobenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
2-Chlorotoluene	<1.0	ug/l	10/03/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917042**

Sample **6** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB08**

Sample Matrix: **Ground Water**

Sample Date/Time: **01 March 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
1,3,5-Trimethylbenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
4-Chlorotoluene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
tert-Butylbenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,2,4-Trimethylbenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
sec-Butylbenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
p-Isopropyltoluene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,3-Dichlorobenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,4-Dichlorobenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
n-Butylbenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,2-Dichlorobenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,2-Dibromo-3-chloropropane	<2.0	ug/l	10/03/2017	Y Cov	GEO32
1,2,4-Trichlorobenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Hexachlorobutadiene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Naphthalene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
1,2,3-Trichlorobenzene	<1.0	ug/l	10/03/2017	Y Cov	GEO32
MTBE	<1.0	ug/l	10/03/2017	Y Cov	GEO32
Dibromofluoromethane	101.5	%Recovery	10/03/2017	N Cov	GEO32
Toluene-d8	100.0	%Recovery	10/03/2017	N Cov	GEO32
4-Bromofluorobenzene	95.0	%Recovery	10/03/2017	N Cov	GEO32
SVOC	Y	ug/l	08/03/2017	N Cov	GEO40
Phenol	60.6	ug/l	08/03/2017	Y Cov	GEO40
Bis(2-chloroethyl)ether	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Chlorophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
1,3-Dichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
1,4-Dichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Methylphenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
3&4-Methylphenol	<1.0	ug/l	08/03/2017	N Cov	GEO40
Dibenzofuran	<1.0	ug/l	08/03/2017	N Cov	GEO40
1,2-Dichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Bis(2-chloroisopropyl)ether	<1.0	ug/l	08/03/2017	Y Cov	GEO40
n-Nitrosodi-n-propylamine	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Hexachloroethane	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Nitrobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917042**

Sample **6** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB08**

Sample Matrix: **Ground Water**

Sample Date/Time: **01 March 2017**

Sample Received: **01 March 2017**

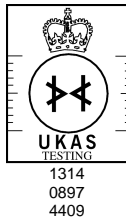
Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Isophorone	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,4-Dimethylphenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Nitrophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Bis(2-chloroethoxy)methane	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,4-Dichlorophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
1,2,4-Trichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Naphthalene	<2.0	ug/l	08/03/2017	Y Cov	GEO40
Hexachlorobutadiene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
4-Chloro-3-methylphenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Methylnaphthalene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,4,6-Trichlorophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,4,5-Trichlorophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Chloronaphthalene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Dimethylphthalate	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,6-Dinitrotoluene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Acenaphthylene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Acenaphthene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,4-Dinitrotoluene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Diethylphthalate	<1.0	ug/l	08/03/2017	Y Cov	GEO40
4-Nitrophenol	<5.0	ug/l	08/03/2017	Y Cov	GEO40
4-Chlorophenyl phenyl ether	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Fluorene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Diphenylamine	<1.0	ug/l	08/03/2017	N Cov	GEO40
4-Bromophenyl Phenyl Ether	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Hexachlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Pentachlorophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Phenanthrene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Anthracene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
di-n-Butylphthalate	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Fluoranthene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Pyrene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzyl Butyl Phthalate	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzo(a)anthracene	<1.0	ug/l	08/03/2017	Y Cov	GEO40

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917042**

Sample **6** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB08**

Sample Matrix: **Ground Water**

Sample Date/Time: **01 March 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Chrysene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Bis(2-ethylhexyl)phthalate	<5.0	ug/l	08/03/2017	Y Cov	GEO40
Di-n-octylphthalate	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzo(b)fluoranthene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzo(k)fluoranthene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzo(a)pyrene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Indeno(1,2,3-c,d)pyrene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Dibenz(a,h)anthracene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzo(g,h,i)perylene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Fluorophenol	92.5	%Recovery	08/03/2017	N Cov	GEO40
Phenol-d6	77.7	%Recovery	08/03/2017	N Cov	GEO40
Nitrobenzene-d5	84.9	%Recovery	08/03/2017	N Cov	GEO40
2-Fluorobiphenyl	84.4	%Recovery	08/03/2017	N Cov	GEO40
2,4,6-Tribromophenol	80.9	%Recovery	08/03/2017	N Cov	GEO40
Terphenyl-d14	89.2	%Recovery	08/03/2017	N Cov	GEO40
Nitrite as NO2	<0.28	mg/l	03/03/2017	N Cov	WAS036
Fluoroxypyr	<0.05	ug/l	10/03/2017	Y Cov	GEO20

**Analyst Comments for 15917042:**

Reporting limit raised for Hexachlorobenzene due to interferences.  
 GEO40 SVOC Waters: See attached SVOC-TIC Report. {/\*}The ferrous iron analysis was not carried out on site and there is the possibility of change in ferrous-ferric ratio between sampling and analysis.{\*/}

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

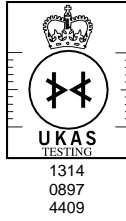
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:	Name: <b>C. Law</b>	Date: <b>16 March 2017</b>
	Title: <b>Inorganics Operations Manager</b>	

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
 Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917043**

Sample **7** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH69 (50)**

Sample Matrix: **Ground Water**

Sample Date/Time: **01 March 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron, Total	77.1	mg/l	10/03/2017	N Cov	WAS043
Nitrate as NO3	<3.1	mg/l	02/03/2017	N Cov	WAS036
Antimony Ultra Low Total as Sb	0.0029	mg/l	13/03/2017	Y Cov	WAS060
Selenium Ultra Low Total as Se	<0.0008	mg/l	13/03/2017	Y Cov	WAS060
Arsenic, Ultra Low Total as As	0.027	mg/l	13/03/2017	Y Cov	WAS060
Fluoride	<0.200	mg/l	08/03/2017	Y S	SUBCON
Aluminium, Total as Al	3.4	mg/l	08/03/2017	Y Cov	WAS049
Barium, Total as Ba	0.434	mg/l	08/03/2017	Y Cov	WAS049
Beryllium, Total as Be	<0.0021	mg/l	08/03/2017	Y Cov	WAS049
Boron, Total as B	0.79	mg/l	08/03/2017	Y Cov	WAS049
Cadmium , Total as Cd	0.0022	mg/l	08/03/2017	Y Cov	WAS049
Calcium , Total as Ca	564	mg/l	08/03/2017	Y Cov	WAS049
Chromium , Total as Cr	0.020	mg/l	08/03/2017	Y Cov	WAS049
Copper, Ultra-low Total as Cu	85	ug/l	13/03/2017	Y Cov	WAS060
Iron , Total as Fe	21.8	mg/l	08/03/2017	Y Cov	WAS049
Ferrous Iron	77.3	mg/l	10/03/2017	N Cov	WAS043
Ferric Iron	<0.5	mg/l	10/03/2017	N Cov	WAS043
Lead , Total as Pb	0.172	mg/l	08/03/2017	Y Cov	WAS049
Magnesium, Total as Mg	66.8	mg/l	08/03/2017	Y Cov	WAS049
Manganese , Total as Mn	2.35	mg/l	08/03/2017	Y Cov	WAS049
Mercury, Total as Hg	0.00017	mg/l	06/03/2017	N Cov	WAS013
Nickel, Total as Ni	0.047	mg/l	08/03/2017	Y Cov	WAS049
Potassium , Total as K	45.0	mg/l	08/03/2017	Y Cov	WAS049
Sodium , Total as Na	55.4	mg/l	08/03/2017	Y Cov	WAS049
Vanadium , Total as V	0.019	mg/l	08/03/2017	Y Cov	WAS049
Zinc, Total as Zn	0.473	mg/l	08/03/2017	Y Cov	WAS049
pH	7.2	pH units	03/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	2600	uS/cm	03/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	1330	mg/l	10/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	19.9	mg/l	03/03/2017	N Cov	WAS036
Chloride as Cl	35.4	mg/l	02/03/2017	N Cov	WAS036
Nitrite as N	<0.08	mg/l	02/03/2017	N Cov	WAS036

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575



# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917043**

Sample **7** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH69 (50)**

Sample Matrix: **Ground Water**

Sample Date/Time: **01 March 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Phosphates , Total as P	1.0	mg/l	09/03/2017	Y Cov	WAS049
Sulphate as SO4	621	mg/l	02/03/2017	N Cov	WAS036
BOD + ATU (5 day)	17	mg/l	08/03/2017	Y Cov	WAS001
COD (Total)	316	mg/l	06/03/2017	Y Cov	WAS040
TOC (Filtered)	28.5	mg/l	03/03/2017	Y Cov	WAS005
Cyanide, Free as CN	<0.008	mg/l	06/03/2017	N Cov	WAS018
Cyanide, Total as CN	0.009	mg/l	06/03/2017	N Cov	WAS018
Sulphide as S	7.08	mg/l	10/03/2017	N Cov	WAS033
Formaldehyde	0.079	mg/l	09/03/2017	N Cov	WAS030
1,2,3-Trichlorobenzene	<10	ng/l	07/03/2017	Y Cov	GEO47
1,2,4-Trichlorobenzene	<10	ng/l	07/03/2017	Y Cov	GEO47
1,3,5-Trichlorobenzene	<10	ng/l	07/03/2017	N Cov	GEO47
Aldrin	<5	ng/l	07/03/2017	Y Cov	GEO47
alpha-Endosulphan	<8	ng/l	07/03/2017	Y Cov	GEO47
alpha-HCH	<4	ng/l	07/03/2017	Y Cov	GEO47
beta-Endosulphan	<6	ng/l	07/03/2017	Y Cov	GEO47
beta-HCH	<4	ng/l	07/03/2017	Y Cov	GEO47
alpha-Chlordane	<6	ng/l	07/03/2017	Y Cov	GEO47
Dichlobenil	37	ng/l	07/03/2017	Y Cov	GEO47
Dieldrin	<5	ng/l	07/03/2017	Y Cov	GEO47
Endrin	<6	ng/l	07/03/2017	Y Cov	GEO47
gamma-HCH	15	ng/l	07/03/2017	Y Cov	GEO47
Heptachlor Epoxide	<6	ng/l	07/03/2017	Y Cov	GEO47
Hexachlorobenzene	<4	ng/l	07/03/2017	Y Cov	GEO47
Hexachlorobutadiene	<7	ng/l	07/03/2017	N Cov	GEO47
Isodrin	<6	ng/l	07/03/2017	Y Cov	GEO47
o,p - DDE	<4	ng/l	07/03/2017	Y Cov	GEO47
p,p - DDE	<4	ng/l	07/03/2017	Y Cov	GEO47
o,p - TDE	<4	ng/l	07/03/2017	Y Cov	GEO47
p,p - TDE	<4	ng/l	07/03/2017	Y Cov	GEO47
o,p - DDT	<5	ng/l	07/03/2017	Y Cov	GEO47
p,p - DDT	<6	ng/l	07/03/2017	Y Cov	GEO47
Tecnazene	<14	ng/l	07/03/2017	Y Cov	GEO47

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917043**

Sample **7** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH69 (50)**

Sample Matrix: **Ground Water**

Sample Date/Time: **01 March 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
gamma-Chlordane	<6	ng/l	07/03/2017	Y Cov	GEO47
Triallate	<17	ng/l	07/03/2017	Y Cov	GEO47
Trifluralin	<30	ng/l	07/03/2017	Y Cov	GEO47
Azinphos-ethyl	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Azinphos-methyl	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Carbophenothion	<0.006	ug/l	07/03/2017	Y Cov	GEO47
Chlorfenvinphos	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Chlorpyrifos	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Diazinon	<0.005	ug/l	07/03/2017	Y Cov	GEO47
Dichlorvos	<0.002	ug/l	07/03/2017	Y Cov	GEO47
Dimethoate	<0.020	ug/l	07/03/2017	Y Cov	GEO47
Fenitrothion	<0.005	ug/l	07/03/2017	Y Cov	GEO47
Fenthion	<0.005	ug/l	07/03/2017	Y Cov	GEO47
Malathion	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Mevinphos	<0.020	ug/l	07/03/2017	Y Cov	GEO47
Parathion-ethyl	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Parathion-methyl	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Phorate	<0.006	ug/l	07/03/2017	Y Cov	GEO47
Phosalone	<0.007	ug/l	07/03/2017	Y Cov	GEO47
Pirimiphos-methyl	<0.005	ug/l	07/03/2017	Y Cov	GEO47
Propetamphos	<0.003	ug/l	07/03/2017	Y Cov	GEO47
Triazophos	<0.004	ug/l	07/03/2017	Y Cov	GEO47
Catechol	<0.10	ug/l	03/03/2017	N Cov	338
Cresol, Total	<0.10	ug/l	03/03/2017	N Cov	338
Xylenol, Total	5.3	ug/l	03/03/2017	N Cov	338
Naphthol	0.57	ug/l	03/03/2017	N Cov	338
Phenol	4.0	ug/l	03/03/2017	N Cov	338
Trimethylphenol, Total	11	ug/l	03/03/2017	N Cov	338
Phenols, Total	26	ug/l	03/03/2017	N Cov	338
Aliphatic VPH >C5 - C6	<10	ug/l	14/03/2017	Y Cov	GEO45
Aliphatic VPH >C6 - C8	<10	ug/l	14/03/2017	Y Cov	GEO45
Aliphatic VPH >C8 - 10	19	ug/l	14/03/2017	Y Cov	GEO45
Aliphatic VPH >C5 - C10	19	ug/l	14/03/2017	Y Cov	GEO45

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917043**

Sample **7** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH69 (50)**

Sample Matrix: **Ground Water**

Sample Date/Time: **01 March 2017**

Sample Received: **01 March 2017**

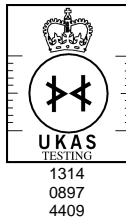
Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Aromatic VPH >C5 - C7	<10	ug/l	14/03/2017	Y Cov	GEO45
Aromatic VPH >C7 - C8	<10	ug/l	14/03/2017	Y Cov	GEO45
Aromatic VPH >C8 - C10	12	ug/l	14/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C10	12	ug/l	14/03/2017	Y Cov	GEO45
VPH >C5 - C10	31	ug/l	14/03/2017	Y Cov	GEO45
Aliphatic EPH >C10 - C12	<20	ug/l	08/03/2017	N Cov	GEO46
Aliphatic EPH >C12 - C16	<20	ug/l	08/03/2017	N Cov	GEO46
Aliphatic EPH >C16 - C35	<20	ug/l	08/03/2017	N Cov	GEO46
Aliphatic EPH >C35 - C44	<20	ug/l	08/03/2017	N Cov	GEO46
Aliphatic EPH >C10 - C44	<20	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C12	<20	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C12 - C16	<20	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C16 - C21	<20	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C21 - C35	<20	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C35 - C44	<20	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C44	<20	ug/l	08/03/2017	N Cov	GEO46
EPH >C10 - C44	<20	ug/l	08/03/2017	N Cov	GEO46
Aliphatic VPH/EPH >C5 - C44	<20	ug/l	14/03/2017	N Cov	GEO45/GEO4
Aromatic VPH/EPH >C5 - C44	<20	ug/l	14/03/2017	N Cov	GEO45/GEO4
VPH/EPH >C5 - C44	<20	ug/l	14/03/2017	N Cov	GEO45/GEO4
Acenaphthene	0.090	ug/l	06/03/2017	Y Cov	GEO19
Acenaphthylene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Anthracene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Benzo (a) anthracene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Benzo (g,h,i) perylene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Benzo (a) pyrene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Benzo (b) fluoranthene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Benzo (k) fluoranthene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Chrysene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Dibenz (a,h) anthracene	<0.02	ug/l	06/03/2017	Y Cov	GEO19
Fluoranthene	0.086	ug/l	06/03/2017	Y Cov	GEO19
Fluorene	0.066	ug/l	06/03/2017	Y Cov	GEO19
Indeno (1,2,3) cd pyrene	<0.02	ug/l	06/03/2017	Y Cov	GEO19

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917043**

Sample **7** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH69 (50)**

Sample Matrix: **Ground Water**

Sample Date/Time: **01 March 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Naphthalene	0.440	ug/l	06/03/2017	Y Cov	GEO19
Phenanthrene	0.148	ug/l	06/03/2017	Y Cov	GEO19
Pyrene	0.040	ug/l	06/03/2017	Y Cov	GEO19
PAH, Total	0.870	ug/l	06/03/2017	N Cov	GEO19
VOC	Y	ug/l	15/03/2017	N Cov	GEO32
Dichlorodifluoromethane	<10.0	ug/l	15/03/2017	Y Cov	GEO32
Chloromethane	<10.0	ug/l	15/03/2017	Y Cov	GEO32
Chloroethane	<10.0	ug/l	15/03/2017	Y Cov	GEO32
Bromomethane	<10.0	ug/l	15/03/2017	Y Cov	GEO32
Trichlorofluoromethane	<10.0	ug/l	15/03/2017	Y Cov	GEO32
1,1-Dichloroethene	<10.0	ug/l	15/03/2017	Y Cov	GEO32
Dichloromethane	<10.0	ug/l	15/03/2017	Y Cov	GEO32
1,1-Dichloroethane	<10.0	ug/l	15/03/2017	Y Cov	GEO32
cis-1,2-Dichloroethene	<10.0	ug/l	15/03/2017	Y Cov	GEO32
2,2-Dichloropropane	<10.0	ug/l	15/03/2017	N Cov	GEO32
Chloroform	<10.0	ug/l	15/03/2017	Y Cov	GEO32
Bromochloromethane	<10.0	ug/l	15/03/2017	Y Cov	GEO32
1,1,1-Trichloroethane	<10.0	ug/l	15/03/2017	Y Cov	GEO32
1,1-Dichloropropene	<10.0	ug/l	15/03/2017	Y Cov	GEO32
1,2-Dichloroethane	<10.0	ug/l	15/03/2017	Y Cov	GEO32
Benzene	<10.0	ug/l	15/03/2017	Y Cov	GEO32
1,2-Dichloropropane	<10.0	ug/l	15/03/2017	Y Cov	GEO32
Trichloroethene	<10.0	ug/l	15/03/2017	Y Cov	GEO32
Bromodichloromethane	<10.0	ug/l	15/03/2017	Y Cov	GEO32
Dibromomethane	<10.0	ug/l	15/03/2017	Y Cov	GEO32
cis-1,3-Dichloropropene	<10.0	ug/l	15/03/2017	Y Cov	GEO32
Toluene	<10.0	ug/l	15/03/2017	Y Cov	GEO32
trans-1,3-Dichloropropene	<10.0	ug/l	15/03/2017	Y Cov	GEO32
1,1,2-Trichloroethane	<10.0	ug/l	15/03/2017	Y Cov	GEO32
Carbon Tetrachloride	<10.0	ug/l	15/03/2017	Y Cov	GEO32
Vinyl Chloride	<5.0	ug/l	15/03/2017	Y Cov	GEO32
1,3-Dichloropropane	<10.0	ug/l	15/03/2017	Y Cov	GEO32
Tetrachloroethene	<10.0	ug/l	15/03/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917043**

Sample **7** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH69 (50)**

Sample Matrix: **Ground Water**

Sample Date/Time: **01 March 2017**

Sample Received: **01 March 2017**

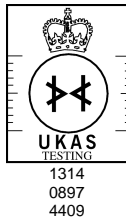
Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Dibromochloromethane	<10.0	ug/l	15/03/2017	Y Cov	GEO32
1,2-Dibromoethane	<10.0	ug/l	15/03/2017	Y Cov	GEO32
Chlorobenzene	<10.0	ug/l	15/03/2017	Y Cov	GEO32
1,1,1,2-Tetrachloroethane	<10.0	ug/l	15/03/2017	Y Cov	GEO32
Ethyl Benzene	<10.0	ug/l	15/03/2017	Y Cov	GEO32
m&p-Xylene	<10.0	ug/l	15/03/2017	Y Cov	GEO32
o-Xylene	<10.0	ug/l	15/03/2017	Y Cov	GEO32
Styrene	<10.0	ug/l	15/03/2017	Y Cov	GEO32
Bromoform	<10.0	ug/l	15/03/2017	Y Cov	GEO32
trans-1,2-Dichloroethene	<10.0	ug/l	15/03/2017	Y Cov	GEO32
Isopropylbenzene	<10.0	ug/l	15/03/2017	Y Cov	GEO32
1,1,1,2-Tetrachloroethane	<10.0	ug/l	15/03/2017	Y Cov	GEO32
1,2,3-Trichloropropane	<10.0	ug/l	15/03/2017	Y Cov	GEO32
n-Propylbenzene	<10.0	ug/l	15/03/2017	Y Cov	GEO32
Bromobenzene	<10.0	ug/l	15/03/2017	Y Cov	GEO32
2-Chlorotoluene	<10.0	ug/l	15/03/2017	Y Cov	GEO32
1,3,5-Trimethylbenzene	<10.0	ug/l	15/03/2017	Y Cov	GEO32
4-Chlorotoluene	<10.0	ug/l	15/03/2017	Y Cov	GEO32
tert-Butylbenzene	<10.0	ug/l	15/03/2017	Y Cov	GEO32
1,2,4-Trimethylbenzene	<10.0	ug/l	15/03/2017	Y Cov	GEO32
sec-Butylbenzene	<10.0	ug/l	15/03/2017	Y Cov	GEO32
p-Isopropyltoluene	<10.0	ug/l	15/03/2017	Y Cov	GEO32
1,3-Dichlorobenzene	<10.0	ug/l	15/03/2017	Y Cov	GEO32
1,4-Dichlorobenzene	<10.0	ug/l	15/03/2017	Y Cov	GEO32
n-Butylbenzene	<10.0	ug/l	15/03/2017	Y Cov	GEO32
1,2-Dichlorobenzene	<10.0	ug/l	15/03/2017	Y Cov	GEO32
1,2-Dibromo-3-chloropropane	<20.0	ug/l	15/03/2017	Y Cov	GEO32
1,2,4-Trichlorobenzene	<10.0	ug/l	15/03/2017	Y Cov	GEO32
Hexachlorobutadiene	<10.0	ug/l	15/03/2017	Y Cov	GEO32
Naphthalene	<10.0	ug/l	15/03/2017	Y Cov	GEO32
1,2,3-Trichlorobenzene	<10.0	ug/l	15/03/2017	Y Cov	GEO32
MTBE	<10.0	ug/l	15/03/2017	Y Cov	GEO32
Dibromofluoromethane	100.5	%Recovery	15/03/2017	N Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367265/2017**

Issue **1**

Laboratory Number: **15917043**

Sample **7** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH69 (50)**

Sample Matrix: **Ground Water**

Sample Date/Time: **01 March 2017**

Sample Received: **01 March 2017**

Analysis Complete: **16 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Toluene-d8	99.2	%Recovery	15/03/2017	N Cov	GEO32
4-Bromofluorobenzene	98.7	%Recovery	15/03/2017	N Cov	GEO32
Nitrite as N02	<0.28	mg/l	03/03/2017	N Cov	WAS036

**Analyst Comments for 15917043:**

Reporting limits raised for PAH & GCMSMS Pesticides & EPH Waters due to nature of sample matrix.  
The ferrous iron analysis was not carried out on site and there is the possibility of change in ferrous-ferric ratio between sampling and analysis.  
VOC reporting limits raised due to nature of sample matrix.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **C. Law**

Date: **16 March 2017**

Title: **Inorganics Operations Manager**

**ALS Environmental Ltd**  
Torrington Avenue  
Coventry  
CV4 9GU

T: +44 (0)24 7642 1213  
F: +44 (0)24 7685 6575  
[www.alsenvironmental.co.uk](http://www.alsenvironmental.co.uk)

**Mr Downes**  
**SKM Ireland c/o Jacobs**  
**Engineering Ireland**  
**Jacobs**  
**Merrion House**  
**Merrion Road**  
**Dublin 4 South Dublin**

23 March 2017

**Test Report: COV/1367714/2017**

Dear Mr Downes

Analysis of your sample(s) submitted on 02 March 2017 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed: 

Name: A. Horobin

Title: Organic Operations Manager



# Report Summary



1314  
0897  
4409



**Mr Ultan Downes  
SKM Ireland c/o Jacobs  
Engineering Ireland  
Jacobs  
Merrion House  
Merrion Road  
Dublin 4  
South Dublin**

Date of Issue: **23 March 2017**

Report Number: **COV/1367714/2017**

Issue **1**

This issue replaces  
all previous issues

**Job Description:** Kerdiffstown Landfill

Number of Samples  
included in this report **1**

Job Received: **02 March 2017**

Number of Test Results  
included in this report **280**

Analysis Commenced: **03 March 2017**

Signed: *A I Horobin*

Name: **A. Horobin**

Date: **23 March 2017**

Title: **Organic Operations Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested.

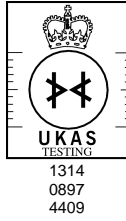
Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

(c) ALS Environmental Ltd 2017. All rights reserved. We, ALS Environmental Ltd, are the owner of all copyright in this report. You must not copy, reproduce, amend or adapt this report, its contents or any format in which it is delivered without our prior written agreement. If you copy, reproduce, amend, or adapt this report in any way without our agreement you will be liable for any damage or loss to us. In the event of a dispute the copy of the report held by us shall be the reference copy.



# Certificate of Analysis



Report Number: **COV/1367714/2017**

Issue **1**

Laboratory Number: **15920674**

Sample **1** of **1**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BB03**

Sample Matrix: **Ground Water**

Sample Date/Time: **01 March 2017**

Sample Received: **02 March 2017**

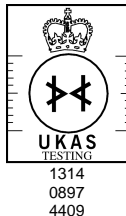
Analysis Complete: **23 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron, Total	<0.5	mg/l	10/03/2017	N Cov	WAS043
Nitrate as NO3	<3.1	mg/l	03/03/2017	N Cov	WAS036
Antimony Ultra Low Total as Sb	<0.0012	mg/l	13/03/2017	Y Cov	WAS060
Selenium Ultra Low Total as Se	<0.0008	mg/l	13/03/2017	Y Cov	WAS060
Arsenic, Ultra Low Total as As	0.0074	mg/l	13/03/2017	Y Cov	WAS060
Fluoride	0.153	mg/l	08/03/2017	Y S	SUBCON
Aluminium, Total as Al	5.0	mg/l	13/03/2017	Y Cov	WAS049
Barium, Total as Ba	0.339	mg/l	13/03/2017	Y Cov	WAS049
Beryllium, Total as Be	<0.0210	mg/l	13/03/2017	Y Cov	WAS049
Boron, Total as B	<2.30	mg/l	13/03/2017	Y Cov	WAS049
Cadmium , Total as Cd	<0.0060	mg/l	13/03/2017	Y Cov	WAS049
Calcium , Total as Ca	253	mg/l	13/03/2017	Y Cov	WAS049
Chromium , Total as Cr	<0.020	mg/l	13/03/2017	Y Cov	WAS049
Copper, Ultra-low Total as Cu	33	ug/l	13/03/2017	Y Cov	WAS060
Iron , Total as Fe	8.65	mg/l	13/03/2017	Y Cov	WAS049
Ferrous Iron	<0.5	mg/l	10/03/2017	N Cov	WAS043
Ferric Iron	<0.5	mg/l	10/03/2017	N Cov	WAS043
Lead , Total as Pb	<0.060	mg/l	13/03/2017	Y Cov	WAS049
Magnesium, Total as Mg	96.0	mg/l	13/03/2017	Y Cov	WAS049
Manganese , Total as Mn	4.83	mg/l	13/03/2017	Y Cov	WAS049
Mercury, Total as Hg	<0.00010	mg/l	09/03/2017	N Cov	WAS013
Nickel, Total as Ni	0.087	mg/l	13/03/2017	Y Cov	WAS049
Potassium , Total as K	<1.80	mg/l	13/03/2017	Y Cov	WAS049
Sodium , Total as Na	3.27	mg/l	13/03/2017	Y Cov	WAS049
Vanadium , Total as V	<0.040	mg/l	13/03/2017	Y Cov	WAS049
Zinc, Total as Zn	0.511	mg/l	13/03/2017	Y Cov	WAS049
pH	7.5	pH units	03/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	554	uS/cm	03/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	392	mg/l	12/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	04/03/2017	Y Cov	WAS067
Chloride as Cl	10.1	mg/l	03/03/2017	N Cov	WAS036
Nitrite as N	<0.08	mg/l	03/03/2017	N Cov	WAS036

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367714/2017**

Issue **1**

Laboratory Number: **15920674**

Sample **1** of **1**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BB03**

Sample Matrix: **Ground Water**

Sample Date/Time: **01 March 2017**

Sample Received: **02 March 2017**

Analysis Complete: **23 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Phosphates , Total as P	3.8	mg/l	13/03/2017	Y Cov	WAS049
Sulphate as SO4	18.8	mg/l	03/03/2017	N Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	08/03/2017	Y Cov	WAS001
COD (Total)	144	mg/l	06/03/2017	Y Cov	WAS040
TOC (Filtered)	2.5	mg/l	03/03/2017	Y Cov	WAS005
Cyanide, Free as CN	<0.008	mg/l	08/03/2017	N Cov	WAS018
Cyanide, Total as CN	<0.009	mg/l	07/03/2017	N Cov	WAS018
Sulphide as S	1.18	mg/l	14/03/2017	N Cov	WAS033
Formaldehyde	<0.029	mg/l	09/03/2017	N Cov	WAS030
1,2,3-Trichlorobenzene	<10	ng/l	16/03/2017	Y Cov	GEO47
1,2,4-Trichlorobenzene	<10	ng/l	16/03/2017	Y Cov	GEO47
1,3,5-Trichlorobenzene	<10	ng/l	16/03/2017	N Cov	GEO47
SVOC with TICs	Y	ug/l	08/03/2017	N Cov	GEO40
Aldrin	<4	ng/l	16/03/2017	Y Cov	GEO47
alpha-Endosulphan	<4	ng/l	16/03/2017	Y Cov	GEO47
alpha-HCH	<3	ng/l	16/03/2017	Y Cov	GEO47
beta-Endosulphan	<4	ng/l	16/03/2017	Y Cov	GEO47
beta-HCH	<3	ng/l	16/03/2017	Y Cov	GEO47
alpha-Chlordane	<3	ng/l	16/03/2017	Y Cov	GEO47
Dichlobenil	Analyst Com	ng/l	23/03/2017	Y Cov	GEO47
Dieldrin	<4	ng/l	16/03/2017	Y Cov	GEO47
Endrin	<4	ng/l	16/03/2017	Y Cov	GEO47
gamma-HCH	<2.7	ng/l	16/03/2017	Y Cov	GEO47
Heptachlor Epoxide	<4	ng/l	16/03/2017	Y Cov	GEO47
Hexachlorobenzene	<2	ng/l	16/03/2017	Y Cov	GEO47
Hexachlorobutadiene	<7	ng/l	16/03/2017	N Cov	GEO47
Isodrin	<4	ng/l	16/03/2017	Y Cov	GEO47
o,p - DDE	<2	ng/l	16/03/2017	Y Cov	GEO47
p,p - DDE	<2	ng/l	16/03/2017	Y Cov	GEO47
o,p - TDE	<2	ng/l	16/03/2017	Y Cov	GEO47
p,p - TDE	<2	ng/l	16/03/2017	Y Cov	GEO47
o,p - DDT	<2	ng/l	16/03/2017	Y Cov	GEO47
p,p - DDT	<4	ng/l	16/03/2017	Y Cov	GEO47

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367714/2017**

Issue **1**

Laboratory Number: **15920674**

Sample **1** of **1**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BB03**

Sample Matrix: **Ground Water**

Sample Date/Time: **01 March 2017**

Sample Received: **02 March 2017**

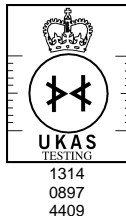
Analysis Complete: **23 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Tecnazene	<10	ng/l	16/03/2017	Y Cov	GEO47
gamma-Chlordane	<4	ng/l	16/03/2017	Y Cov	GEO47
Triallate	<10	ng/l	16/03/2017	Y Cov	GEO47
Trifluralin	<30	ng/l	16/03/2017	Y Cov	GEO47
Azinphos-ethyl	<0.004	ug/l	16/03/2017	Y Cov	GEO47
Azinphos-methyl	<0.002	ug/l	16/03/2017	Y Cov	GEO47
Carbophenothion	<0.003	ug/l	16/03/2017	Y Cov	GEO47
Chlorfenvinphos	<0.002	ug/l	16/03/2017	Y Cov	GEO47
Chlorpyrifos	<0.002	ug/l	16/03/2017	Y Cov	GEO47
Diazinon	Analyst Com	ug/l	23/03/2017	Y Cov	GEO47
Dichlorvos	<0.002	ug/l	16/03/2017	Y Cov	GEO47
Dimethoate	Analyst Com	ug/l	23/03/2017	Y Cov	GEO47
Fenitrothion	<0.002	ug/l	16/03/2017	Y Cov	GEO47
Fenthion	<0.002	ug/l	16/03/2017	Y Cov	GEO47
Malathion	<0.004	ug/l	16/03/2017	Y Cov	GEO47
Mevinphos	Analyst Com	ug/l	23/03/2017	Y Cov	GEO47
Parathion-ethyl	<0.003	ug/l	16/03/2017	Y Cov	GEO47
Parathion-methyl	<0.003	ug/l	16/03/2017	Y Cov	GEO47
Phorate	<0.004	ug/l	16/03/2017	Y Cov	GEO47
Phosalone	<0.004	ug/l	16/03/2017	Y Cov	GEO47
Pirimiphos-methyl	<0.005	ug/l	16/03/2017	Y Cov	GEO47
Propetamphos	<0.003	ug/l	16/03/2017	Y Cov	GEO47
Triazophos	<0.002	ug/l	16/03/2017	Y Cov	GEO47
2,3,6 - TBA	0.14	ug/l	20/03/2017	Y Cov	GEO20
2,4 - D	<0.20	ug/l	15/03/2017	Y Cov	GEO20
2,4 - DB	<0.05	ug/l	20/03/2017	Y Cov	GEO20
2,4,5 - T	<0.20	ug/l	15/03/2017	Y Cov	GEO20
Benazolin	0.09	ug/l	20/03/2017	Y Cov	GEO20
Bentazone	0.08	ug/l	20/03/2017	Y Cov	GEO20
Chlopyralid	0.09	ug/l	20/03/2017	Y Cov	GEO20
Bromoxynil	<0.05	ug/l	20/03/2017	Y Cov	GEO20
Dicamba	0.08	ug/l	20/03/2017	Y Cov	GEO20
Dichlorprop	0.07	ug/l	20/03/2017	Y Cov	GEO20

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367714/2017**

Issue **1**

Laboratory Number: **15920674**

Sample **1** of **1**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BB03**

Sample Matrix: **Ground Water**

Sample Date/Time: **01 March 2017**

Sample Received: **02 March 2017**

Analysis Complete: **23 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Fenoprop	<0.20	ug/l	15/03/2017	Y Cov	GEO20
loxynil	<0.05	ug/l	20/03/2017	Y Cov	GEO20
MCPA	<0.20	ug/l	15/03/2017	Y Cov	GEO20
MCPB	<0.05	ug/l	20/03/2017	Y Cov	GEO20
Triclopyr	0.06	ug/l	20/03/2017	Y Cov	GEO20
Mecoprop	0.05	ug/l	20/03/2017	Y Cov	GEO20
Catechol	<0.10	ug/l	09/03/2017	N Cov	338
Cresol, Total	<0.10	ug/l	09/03/2017	N Cov	338
Xylenol, Total	<0.10	ug/l	09/03/2017	N Cov	338
Naphthol	<0.10	ug/l	09/03/2017	N Cov	338
Phenol	<0.10	ug/l	09/03/2017	N Cov	338
Trimethylphenol, Total	<0.10	ug/l	09/03/2017	N Cov	338
Phenols, Total	<0.50	ug/l	09/03/2017	N Cov	338
Aliphatic VPH >C5 - C6	<10	ug/l	14/03/2017	Y Cov	GEO45
Aliphatic VPH >C6 - C8	<10	ug/l	14/03/2017	Y Cov	GEO45
Aliphatic VPH >C8 - 10	<10	ug/l	14/03/2017	Y Cov	GEO45
Aliphatic VPH >C5 - C10	<10	ug/l	14/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C7	<10	ug/l	14/03/2017	Y Cov	GEO45
Aromatic VPH >C7 - C8	<10	ug/l	14/03/2017	Y Cov	GEO45
Aromatic VPH >C8 - C10	<10	ug/l	14/03/2017	Y Cov	GEO45
Aromatic VPH >C5 - C10	<10	ug/l	14/03/2017	Y Cov	GEO45
VPH >C5 - C10	<10	ug/l	14/03/2017	Y Cov	GEO45
Aliphatic EPH >C10 - C12	<10	ug/l	08/03/2017	N Cov	GEO46
Aliphatic EPH >C12 - C16	<10	ug/l	08/03/2017	N Cov	GEO46
Aliphatic EPH >C16 - C35	<10	ug/l	08/03/2017	N Cov	GEO46
Aliphatic EPH >C35 - C44	<10	ug/l	08/03/2017	N Cov	GEO46
Aliphatic EPH >C10 - C44	<10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C12	<10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C12 - C16	<10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C16 - C21	<10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C21 - C35	<10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C35 - C44	<10	ug/l	08/03/2017	N Cov	GEO46
Aromatic EPH >C10 - C44	<10	ug/l	08/03/2017	N Cov	GEO46

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367714/2017**

Issue **1**

Laboratory Number: **15920674**

Sample **1** of **1**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BB03**

Sample Matrix: **Ground Water**

Sample Date/Time: **01 March 2017**

Sample Received: **02 March 2017**

Analysis Complete: **23 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
EPH >C10 - C44	<10	ug/l	08/03/2017	N Cov	GEO46
Aliphatic VPH/EPH >C5 - C44	<10	ug/l	14/03/2017	N Cov	GEO45/GEO4
Aromatic VPH/EPH >C5 - C44	<10	ug/l	14/03/2017	N Cov	GEO45/GEO4
VPH/EPH >C5 - C44	<10	ug/l	14/03/2017	N Cov	GEO45/GEO4
Acenaphthene	<0.01	ug/l	07/03/2017	Y Cov	GEO19
Acenaphthylene	<0.01	ug/l	07/03/2017	Y Cov	GEO19
Anthracene	<0.01	ug/l	07/03/2017	Y Cov	GEO19
Benzo (a) anthracene	<0.01	ug/l	07/03/2017	Y Cov	GEO19
Benzo (g,h,i) perylene	<0.01	ug/l	07/03/2017	Y Cov	GEO19
Benzo (a) pyrene	<0.01	ug/l	07/03/2017	Y Cov	GEO19
Benzo (b) fluoranthene	<0.01	ug/l	07/03/2017	Y Cov	GEO19
Benzo (k) fluoranthene	<0.01	ug/l	07/03/2017	Y Cov	GEO19
Chrysene	<0.01	ug/l	07/03/2017	Y Cov	GEO19
Dibenz (a,h) anthracene	<0.01	ug/l	07/03/2017	Y Cov	GEO19
Fluoranthene	<0.01	ug/l	07/03/2017	Y Cov	GEO19
Fluorene	<0.01	ug/l	07/03/2017	Y Cov	GEO19
Indeno (1,2,3) cd pyrene	<0.01	ug/l	07/03/2017	Y Cov	GEO19
Naphthalene	<0.01	ug/l	07/03/2017	Y Cov	GEO19
Phenanthrene	<0.01	ug/l	07/03/2017	Y Cov	GEO19
Pyrene	<0.01	ug/l	07/03/2017	Y Cov	GEO19
PAH, Total	<0.01	ug/l	07/03/2017	N Cov	GEO19
VOC	Y	ug/l	09/03/2017	N Cov	GEO32
Dichlorodifluoromethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Chloromethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Chloroethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Bromomethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Trichlorofluoromethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,1-Dichloroethene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Dichloromethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,1-Dichloroethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
cis-1,2-Dichloroethene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
2,2-Dichloropropane	<1.0	ug/l	09/03/2017	N Cov	GEO32
Chloroform	<1.0	ug/l	09/03/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367714/2017**

Issue **1**

Laboratory Number: **15920674**

Sample **1** of **1**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BB03**

Sample Matrix: **Ground Water**

Sample Date/Time: **01 March 2017**

Sample Received: **02 March 2017**

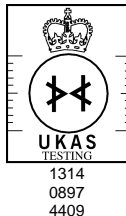
Analysis Complete: **23 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Bromochloromethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,1,1-Trichloroethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,1-Dichloropropene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,2-Dichloroethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Benzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,2-Dichloropropane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Trichloroethene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Bromodichloromethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Dibromomethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
cis-1,3-Dichloropropene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Toluene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
trans-1,3-Dichloropropene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,1,2-Trichloroethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Carbon Tetrachloride	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Vinyl Chloride	<0.5	ug/l	09/03/2017	Y Cov	GEO32
1,3-Dichloropropane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Tetrachloroethene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Dibromochloromethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,2-Dibromoethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Chlorobenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,1,1,2-Tetrachloroethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Ethyl Benzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
m&p-Xylene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
o-Xylene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Styrene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Bromoform	<1.0	ug/l	09/03/2017	Y Cov	GEO32
trans-1,2-Dichloroethene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Isopropylbenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,1,2,2-Tetrachloroethane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,2,3-Trichloropropane	<1.0	ug/l	09/03/2017	Y Cov	GEO32
n-Propylbenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Bromobenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
2-Chlorotoluene	<1.0	ug/l	09/03/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367714/2017**

Issue **1**

Laboratory Number: **15920674**

Sample **1** of **1**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BB03**

Sample Matrix: **Ground Water**

Sample Date/Time: **01 March 2017**

Sample Received: **02 March 2017**

Analysis Complete: **23 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
1,3,5-Trimethylbenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
4-Chlorotoluene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
tert-Butylbenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,2,4-Trimethylbenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
sec-Butylbenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
p-Isopropyltoluene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,3-Dichlorobenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,4-Dichlorobenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
n-Butylbenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,2-Dichlorobenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,2-Dibromo-3-chloropropane	<2.0	ug/l	09/03/2017	Y Cov	GEO32
1,2,4-Trichlorobenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Hexachlorobutadiene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Naphthalene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
1,2,3-Trichlorobenzene	<1.0	ug/l	09/03/2017	Y Cov	GEO32
MTBE	<1.0	ug/l	09/03/2017	Y Cov	GEO32
Dibromofluoromethane	101.8	%Recovery	09/03/2017	N Cov	GEO32
Toluene-d8	99.6	%Recovery	09/03/2017	N Cov	GEO32
4-Bromofluorobenzene	96.1	%Recovery	09/03/2017	N Cov	GEO32
SVOC	Y	ug/l	08/03/2017	N Cov	GEO40
Phenol	60.2	ug/l	08/03/2017	Y Cov	GEO40
Bis(2-chloroethyl)ether	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Chlorophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
1,3-Dichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
1,4-Dichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Methylphenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
3&4-Methylphenol	<1.0	ug/l	08/03/2017	N Cov	GEO40
Dibenzofuran	<1.0	ug/l	08/03/2017	N Cov	GEO40
1,2-Dichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Bis(2-chloroisopropyl)ether	<1.0	ug/l	08/03/2017	Y Cov	GEO40
n-Nitrosodi-n-propylamine	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Hexachloroethane	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Nitrobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1367714/2017**

Issue **1**

Laboratory Number: **15920674**

Sample **1** of **1**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BB03**

Sample Matrix: **Ground Water**

Sample Date/Time: **01 March 2017**

Sample Received: **02 March 2017**

Analysis Complete: **23 March 2017**

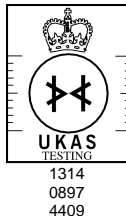
Test Description	Result	Units	Analysis Date	Accreditation	Method
Isophorone	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,4-Dimethylphenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Nitrophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Bis(2-chloroethoxy)methane	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,4-Dichlorophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
1,2,4-Trichlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Naphthalene	<2.0	ug/l	08/03/2017	Y Cov	GEO40
Hexachlorobutadiene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
4-Chloro-3-methylphenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Methylnaphthalene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,4,6-Trichlorophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,4,5-Trichlorophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Chloronaphthalene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Dimethylphthalate	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,6-Dinitrotoluene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Acenaphthylene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Acenaphthene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2,4-Dinitrotoluene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Diethylphthalate	<1.0	ug/l	08/03/2017	Y Cov	GEO40
4-Nitrophenol	<5.0	ug/l	08/03/2017	Y Cov	GEO40
4-Chlorophenyl phenyl ether	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Fluorene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Diphenylamine	<1.0	ug/l	08/03/2017	N Cov	GEO40
4-Bromophenyl Phenyl Ether	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Hexachlorobenzene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Pentachlorophenol	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Phenanthrene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Anthracene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
di-n-Butylphthalate	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Fluoranthene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Pyrene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzyl Butyl Phthalate	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzo(a)anthracene	<1.0	ug/l	08/03/2017	Y Cov	GEO40

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575



# Certificate of Analysis



Report Number: **COV/1367714/2017**

Issue **1**

Laboratory Number: **15920674**

Sample **1** of **1**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BB03**

Sample Matrix: **Ground Water**

Sample Date/Time: **01 March 2017**

Sample Received: **02 March 2017**

Analysis Complete: **23 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Chrysene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Bis(2-ethylhexyl)phthalate	<5.0	ug/l	08/03/2017	Y Cov	GEO40
Di-n-octylphthalate	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzo(b)fluoranthene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzo(k)fluoranthene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzo(a)pyrene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Indeno(1,2,3-c,d)pyrene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Dibenz(a,h)anthracene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
Benzo(g,h,i)perylene	<1.0	ug/l	08/03/2017	Y Cov	GEO40
2-Fluorophenol	89.5	%Recovery	08/03/2017	N Cov	GEO40
Phenol-d6	77.4	%Recovery	08/03/2017	N Cov	GEO40
Nitrobenzene-d5	82.8	%Recovery	08/03/2017	N Cov	GEO40
2-Fluorobiphenyl	84.2	%Recovery	08/03/2017	N Cov	GEO40
2,4,6-Tribromophenol	81.9	%Recovery	08/03/2017	N Cov	GEO40
Terphenyl-d14	89.6	%Recovery	08/03/2017	N Cov	GEO40
Nitrite as NO2	<0.28	mg/l	06/03/2017	N Cov	WAS036
Fluoroxypyr	<0.25	ug/l	15/03/2017	Y Cov	GEO20

#### Analyst Comments for 15920674:

This sample has been analysed for Sodium Total as Na, Boron, Total as B outside recommended stability times. It is therefore possible that the results provided may be compromised. GEO40 SVOC Waters: See attached SVOC-TIC Report. {(\*)}The ferrous iron analysis was not carried out on site and there is the possibility of change in ferrous-ferric ratio between sampling and analysis.{(\*)}.Reporting limit raised for Acid Herbs due to interference.  
Results unavailable for Dichlobenil <2ng/l, Diazinon <0.003 ug/l, Mevinphos <0.020 & Dimethoate <0.020 due to quality control failure.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed: *A Horobin*

Name: **A. Horobin**

Date: **23 March 2017**

Title: **Organic Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

**ALS Environmental Ltd**  
Torrington Avenue  
Coventry  
CV4 9GU

T: +44 (0)24 7642 1213  
F: +44 (0)24 7685 6575  
[www.alsenvironmental.co.uk](http://www.alsenvironmental.co.uk)

**Mr Downes**  
**SKM Ireland c/o Jacobs**  
**Engineering Ireland**  
**Jacobs**  
**Merrion House**  
**Merrion Road**  
**Dublin 4 South Dublin**

28 March 2017

**Test Report: COV/1373435/2017**

Dear Mr Downes

Analysis of your sample(s) submitted on 21 March 2017 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed: 

Name: R. Stocks

Title: Inorganic Team Leader



# Report Summary



1314  
0897  
4409



**Mr Ultan Downes  
SKM Ireland c/o Jacobs  
Engineering Ireland  
Jacobs  
Merrion House  
Merrion Road  
Dublin 4  
South Dublin**

Date of Issue: **28 March 2017**

Report Number: **COV/1373435/2017**

Issue **1**

This issue replaces  
all previous issues

**Job Description:** Kerdiffstown Landfill

**Job Location:** 32EW5604 Kerdiffstown

Number of Samples  
included in this report **3**

Job Received: **21 March 2017**

Number of Test Results  
included in this report **51**

Analysis Commenced: **22 March 2017**

Signed:

Name: **R. Stocks**

Date: **28 March 2017**

Title: **Inorganic Team Leader**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.

Information on the methods of analysis and performance characteristics are available on request.

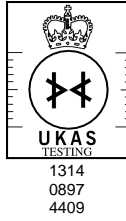
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

(c) ALS Environmental Ltd 2017. All rights reserved. We, ALS Environmental Ltd, are the owner of all copyright in this report. You must not copy, reproduce, amend or adapt this report, its contents or any format in which it is delivered without our prior written agreement. If you copy, reproduce, amend, or adapt this report in any way without our agreement you will be liable for any damage or loss to us. In the event of a dispute the copy of the report held by us shall be the reference copy.

# Certificate of Analysis



Report Number: **COV/1373435/2017**

Issue **1**

Laboratory Number: **15962747**

Sample **1** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **EMW08**

Sample Matrix: **Ground Water**

Sample Date/Time: **21 March 2017**

Sample Received: **21 March 2017**

Analysis Complete: **28 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	24/03/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.0032	mg/l	28/03/2017	Y Cov	WAS060
Calcium , Total as Ca	134	mg/l	26/03/2017	Y Cov	WAS049
Iron , Total as Fe	4.09	mg/l	26/03/2017	Y Cov	WAS049
Manganese , Total as Mn	0.804	mg/l	26/03/2017	Y Cov	WAS049
Potassium , Total as K	0.40	mg/l	26/03/2017	Y Cov	WAS049
Sodium , Total as Na	4.74	mg/l	26/03/2017	Y Cov	WAS049
pH	7.5	pH units	22/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	618	uS/cm	22/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	343	mg/l	22/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.11	mg/l	22/03/2017	Y Cov	WAS067
Chloride as Cl	7.6	mg/l	24/03/2017	N Cov	WAS036
Sulphate as SO4	4.5	mg/l	24/03/2017	N Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	27/03/2017	Y Cov	WAS001
COD (Total)	19.0	mg/l	27/03/2017	Y Cov	WAS040
TOC (Filtered)	1.8	mg/l	22/03/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	23/03/2017	N Cov	WAS018

Analyst Comments for 15962747:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **R. Stocks**

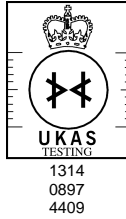
Date: **28 March 2017**

Title: **Inorganic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1373435/2017**

Issue **1**

Laboratory Number: **15962748**

Sample **2** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **EMW11**

Sample Matrix: **Ground Water**

Sample Date/Time: **21 March 2017**

Sample Received: **21 March 2017**

Analysis Complete: **28 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	37.2	mg/l	24/03/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	<0.0010	mg/l	28/03/2017	Y Cov	WAS060
Calcium , Total as Ca	346	mg/l	26/03/2017	Y Cov	WAS049
Iron , Total as Fe	0.64	mg/l	26/03/2017	Y Cov	WAS049
Manganese , Total as Mn	0.073	mg/l	26/03/2017	Y Cov	WAS049
Potassium , Total as K	41.8	mg/l	26/03/2017	Y Cov	WAS049
Sodium , Total as Na	47.9	mg/l	26/03/2017	Y Cov	WAS049
pH	7.2	pH units	22/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	1830	uS/cm	22/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	491	mg/l	22/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	22/03/2017	Y Cov	WAS067
Chloride as Cl	41.3	mg/l	24/03/2017	N Cov	WAS036
Sulphate as SO4	676	mg/l	24/03/2017	N Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	27/03/2017	Y Cov	WAS001
COD (Total)	44.0	mg/l	27/03/2017	Y Cov	WAS040
TOC (Filtered)	7.1	mg/l	22/03/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	23/03/2017	N Cov	WAS018

Analyst Comments for 15962748:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **R. Stocks**

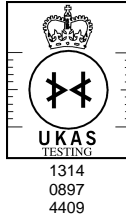
Date: **28 March 2017**

Title: **Inorganic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1373435/2017**

Issue **1**

Laboratory Number: **15962749**

Sample **3** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **EMW19**

Sample Matrix: **Ground Water**

Sample Date/Time: **21 March 2017**

Sample Received: **21 March 2017**

Analysis Complete: **28 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	24/03/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.011	mg/l	28/03/2017	Y Cov	WAS060
Calcium , Total as Ca	115	mg/l	26/03/2017	Y Cov	WAS049
Iron , Total as Fe	8.59	mg/l	26/03/2017	Y Cov	WAS049
Manganese , Total as Mn	0.964	mg/l	26/03/2017	Y Cov	WAS049
Potassium , Total as K	3.32	mg/l	26/03/2017	Y Cov	WAS049
Sodium , Total as Na	12.7	mg/l	26/03/2017	Y Cov	WAS049
pH	7.5	pH units	22/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	646	uS/cm	22/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	312	mg/l	22/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	1.53	mg/l	22/03/2017	Y Cov	WAS067
Chloride as Cl	19.8	mg/l	24/03/2017	N Cov	WAS036
Sulphate as SO4	44.9	mg/l	24/03/2017	N Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	27/03/2017	Y Cov	WAS001
COD (Total)	21.0	mg/l	27/03/2017	Y Cov	WAS040
TOC (Filtered)	3.0	mg/l	22/03/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	23/03/2017	N Cov	WAS018

Analyst Comments for 15962749:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **R. Stocks**

Date: **28 March 2017**

Title: **Inorganic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

**ALS Environmental Ltd**  
Torrington Avenue  
Coventry  
CV4 9GU

T: +44 (0)24 7642 1213  
F: +44 (0)24 7685 6575  
[www.alsenvironmental.co.uk](http://www.alsenvironmental.co.uk)

**Mr Downes**  
**SKM Ireland c/o Jacobs**  
**Engineering Ireland**  
**Jacobs**  
**Merrion House**  
**Merrion Road**  
**Dublin 4 South Dublin**

28 March 2017

**Test Report: COV/1373437/2017**

Dear Mr Downes

Analysis of your sample(s) submitted on 21 March 2017 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed: 

Name: R. Stocks

Title: Inorganic Team Leader



# Report Summary



1314  
0897  
4409



**Mr Ultan Downes**  
**SKM Ireland c/o Jacobs**  
**Engineering Ireland**  
**Jacobs**  
**Merrion House**  
**Merrion Road**  
**Dublin 4**  
**South Dublin**

Date of Issue: **28 March 2017**

Report Number: **COV/1373437/2017**

Issue **1**

This issue replaces  
all previous issues

**Job Description:** Kerdiffstown Landfill

**Job Location:** 32EW5604 Kerdiffstown

Number of Samples  
included in this report **10**

Job Received: **21 March 2017**

Number of Test Results  
included in this report **150**

Analysis Commenced: **21 March 2017**

Signed:

Name: **R. Stocks**

Date: **28 March 2017**

Title: **Inorganic Team Leader**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested.

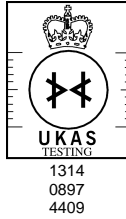
Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

(c) ALS Environmental Ltd 2017. All rights reserved. We, ALS Environmental Ltd, are the owner of all copyright in this report. You must not copy, reproduce, amend or adapt this report, its contents or any format in which it is delivered without our prior written agreement. If you copy, reproduce, amend, or adapt this report in any way without our agreement you will be liable for any damage or loss to us. In the event of a dispute the copy of the report held by us shall be the reference copy.



# Certificate of Analysis



Report Number: **COV/1373437/2017**

Issue **1**

Laboratory Number: **15962754**

Sample **1** of **10**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **SW01**

Sample Matrix: **Surface Water**

Sample Date/Time: **20 March 2017**

Sample Received: **21 March 2017**

Analysis Complete: **28 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	12.1	mg/l	23/03/2017	Y Cov	WAS036
Arsenic, Ultra Low Total as As	0.0012	mg/l	28/03/2017	N Cov	WAS060
Calcium , Total as Ca	128	mg/l	26/03/2017	N Cov	WAS049
Iron , Total as Fe	1.22	mg/l	26/03/2017	N Cov	WAS049
Manganese , Total as Mn	0.200	mg/l	26/03/2017	N Cov	WAS049
Potassium , Total as K	1.13	mg/l	26/03/2017	N Cov	WAS049
Sodium , Total as Na	8.66	mg/l	26/03/2017	N Cov	WAS049
pH	8.2	pH units	22/03/2017	N Cov	WAS039
Conductivity- Electrical 20C	569	uS/cm	22/03/2017	N Cov	WAS039
Alkalinity as CaCO3	305	mg/l	22/03/2017	N Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	22/03/2017	N Cov	WAS067
Chloride as Cl	14.1	mg/l	23/03/2017	Y Cov	WAS036
Sulphate as SO4	18.8	mg/l	23/03/2017	Y Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	27/03/2017	Y Cov	WAS001
COD (Total)	31.0	mg/l	24/03/2017	Y Cov	WAS040
TOC (Filtered)	1.8	mg/l	22/03/2017	N Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	23/03/2017	N Cov	WAS018

Analyst Comments for 15962754:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).  
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **R. Stocks**

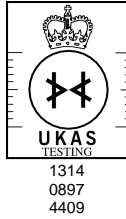
Date: **28 March 2017**

Title: **Inorganic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1373437/2017**

Issue **1**

Laboratory Number: **15962755**

Sample **2** of **10**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **SW02**

Sample Matrix: **Surface Water**

Sample Date/Time: **20 March 2017**

Sample Received: **21 March 2017**

Analysis Complete: **28 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	10.6	mg/l	23/03/2017	Y Cov	WAS036
Arsenic, Ultra Low Total as As	<0.0010	mg/l	28/03/2017	N Cov	WAS060
Calcium , Total as Ca	114	mg/l	26/03/2017	N Cov	WAS049
Iron , Total as Fe	1.14	mg/l	26/03/2017	N Cov	WAS049
Manganese , Total as Mn	0.016	mg/l	26/03/2017	N Cov	WAS049
Potassium , Total as K	2.48	mg/l	26/03/2017	N Cov	WAS049
Sodium , Total as Na	9.19	mg/l	26/03/2017	N Cov	WAS049
pH	8.3	pH units	22/03/2017	N Cov	WAS039
Conductivity- Electrical 20C	550	uS/cm	22/03/2017	N Cov	WAS039
Alkalinity as CaCO3	291	mg/l	22/03/2017	N Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	22/03/2017	N Cov	WAS067
Chloride as Cl	13.7	mg/l	23/03/2017	Y Cov	WAS036
Sulphate as SO4	61.2	mg/l	23/03/2017	Y Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	27/03/2017	Y Cov	WAS001
COD (Total)	<11.0	mg/l	24/03/2017	Y Cov	WAS040
TOC (Filtered)	2.0	mg/l	22/03/2017	N Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	23/03/2017	N Cov	WAS018

Analyst Comments for 15962755:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **R. Stocks**

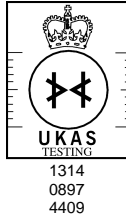
Date: **28 March 2017**

Title: **Inorganic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1373437/2017**

Issue **1**

Laboratory Number: **15962756**

Sample **3** of **10**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **SW03**

Sample Matrix: **Surface Water**

Sample Date/Time: **20 March 2017**

Sample Received: **21 March 2017**

Analysis Complete: **28 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	10.5	mg/l	23/03/2017	Y Cov	WAS036
Arsenic, Ultra Low Total as As	<0.0010	mg/l	28/03/2017	N Cov	WAS060
Calcium , Total as Ca	114	mg/l	26/03/2017	N Cov	WAS049
Iron , Total as Fe	<0.23	mg/l	26/03/2017	N Cov	WAS049
Manganese , Total as Mn	0.019	mg/l	26/03/2017	N Cov	WAS049
Potassium , Total as K	1.17	mg/l	26/03/2017	N Cov	WAS049
Sodium , Total as Na	8.88	mg/l	26/03/2017	N Cov	WAS049
pH	8.3	pH units	22/03/2017	N Cov	WAS039
Conductivity- Electrical 20C	546	uS/cm	22/03/2017	N Cov	WAS039
Alkalinity as CaCO3	290	mg/l	22/03/2017	N Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	22/03/2017	N Cov	WAS067
Chloride as Cl	14.2	mg/l	23/03/2017	Y Cov	WAS036
Sulphate as SO4	20.6	mg/l	23/03/2017	Y Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	27/03/2017	Y Cov	WAS001
COD (Total)	<11.0	mg/l	24/03/2017	Y Cov	WAS040
TOC (Filtered)	1.9	mg/l	22/03/2017	N Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	23/03/2017	N Cov	WAS018

Analyst Comments for 15962756:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).  
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **R. Stocks**

Date: **28 March 2017**

Title: **Inorganic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1373437/2017**

Issue **1**

Laboratory Number: **15962757**

Sample **4** of **10**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **SW03A**

Sample Matrix: **Surface Water**

Sample Date/Time: **20 March 2017**

Sample Received: **21 March 2017**

Analysis Complete: **28 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	10.6	mg/l	23/03/2017	Y Cov	WAS036
Arsenic, Ultra Low Total as As	<0.0010	mg/l	28/03/2017	N Cov	WAS060
Calcium , Total as Ca	113	mg/l	26/03/2017	N Cov	WAS049
Iron , Total as Fe	<0.23	mg/l	26/03/2017	N Cov	WAS049
Manganese , Total as Mn	0.018	mg/l	26/03/2017	N Cov	WAS049
Potassium , Total as K	1.19	mg/l	26/03/2017	N Cov	WAS049
Sodium , Total as Na	8.77	mg/l	26/03/2017	N Cov	WAS049
pH	8.3	pH units	22/03/2017	N Cov	WAS039
Conductivity- Electrical 20C	542	uS/cm	22/03/2017	N Cov	WAS039
Alkalinity as CaCO3	289	mg/l	22/03/2017	N Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	22/03/2017	N Cov	WAS067
Chloride as Cl	13.9	mg/l	23/03/2017	Y Cov	WAS036
Sulphate as SO4	18.5	mg/l	23/03/2017	Y Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	27/03/2017	Y Cov	WAS001
COD (Total)	<11.0	mg/l	24/03/2017	Y Cov	WAS040
TOC (Filtered)	1.9	mg/l	22/03/2017	N Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	23/03/2017	N Cov	WAS018

Analyst Comments for 15962757:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **R. Stocks**

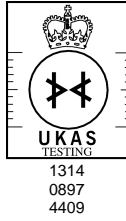
Date: **28 March 2017**

Title: **Inorganic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1373437/2017**

Issue **1**

Laboratory Number: **15962758**

Sample **5** of **10**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **SW05**

Sample Matrix: **Surface Water**

Sample Date/Time: **20 March 2017**

Sample Received: **21 March 2017**

Analysis Complete: **28 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	10.9	mg/l	23/03/2017	Y Cov	WAS036
Arsenic, Ultra Low Total as As	<0.0010	mg/l	28/03/2017	N Cov	WAS060
Calcium , Total as Ca	111	mg/l	26/03/2017	N Cov	WAS049
Iron , Total as Fe	<0.23	mg/l	26/03/2017	N Cov	WAS049
Manganese , Total as Mn	0.018	mg/l	26/03/2017	N Cov	WAS049
Potassium , Total as K	1.20	mg/l	26/03/2017	N Cov	WAS049
Sodium , Total as Na	8.71	mg/l	26/03/2017	N Cov	WAS049
pH	8.2	pH units	22/03/2017	N Cov	WAS039
Conductivity- Electrical 20C	543	uS/cm	22/03/2017	N Cov	WAS039
Alkalinity as CaCO3	285	mg/l	22/03/2017	N Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	22/03/2017	N Cov	WAS067
Chloride as Cl	14.2	mg/l	23/03/2017	Y Cov	WAS036
Sulphate as SO4	40.7	mg/l	23/03/2017	Y Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	27/03/2017	Y Cov	WAS001
COD (Total)	<11.0	mg/l	24/03/2017	Y Cov	WAS040
TOC (Filtered)	1.9	mg/l	22/03/2017	N Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	23/03/2017	N Cov	WAS018

Analyst Comments for 15962758:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **R. Stocks**

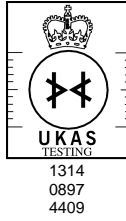
Date: **28 March 2017**

Title: **Inorganic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1373437/2017**

Issue **1**

Laboratory Number: **15962759**

Sample **6** of **10**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **SW11**

Sample Matrix: **Surface Water**

Sample Date/Time: **20 March 2017**

Sample Received: **21 March 2017**

Analysis Complete: **28 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	5.3	mg/l	23/03/2017	Y Cov	WAS036
Arsenic, Ultra Low Total as As	0.0011	mg/l	28/03/2017	N Cov	WAS060
Calcium , Total as Ca	128	mg/l	26/03/2017	N Cov	WAS049
Iron , Total as Fe	<0.23	mg/l	26/03/2017	N Cov	WAS049
Manganese , Total as Mn	0.072	mg/l	26/03/2017	N Cov	WAS049
Potassium , Total as K	3.29	mg/l	26/03/2017	N Cov	WAS049
Sodium , Total as Na	50.3	mg/l	26/03/2017	N Cov	WAS049
pH	7.8	pH units	22/03/2017	N Cov	WAS039
Conductivity- Electrical 20C	773	uS/cm	22/03/2017	N Cov	WAS039
Alkalinity as CaCO3	303	mg/l	22/03/2017	N Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	22/03/2017	N Cov	WAS067
Chloride as Cl	88.7	mg/l	23/03/2017	Y Cov	WAS036
Sulphate as SO4	28.2	mg/l	23/03/2017	Y Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	27/03/2017	Y Cov	WAS001
COD (Total)	24.0	mg/l	24/03/2017	Y Cov	WAS040
TOC (Filtered)	4.0	mg/l	22/03/2017	N Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	23/03/2017	N Cov	WAS018

Analyst Comments for 15962759:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).  
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **R. Stocks**

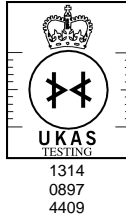
Date: **28 March 2017**

Title: **Inorganic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1373437/2017**

Issue **1**

Laboratory Number: **15962760**

Sample **7** of **10**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **SW13**

Sample Matrix: **Surface Water**

Sample Date/Time: **20 March 2017**

Sample Received: **21 March 2017**

Analysis Complete: **28 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	23/03/2017	Y Cov	WAS036
Arsenic, Ultra Low Total as As	0.0033	mg/l	28/03/2017	N Cov	WAS060
Calcium , Total as Ca	134	mg/l	26/03/2017	N Cov	WAS049
Iron , Total as Fe	1.13	mg/l	26/03/2017	N Cov	WAS049
Manganese , Total as Mn	0.288	mg/l	26/03/2017	N Cov	WAS049
Potassium , Total as K	2.86	mg/l	26/03/2017	N Cov	WAS049
Sodium , Total as Na	78.4	mg/l	26/03/2017	N Cov	WAS049
pH	7.5	pH units	22/03/2017	N Cov	WAS039
Conductivity- Electrical 20C	910	uS/cm	22/03/2017	N Cov	WAS039
Alkalinity as CaCO3	310	mg/l	22/03/2017	N Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.79	mg/l	22/03/2017	N Cov	WAS067
Chloride as Cl	132	mg/l	23/03/2017	Y Cov	WAS036
Sulphate as SO4	41.4	mg/l	23/03/2017	Y Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	27/03/2017	Y Cov	WAS001
COD (Total)	20.0	mg/l	24/03/2017	Y Cov	WAS040
TOC (Filtered)	5.9	mg/l	22/03/2017	N Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	23/03/2017	N Cov	WAS018

Analyst Comments for 15962760:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **R. Stocks**

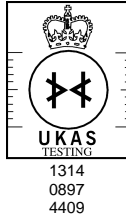
Date: **28 March 2017**

Title: **Inorganic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1373437/2017**

Issue **1**

Laboratory Number: **15962761**

Sample **8** of **10**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **SWMH 7 site discharge**

Sample Matrix: **Surface Water**

Sample Date/Time: **20 March 2017**

Sample Received: **21 March 2017**

Analysis Complete: **28 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	23/03/2017	Y Cov	WAS036
Arsenic, Ultra Low Total as As	0.0020	mg/l	28/03/2017	N Cov	WAS060
Calcium , Total as Ca	26.7	mg/l	26/03/2017	N Cov	WAS049
Iron , Total as Fe	0.64	mg/l	26/03/2017	N Cov	WAS049
Manganese , Total as Mn	0.159	mg/l	26/03/2017	N Cov	WAS049
Potassium , Total as K	1.37	mg/l	26/03/2017	N Cov	WAS049
Sodium , Total as Na	1.97	mg/l	26/03/2017	N Cov	WAS049
pH	7.9	pH units	22/03/2017	N Cov	WAS039
Conductivity- Electrical 20C	141	uS/cm	22/03/2017	N Cov	WAS039
Alkalinity as CaCO3	60.8	mg/l	22/03/2017	N Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.07	mg/l	22/03/2017	N Cov	WAS067
Chloride as Cl	<3.7	mg/l	23/03/2017	Y Cov	WAS036
Sulphate as SO4	5.1	mg/l	23/03/2017	Y Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	27/03/2017	Y Cov	WAS001
COD (Total)	13.0	mg/l	24/03/2017	Y Cov	WAS040
TOC (Filtered)	1.9	mg/l	22/03/2017	N Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	23/03/2017	N Cov	WAS018

Analyst Comments for 15962761:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **R. Stocks**

Date: **28 March 2017**

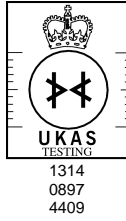
Title: **Inorganic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575



# Certificate of Analysis



Report Number: **COV/1373437/2017**

Issue **1**

Laboratory Number: **15962762**

Sample **9** of **10**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **SW Lagoon**

Sample Matrix: **Surface Water**

Sample Date/Time: **20 March 2017**

Sample Received: **21 March 2017**

Analysis Complete: **28 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	8.1	pH units	22/03/2017	N Cov	WAS039
Conductivity- Electrical 20C	1570	uS/cm	22/03/2017	N Cov	WAS039
Ammoniacal Nitrogen as N	53.6	mg/l	25/03/2017	Y Cov	WAS036
Chloride as Cl	91.9	mg/l	25/03/2017	Y Cov	WAS036
Nitrogen, Total Oxidised as N	1.4	mg/l	25/03/2017	Y Cov	WAS036
Total Suspended Solids	28.0	mg/l	23/03/2017	N Cov	WAS006
BOD + ATU (5 day)	2	mg/l	27/03/2017	Y Cov	WAS001
COD (Total)	141	mg/l	24/03/2017	Y Cov	WAS040

Analyst Comments for 15962762:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

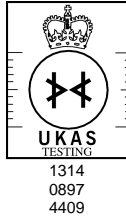
Signed:

Name: **R. Stocks**

Date: **28 March 2017**

Title: **Inorganic Team Leader**

# Certificate of Analysis



Report Number: **COV/1373437/2017**

Issue **1**

Laboratory Number: **15962763**

Sample **10** of **10**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **Sample B**

Sample Matrix: **Land Leachate**

Sample Date/Time: **20 March 2017**

Sample Received: **21 March 2017**

Analysis Complete: **28 March 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Temperature at sampling, C	14.0	Deg C	21/03/2017	N Cov	FIELD
pH	7.1	pH units	22/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	3860	uS/cm	22/03/2017	Y Cov	WAS039
Ammoniacal Nitrogen as N	241	mg/l	22/03/2017	Y Cov	WAS055
Chloride as Cl	331	mg/l	22/03/2017	Y Cov	WAS036
COD (Total)	630	mg/l	24/03/2017	Y Cov	WAS040

**Analyst Comments for 15962763:**

{/\*}Ammonia analysed by colorimetric method{\*/}

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).  
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **R. Stocks**

Date: **28 March 2017**

Title: **Inorganic Team Leader**

**ALS Environmental Ltd**  
Torrington Avenue  
Coventry  
CV4 9GU

T: +44 (0)24 7642 1213  
F: +44 (0)24 7685 6575  
[www.alsenvironmental.co.uk](http://www.alsenvironmental.co.uk)

**Mr Downes**  
**SKM Ireland c/o Jacobs**  
**Engineering Ireland**  
**Jacobs**  
**Merrion House**  
**Merrion Road**  
**Dublin 4 South Dublin**

05 April 2017

**Test Report: COV/1373885/2017**

Dear Mr Downes

Analysis of your sample(s) submitted on 22 March 2017 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed: 

Name: R. Stocks

Title: Inorganic Team Leader



# Report Summary



1314  
0897  
4409



**Mr Ultan Downes  
SKM Ireland c/o Jacobs  
Engineering Ireland  
Jacobs  
Merrion House  
Merrion Road  
Dublin 4  
South Dublin**

Date of Issue: **05 April 2017**

Report Number: **COV/1373885/2017**

Issue **1**

This issue replaces  
all previous issues

**Job Description:** Kerdiffstown Landfill

Number of Samples  
included in this report **10**

Job Received: **22 March 2017**

Number of Test Results  
included in this report **170**

Analysis Commenced: **23 March 2017**

Signed:

Name: **R. Stocks**

Date: **05 April 2017**

Title: **Inorganic Team Leader**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.

Information on the methods of analysis and performance characteristics are available on request.

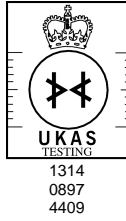
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

(c) ALS Environmental Ltd 2017. All rights reserved. We, ALS Environmental Ltd, are the owner of all copyright in this report. You must not copy, reproduce, amend or adapt this report, its contents or any format in which it is delivered without our prior written agreement. If you copy, reproduce, amend, or adapt this report in any way without our agreement you will be liable for any damage or loss to us. In the event of a dispute the copy of the report held by us shall be the reference copy.

# Certificate of Analysis



Report Number: **COV/1373885/2017**

Issue **1**

Laboratory Number: **15965946**

Sample **1** of **10**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **EMW03**

Sample Matrix: **Ground Water**

Sample Date/Time: **21 March 2017**

Sample Received: **22 March 2017**

Analysis Complete: **05 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	154	mg/l	24/03/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.016	mg/l	28/03/2017	Y Cov	WAS060
Calcium , Total as Ca	264	mg/l	26/03/2017	Y Cov	WAS049
Iron , Total as Fe	38.6	mg/l	26/03/2017	Y Cov	WAS049
Manganese , Total as Mn	1.89	mg/l	26/03/2017	Y Cov	WAS049
Potassium , Total as K	33.7	mg/l	26/03/2017	Y Cov	WAS049
Sodium , Total as Na	99.5	mg/l	26/03/2017	Y Cov	WAS049
pH	6.8	pH units	23/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	2120	uS/cm	23/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	1070	mg/l	23/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	38.3	mg/l	26/03/2017	N Cov	WAS036
Chloride as Cl	87.5	mg/l	24/03/2017	N Cov	WAS036
Sulphate as SO4	79.5	mg/l	24/03/2017	N Cov	WAS036
BOD + ATU (5 day)	7	mg/l	28/03/2017	Y Cov	WAS001
COD (Total)	124	mg/l	04/04/2017	Y Cov	WAS040
TOC (Filtered)	20.9	mg/l	27/03/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	29/03/2017	N Cov	WAS018

**Analyst Comments for 15965946:**

This sample has been analysed for COD (Total) outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **R. Stocks**

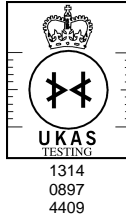
Date: **05 April 2017**

Title: **Inorganic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1373885/2017**

Issue **1**

Laboratory Number: **15965947**

Sample **2** of **10**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **EMW05**

Sample Matrix: **Ground Water**

Sample Date/Time: **21 March 2017**

Sample Received: **22 March 2017**

Analysis Complete: **05 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	4.5	mg/l	24/03/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.0024	mg/l	28/03/2017	Y Cov	WAS060
Calcium , Total as Ca	155	mg/l	26/03/2017	Y Cov	WAS049
Iron , Total as Fe	3.54	mg/l	26/03/2017	Y Cov	WAS049
Manganese , Total as Mn	0.546	mg/l	26/03/2017	Y Cov	WAS049
Potassium , Total as K	1.45	mg/l	26/03/2017	Y Cov	WAS049
Sodium , Total as Na	9.66	mg/l	26/03/2017	Y Cov	WAS049
pH	7.1	pH units	23/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	668	uS/cm	23/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	382	mg/l	23/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	24/03/2017	Y Cov	WAS067
Chloride as Cl	10.6	mg/l	24/03/2017	N Cov	WAS036
Sulphate as SO4	8.0	mg/l	24/03/2017	N Cov	WAS036
BOD + ATU (5 day)	5	mg/l	28/03/2017	Y Cov	WAS001
COD (Total)	35.0	mg/l	27/03/2017	Y Cov	WAS040
TOC (Filtered)	1.2	mg/l	23/03/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	29/03/2017	N Cov	WAS018

Analyst Comments for 15965947:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).  
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **R. Stocks**

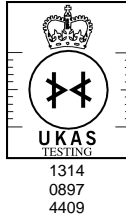
Date: **05 April 2017**

Title: **Inorganic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1373885/2017**

Issue **1**

Laboratory Number: **15965948**

Sample **3** of **10**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **EMW06**

Sample Matrix: **Ground Water**

Sample Date/Time: **21 March 2017**

Sample Received: **22 March 2017**

Analysis Complete: **05 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	24/03/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.0022	mg/l	28/03/2017	Y Cov	WAS060
Calcium , Total as Ca	137	mg/l	26/03/2017	Y Cov	WAS049
Iron , Total as Fe	1.99	mg/l	26/03/2017	Y Cov	WAS049
Manganese , Total as Mn	0.396	mg/l	26/03/2017	Y Cov	WAS049
Potassium , Total as K	1.20	mg/l	26/03/2017	Y Cov	WAS049
Sodium , Total as Na	3.27	mg/l	26/03/2017	Y Cov	WAS049
pH	7.3	pH units	23/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	561	uS/cm	23/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	321	mg/l	23/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	24/03/2017	Y Cov	WAS067
Chloride as Cl	6.9	mg/l	24/03/2017	N Cov	WAS036
Sulphate as SO4	9.5	mg/l	24/03/2017	N Cov	WAS036
BOD + ATU (5 day)	1	mg/l	28/03/2017	Y Cov	WAS001
COD (Total)	42.0	mg/l	27/03/2017	Y Cov	WAS040
TOC (Filtered)	<0.7	mg/l	23/03/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	29/03/2017	N Cov	WAS018

Analyst Comments for 15965948:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **R. Stocks**

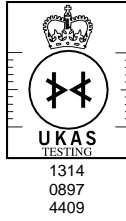
Date: **05 April 2017**

Title: **Inorganic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1373885/2017**

Issue **1**

Laboratory Number: **15965949**

Sample **4** of **10**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **EMW12**

Sample Matrix: **Ground Water**

Sample Date/Time: **21 March 2017**

Sample Received: **22 March 2017**

Analysis Complete: **05 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	31.0	mg/l	24/03/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	<0.0010	mg/l	28/03/2017	Y Cov	WAS060
Calcium , Total as Ca	211	mg/l	26/03/2017	Y Cov	WAS049
Iron , Total as Fe	<0.23	mg/l	26/03/2017	Y Cov	WAS049
Manganese , Total as Mn	0.015	mg/l	26/03/2017	Y Cov	WAS049
Potassium , Total as K	4.83	mg/l	26/03/2017	Y Cov	WAS049
Sodium , Total as Na	25.4	mg/l	26/03/2017	Y Cov	WAS049
pH	7.3	pH units	23/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	1100	uS/cm	23/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	253	mg/l	23/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	24/03/2017	Y Cov	WAS067
Chloride as Cl	28.5	mg/l	24/03/2017	N Cov	WAS036
Sulphate as SO4	355	mg/l	24/03/2017	N Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	28/03/2017	Y Cov	WAS001
COD (Total)	12.0	mg/l	27/03/2017	Y Cov	WAS040
TOC (Filtered)	1.8	mg/l	23/03/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	29/03/2017	N Cov	WAS018

Analyst Comments for 15965949:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).  
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **R. Stocks**

Date: **05 April 2017**

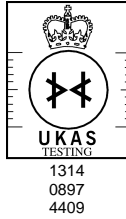
Title: **Inorganic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575



# Certificate of Analysis



Report Number: **COV/1373885/2017**

Issue **1**

Laboratory Number: **15965950**

Sample **5** of **10**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **EMW13**

Sample Matrix: **Ground Water**

Sample Date/Time: **21 March 2017**

Sample Received: **22 March 2017**

Analysis Complete: **05 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	24/03/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.012	mg/l	28/03/2017	Y Cov	WAS060
Calcium , Total as Ca	193	mg/l	26/03/2017	Y Cov	WAS049
Iron , Total as Fe	11.9	mg/l	26/03/2017	Y Cov	WAS049
Manganese , Total as Mn	0.944	mg/l	26/03/2017	Y Cov	WAS049
Potassium , Total as K	102	mg/l	26/03/2017	Y Cov	WAS049
Sodium , Total as Na	287	mg/l	26/03/2017	Y Cov	WAS049
pH	7.0	pH units	23/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	3810	uS/cm	23/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	1780	mg/l	23/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	213	mg/l	26/03/2017	N Cov	WAS036
Chloride as Cl	296	mg/l	24/03/2017	N Cov	WAS036
Sulphate as SO4	50.4	mg/l	24/03/2017	N Cov	WAS036
BOD + ATU (5 day)	6	mg/l	28/03/2017	Y Cov	WAS001
COD (Total)	458	mg/l	27/03/2017	Y Cov	WAS040
TOC (Filtered)	71.0	mg/l	23/03/2017	Y Cov	WAS005
Cyanide, Total as CN	0.009	mg/l	29/03/2017	N Cov	WAS018

Analyst Comments for 15965950:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).  
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **R. Stocks**

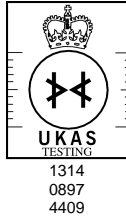
Date: **05 April 2017**

Title: **Inorganic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1373885/2017**

Issue **1**

Laboratory Number: **15965951**

Sample **6** of **10**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **EMW20**

Sample Matrix: **Ground Water**

Sample Date/Time: **21 March 2017**

Sample Received: **22 March 2017**

Analysis Complete: **05 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	29.7	mg/l	24/03/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.0032	mg/l	28/03/2017	Y Cov	WAS060
Calcium , Total as Ca	125	mg/l	26/03/2017	Y Cov	WAS049
Iron , Total as Fe	8.64	mg/l	26/03/2017	Y Cov	WAS049
Manganese , Total as Mn	1.21	mg/l	26/03/2017	Y Cov	WAS049
Potassium , Total as K	0.91	mg/l	26/03/2017	Y Cov	WAS049
Sodium , Total as Na	9.97	mg/l	26/03/2017	Y Cov	WAS049
pH	7.3	pH units	23/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	618	uS/cm	23/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	315	mg/l	23/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.89	mg/l	24/03/2017	Y Cov	WAS067
Chloride as Cl	19.7	mg/l	24/03/2017	N Cov	WAS036
Sulphate as SO4	14.3	mg/l	24/03/2017	N Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	28/03/2017	Y Cov	WAS001
COD (Total)	24.0	mg/l	27/03/2017	Y Cov	WAS040
TOC (Filtered)	3.7	mg/l	23/03/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	29/03/2017	N Cov	WAS018

Analyst Comments for 15965951:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **R. Stocks**

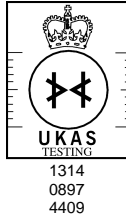
Date: **05 April 2017**

Title: **Inorganic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1373885/2017**

Issue **1**

Laboratory Number: **15965952**

Sample **7** of **10**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH26**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 March 2017**

Sample Received: **22 March 2017**

Analysis Complete: **05 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	25/03/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.025	mg/l	28/03/2017	Y Cov	WAS060
Calcium , Total as Ca	203	mg/l	29/03/2017	Y Cov	WAS049
Iron , Total as Fe	10.4	mg/l	29/03/2017	Y Cov	WAS049
Manganese , Total as Mn	2.46	mg/l	29/03/2017	Y Cov	WAS049
Potassium , Total as K	42.6	mg/l	29/03/2017	Y Cov	WAS049
Sodium , Total as Na	294	mg/l	29/03/2017	Y Cov	WAS049
pH	6.9	pH units	23/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	3450	uS/cm	23/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	1430	mg/l	31/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N	134	mg/l	25/03/2017	N Cov	WAS036
Chloride as Cl	418	mg/l	25/03/2017	N Cov	WAS036
Sulphate as SO4	21.8	mg/l	25/03/2017	N Cov	WAS036
BOD + ATU (5 day)	11	mg/l	28/03/2017	Y Cov	WAS001
COD (Total)	505	mg/l	27/03/2017	Y Cov	WAS040
TOC (Filtered)	101	mg/l	23/03/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	29/03/2017	N Cov	WAS018

**Analyst Comments for 15965952:**

The reporting limit has been raised for metals due to interference with the internal standard

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).  
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **R. Stocks**

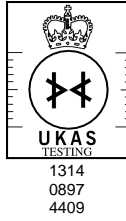
Date: **05 April 2017**

Title: **Inorganic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1373885/2017**

Issue **1**

Laboratory Number: **15965953**

Sample **8** of **10**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH42**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 March 2017**

Sample Received: **22 March 2017**

Analysis Complete: **05 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	25/03/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.0093	mg/l	28/03/2017	Y Cov	WAS060
Calcium , Total as Ca	271	mg/l	26/03/2017	Y Cov	WAS049
Iron , Total as Fe	6.02	mg/l	26/03/2017	Y Cov	WAS049
Manganese , Total as Mn	5.59	mg/l	26/03/2017	Y Cov	WAS049
Potassium , Total as K	18.5	mg/l	26/03/2017	Y Cov	WAS049
Sodium , Total as Na	37.6	mg/l	26/03/2017	Y Cov	WAS049
pH	5.1	pH units	23/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	1430	uS/cm	23/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	11.2	mg/l	23/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	4.10	mg/l	24/03/2017	Y Cov	WAS067
Chloride as Cl	38.4	mg/l	25/03/2017	N Cov	WAS036
Sulphate as SO4	499	mg/l	25/03/2017	N Cov	WAS036
BOD + ATU (5 day)	1	mg/l	28/03/2017	Y Cov	WAS001
COD (Total)	94.0	mg/l	27/03/2017	Y Cov	WAS040
TOC (Filtered)	12.0	mg/l	23/03/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	29/03/2017	N Cov	WAS018

Analyst Comments for 15965953:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **R. Stocks**

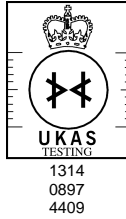
Date: **05 April 2017**

Title: **Inorganic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1373885/2017**

Issue **1**

Laboratory Number: **15965954**

Sample **9** of **10**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **EMW15**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 March 2017**

Sample Received: **22 March 2017**

Analysis Complete: **05 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	25/03/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.025	mg/l	28/03/2017	Y Cov	WAS060
Calcium , Total as Ca	151	mg/l	26/03/2017	Y Cov	WAS049
Iron , Total as Fe	10.5	mg/l	26/03/2017	Y Cov	WAS049
Manganese , Total as Mn	3.76	mg/l	26/03/2017	Y Cov	WAS049
Potassium , Total as K	17.6	mg/l	26/03/2017	Y Cov	WAS049
Sodium , Total as Na	29.0	mg/l	26/03/2017	Y Cov	WAS049
pH	7.2	pH units	23/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	975	uS/cm	23/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	415	mg/l	31/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	7.31	mg/l	24/03/2017	Y Cov	WAS067
Chloride as Cl	29.4	mg/l	25/03/2017	N Cov	WAS036
Sulphate as SO4	107	mg/l	25/03/2017	N Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	28/03/2017	Y Cov	WAS001
COD (Total)	40.0	mg/l	27/03/2017	Y Cov	WAS040
TOC (Filtered)	5.9	mg/l	23/03/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	29/03/2017	N Cov	WAS018

Analyst Comments for 15965954:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **R. Stocks**

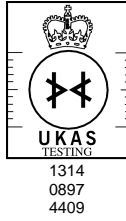
Date: **05 April 2017**

Title: **Inorganic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1373885/2017**

Issue **1**

Laboratory Number: **15965955**

Sample **10** of **10**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **EMW16**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 March 2017**

Sample Received: **22 March 2017**

Analysis Complete: **05 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	25/03/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.0027	mg/l	28/03/2017	Y Cov	WAS060
Calcium , Total as Ca	379	mg/l	26/03/2017	Y Cov	WAS049
Iron , Total as Fe	1.58	mg/l	26/03/2017	Y Cov	WAS049
Manganese , Total as Mn	4.76	mg/l	26/03/2017	Y Cov	WAS049
Potassium , Total as K	19.2	mg/l	26/03/2017	Y Cov	WAS049
Sodium , Total as Na	137	mg/l	26/03/2017	Y Cov	WAS049
pH	6.8	pH units	23/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	2420	uS/cm	23/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	896	mg/l	31/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	7.73	mg/l	24/03/2017	Y Cov	WAS067
Chloride as Cl	167	mg/l	25/03/2017	N Cov	WAS036
Sulphate as SO4	443	mg/l	25/03/2017	N Cov	WAS036
BOD + ATU (5 day)	2	mg/l	28/03/2017	Y Cov	WAS001
COD (Total)	95.0	mg/l	27/03/2017	Y Cov	WAS040
TOC (Filtered)	20.7	mg/l	24/03/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	29/03/2017	N Cov	WAS018

Analyst Comments for 15965955:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **R. Stocks**

Date: **05 April 2017**

Title: **Inorganic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

**ALS Environmental Ltd**  
Torrington Avenue  
Coventry  
CV4 9GU

T: +44 (0)24 7642 1213  
F: +44 (0)24 7685 6575  
[www.alsenvironmental.co.uk](http://www.alsenvironmental.co.uk)

**Mr Downes**  
**SKM Ireland c/o Jacobs**  
**Engineering Ireland**  
**Jacobs**  
**Merrion House**  
**Merrion Road**  
**Dublin 4 South Dublin**

05 April 2017

**Test Report: COV/1374292/2017**

Dear Mr Downes

Analysis of your sample(s) submitted on 23 March 2017 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed: 

Name: A. Horobin

Title: Organic Operations Manager



# Report Summary



1314  
0897  
4409



**Mr Ultan Downes  
SKM Ireland c/o Jacobs  
Engineering Ireland  
Jacobs  
Merrion House  
Merrion Road  
Dublin 4  
South Dublin**

Date of Issue: **05 April 2017**

Report Number: **COV/1374292/2017**

Issue **1**

This issue replaces  
all previous issues

**Job Description:** Kerdiffstown Landfill

**Job Location:** 32EW5604 KLRP

Number of Samples  
included in this report **2**

Job Received: **23 March 2017**

Number of Test Results  
included in this report **34**

Analysis Commenced: **24 March 2017**

Signed: *A I Horobin*

Name: **A. Horobin**

Date: **05 April 2017**

Title: **Organic Operations Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested.

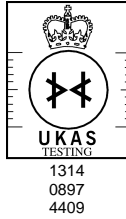
Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

(c) ALS Environmental Ltd 2017. All rights reserved. We, ALS Environmental Ltd, are the owner of all copyright in this report. You must not copy, reproduce, amend or adapt this report, its contents or any format in which it is delivered without our prior written agreement. If you copy, reproduce, amend, or adapt this report in any way without our agreement you will be liable for any damage or loss to us. In the event of a dispute the copy of the report held by us shall be the reference copy.



# Certificate of Analysis



Report Number: **COV/1374292/2017**

Issue **1**

Laboratory Number: **15968836**

Sample **1** of **2**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **EMW28**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 March 2017**

Sample Received: **23 March 2017**

Analysis Complete: **05 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	25/03/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.048	mg/l	03/04/2017	Y Cov	WAS060
Calcium , Total as Ca	175	mg/l	30/03/2017	Y Cov	WAS049
Iron , Total as Fe	20.9	mg/l	30/03/2017	Y Cov	WAS049
Manganese , Total as Mn	1.02	mg/l	30/03/2017	Y Cov	WAS049
Potassium , Total as K	0.48	mg/l	30/03/2017	Y Cov	WAS049
Sodium , Total as Na	5.35	mg/l	30/03/2017	Y Cov	WAS049
pH	7.0	pH units	31/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	695	uS/cm	31/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	511	mg/l	04/04/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.55	mg/l	24/03/2017	Y Cov	WAS067
Chloride as Cl	35.9	mg/l	25/03/2017	N Cov	WAS036
Sulphate, total as SO4 by I.C.	31.23	mg/l	28/03/2017	Y Cov	CON27
BOD + ATU (5 day)	3	mg/l	29/03/2017	Y Cov	WAS001
COD (Total)	179	mg/l	28/03/2017	Y Cov	WAS040
TOC (Filtered)	6.0	mg/l	24/03/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	29/03/2017	N Cov	WAS018

**Analyst Comments for 15968836:**

This sample has been analysed for pH outside recommended stability times. It is therefore possible that the results provided may be compromised. {/\*}Sulphate analysed by ion chromatography due to interference with turbidmetric determination{\*/}

This issue replaces all previous issues

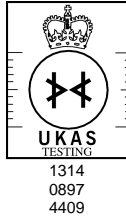
Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed: *A I Horobin* Name: **A. Horobin** Date: **05 April 2017**  
Title: **Organic Operations Manager**

# Certificate of Analysis



Report Number: **COV/1374292/2017**

Issue **1**

Laboratory Number: **15968837**

Sample **2** of **2**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **EMW29**

Sample Matrix: **Ground Water**

Sample Date/Time: **22 March 2017**

Sample Received: **23 March 2017**

Analysis Complete: **05 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	17.8	mg/l	25/03/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	<0.0010	mg/l	03/04/2017	Y Cov	WAS060
Calcium , Total as Ca	182	mg/l	30/03/2017	Y Cov	WAS049
Iron , Total as Fe	0.42	mg/l	30/03/2017	Y Cov	WAS049
Manganese , Total as Mn	<0.007	mg/l	30/03/2017	Y Cov	WAS049
Potassium , Total as K	0.62	mg/l	30/03/2017	Y Cov	WAS049
Sodium , Total as Na	15.2	mg/l	30/03/2017	Y Cov	WAS049
pH	7.2	pH units	31/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	876	uS/cm	31/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	399	mg/l	01/04/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	24/03/2017	Y Cov	WAS067
Chloride as Cl	26.8	mg/l	25/03/2017	N Cov	WAS036
Sulphate as SO4	87.1	mg/l	25/03/2017	N Cov	WAS036
BOD + ATU (5 day)	2	mg/l	29/03/2017	Y Cov	WAS001
COD (Total)	12.0	mg/l	28/03/2017	Y Cov	WAS040
TOC (Filtered)	2.3	mg/l	24/03/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	29/03/2017	N Cov	WAS018

### Analyst Comments for 15968837:

This sample has been analysed for pH outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed: *A I Horobin*

Name: **A. Horobin**

Date: **05 April 2017**

Title: **Organic Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

**ALS Environmental Ltd**  
Torrington Avenue  
Coventry  
CV4 9GU

T: +44 (0)24 7642 1213  
F: +44 (0)24 7685 6575  
[www.alsenvironmental.co.uk](http://www.alsenvironmental.co.uk)

**Mr Downes**  
**SKM Ireland c/o Jacobs**  
**Engineering Ireland**  
**Jacobs**  
**Merrion House**  
**Merrion Road**  
**Dublin 4 South Dublin**

06 April 2017

**Test Report: COV/1375142/2017**

Dear Mr Downes

Analysis of your sample(s) submitted on 27 March 2017 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed: 

Name: R. Stocks

Title: Inorganic Team Leader



# Report Summary



1314  
0897  
4409



**Mr Ultan Downes**  
**SKM Ireland c/o Jacobs**  
**Engineering Ireland**  
**Jacobs**  
**Merrion House**  
**Merrion Road**  
**Dublin 4**  
**South Dublin**

Date of Issue: **06 April 2017**

Report Number: **COV/1375142/2017**

Issue **1**

This issue replaces  
all previous issues

**Job Description:** Kerdiffstown Landfill

**Job Location:** 32EW5604 KLRP

Number of Samples  
included in this report **5**

Job Received: **27 March 2017**

Number of Test Results  
included in this report **88**

Analysis Commenced: **29 March 2017**

Signed:

Name: **R. Stocks**

Date: **06 April 2017**

Title: **Inorganic Team Leader**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.

Information on the methods of analysis and performance characteristics are available on request.

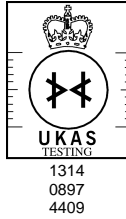
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

(c) ALS Environmental Ltd 2017. All rights reserved. We, ALS Environmental Ltd, are the owner of all copyright in this report. You must not copy, reproduce, amend or adapt this report, its contents or any format in which it is delivered without our prior written agreement. If you copy, reproduce, amend, or adapt this report in any way without our agreement you will be liable for any damage or loss to us. In the event of a dispute the copy of the report held by us shall be the reference copy.

# Certificate of Analysis



Report Number: **COV/1375142/2017**

Issue **1**

Laboratory Number: **15975154**

Sample **1** of **5**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH68**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 March 2017**

Sample Received: **27 March 2017**

Analysis Complete: **06 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron, Total	<0.5	mg/l	31/03/2017	N Cov	WAS043
Nitrate as NO3	21.8	mg/l	29/03/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.0027	mg/l	03/04/2017	Y Cov	WAS060
Calcium, Total as Ca	215	mg/l	30/03/2017	Y Cov	WAS049
Iron, Total as Fe	0.91	mg/l	30/03/2017	Y Cov	WAS049
Ferrous Iron	<0.5	mg/l	31/03/2017	N Cov	WAS043
Ferric Iron	<0.5	mg/l	31/03/2017	N Cov	WAS043
Manganese, Total as Mn	0.361	mg/l	30/03/2017	Y Cov	WAS049
Potassium, Total as K	19.9	mg/l	30/03/2017	Y Cov	WAS049
Sodium, Total as Na	21.3	mg/l	30/03/2017	Y Cov	WAS049
pH	7.0	pH units	29/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	1300	uS/cm	29/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	539	mg/l	05/04/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	29/03/2017	Y Cov	WAS067
Chloride as Cl	25.1	mg/l	29/03/2017	N Cov	WAS036
Sulphate as SO4	231	mg/l	29/03/2017	N Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	03/04/2017	Y Cov	WAS001
COD (Total)	32.0	mg/l	31/03/2017	Y Cov	WAS040
TOC (Filtered)	2.1	mg/l	29/03/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	31/03/2017	N Cov	WAS018

**Analyst Comments for 15975154:**

{/\*}The ferrous iron analysis was not carried out on site and there is the possibility of change in ferrous-ferric ratio between sampling and analysis.{\*}

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **R. Stocks**

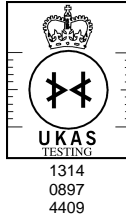
Date: **06 April 2017**

Title: **Inorganic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1375142/2017**

Issue **1**

Laboratory Number: **15975155**

Sample **2** of **5**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH70**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 March 2017**

Sample Received: **27 March 2017**

Analysis Complete: **06 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	29/03/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.0046	mg/l	03/04/2017	Y Cov	WAS060
Calcium , Total as Ca	160	mg/l	30/03/2017	Y Cov	WAS049
Iron , Total as Fe	2.14	mg/l	30/03/2017	Y Cov	WAS049
Manganese , Total as Mn	4.47	mg/l	30/03/2017	Y Cov	WAS049
Potassium , Total as K	21.0	mg/l	30/03/2017	Y Cov	WAS049
Sodium , Total as Na	31.3	mg/l	30/03/2017	Y Cov	WAS049
pH	7.4	pH units	29/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	1030	uS/cm	29/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	359	mg/l	29/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	6.52	mg/l	29/03/2017	Y Cov	WAS067
Chloride as Cl	33.7	mg/l	29/03/2017	N Cov	WAS036
Sulphate as SO4	201	mg/l	29/03/2017	N Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	03/04/2017	Y Cov	WAS001
COD (Total)	24.0	mg/l	31/03/2017	Y Cov	WAS040
TOC (Filtered)	5.9	mg/l	29/03/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	31/03/2017	N Cov	WAS018

Analyst Comments for 15975155:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **R. Stocks**

Date: **06 April 2017**

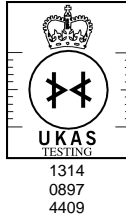
Title: **Inorganic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Page 3 of 6

# Certificate of Analysis



Report Number: **COV/1375142/2017**

Issue **1**

Laboratory Number: **15975156**

Sample **3** of **5**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH71**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 March 2017**

Sample Received: **27 March 2017**

Analysis Complete: **06 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	29/03/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.0056	mg/l	03/04/2017	Y Cov	WAS060
Calcium , Total as Ca	298	mg/l	30/03/2017	Y Cov	WAS049
Iron , Total as Fe	0.70	mg/l	30/03/2017	Y Cov	WAS049
Manganese , Total as Mn	0.407	mg/l	30/03/2017	Y Cov	WAS049
Potassium , Total as K	30.1	mg/l	30/03/2017	Y Cov	WAS049
Sodium , Total as Na	42.1	mg/l	30/03/2017	Y Cov	WAS049
pH	8.1	pH units	29/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	1550	uS/cm	29/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	135	mg/l	29/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	7.21	mg/l	29/03/2017	Y Cov	WAS067
Chloride as Cl	40.9	mg/l	29/03/2017	N Cov	WAS036
Sulphate as SO4	769	mg/l	29/03/2017	N Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	03/04/2017	Y Cov	WAS001
COD (Total)	44.0	mg/l	31/03/2017	Y Cov	WAS040
TOC (Filtered)	12.7	mg/l	29/03/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	31/03/2017	N Cov	WAS018

Analyst Comments for 15975156:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).  
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **R. Stocks**

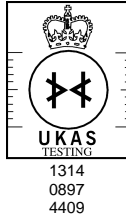
Date: **06 April 2017**

Title: **Inorganic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1375142/2017**

Issue **1**

Laboratory Number: **15975157**

Sample **4** of **5**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH77**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 March 2017**

Sample Received: **27 March 2017**

Analysis Complete: **06 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	29/03/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.0073	mg/l	03/04/2017	Y Cov	WAS060
Calcium , Total as Ca	199	mg/l	30/03/2017	Y Cov	WAS049
Iron , Total as Fe	3.87	mg/l	30/03/2017	Y Cov	WAS049
Manganese , Total as Mn	1.80	mg/l	30/03/2017	Y Cov	WAS049
Potassium , Total as K	26.0	mg/l	30/03/2017	Y Cov	WAS049
Sodium , Total as Na	16.2	mg/l	30/03/2017	Y Cov	WAS049
pH	7.1	pH units	29/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	998	uS/cm	29/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	488	mg/l	05/04/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	1.58	mg/l	29/03/2017	Y Cov	WAS067
Chloride as Cl	11.4	mg/l	29/03/2017	N Cov	WAS036
Sulphate as SO4	87.2	mg/l	29/03/2017	N Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	03/04/2017	Y Cov	WAS001
COD (Total)	43.0	mg/l	31/03/2017	Y Cov	WAS040
TOC (Filtered)	4.1	mg/l	29/03/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	31/03/2017	N Cov	WAS018

Analyst Comments for 15975157:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **R. Stocks**

Date: **06 April 2017**

Title: **Inorganic Team Leader**

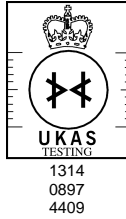
**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Page 5 of 6



# Certificate of Analysis



Report Number: **COV/1375142/2017**

Issue **1**

Laboratory Number: **15975158**

Sample **5** of **5**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH78**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 March 2017**

Sample Received: **27 March 2017**

Analysis Complete: **06 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	29/03/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.021	mg/l	03/04/2017	Y Cov	WAS060
Calcium , Total as Ca	155	mg/l	30/03/2017	Y Cov	WAS049
Iron , Total as Fe	22.3	mg/l	30/03/2017	Y Cov	WAS049
Manganese , Total as Mn	0.492	mg/l	30/03/2017	Y Cov	WAS049
Potassium , Total as K	7.62	mg/l	30/03/2017	Y Cov	WAS049
Sodium , Total as Na	6.85	mg/l	30/03/2017	Y Cov	WAS049
pH	7.3	pH units	29/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	593	uS/cm	29/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	286	mg/l	29/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.27	mg/l	29/03/2017	Y Cov	WAS067
Chloride as Cl	9.4	mg/l	29/03/2017	N Cov	WAS036
Sulphate as SO4	83.1	mg/l	29/03/2017	N Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	03/04/2017	Y Cov	WAS001
COD (Total)	161	mg/l	31/03/2017	Y Cov	WAS040
TOC (Filtered)	4.3	mg/l	29/03/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	31/03/2017	N Cov	WAS018

Analyst Comments for 15975158:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **R. Stocks**

Date: **06 April 2017**

Title: **Inorganic Team Leader**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Page 6 of 6

ALS Environmental Ltd  
Torrington Avenue  
Coventry  
CV4 9GU

T: +44 (0)24 7642 1213  
F: +44 (0)24 7685 6575  
www.alsenvironmental.co.uk

**Mr Downes**  
**SKM Ireland c/o Jacobs**  
**Engineering Ireland**  
**Jacobs**  
**Merrion House**  
**Merrion Road**  
**Dublin 4 South Dublin**

11 April 2017

**Test Report: COV/1375530/2017**

Dear Mr Downes

Analysis of your sample(s) submitted on 28 March 2017 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

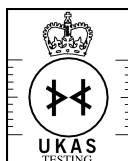
Signed: 

Name: C. Law

Title: Inorganics Operations Manager



# Report Summary



1314  
0897  
4409



**Mr Ultan Downes**  
**SKM Ireland c/o Jacobs**  
**Engineering Ireland**  
**Jacobs**  
**Merrion House**  
**Merrion Road**  
**Dublin 4**  
**South Dublin**

Date of Issue: **11 April 2017**

Report Number: **COV/1375530/2017**

Issue **1**

This issue replaces  
all previous issues

**Job Description:** Kerdiffstown Landfill

Number of Samples  
included in this report **7**

Job Received: **28 March 2017**

Number of Test Results  
included in this report **382**

Analysis Commenced: **29 March 2017**

Signed:

Name: **C. Law**

Date: **11 April 2017**

Title: **Inorganics Operations Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

(c) ALS Environmental Ltd 2017. All rights reserved. We, ALS Environmental Ltd, are the owner of all copyright in this report. You must not copy, reproduce, amend or adapt this report, its contents or any format in which it is delivered without our prior written agreement. If you copy, reproduce, amend, or adapt this report in any way without our agreement you will be liable for any damage or loss to us. In the event of a dispute the copy of the report held by us shall be the reference copy.

# Certificate of Analysis



Report Number: **COV/1375530/2017**

Issue **1**

Laboratory Number: **15978336**

Sample **1** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BH72**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 March 2017**

Sample Received: **28 March 2017**

Analysis Complete: **11 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	29/03/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.010	mg/l	05/04/2017	Y Cov	WAS060
Calcium , Total as Ca	144	mg/l	05/04/2017	Y Cov	WAS049
Iron , Total as Fe	16.5	mg/l	05/04/2017	Y Cov	WAS049
Manganese , Total as Mn	2.42	mg/l	05/04/2017	Y Cov	WAS049
Potassium , Total as K	1.15	mg/l	05/04/2017	Y Cov	WAS049
Sodium , Total as Na	15.6	mg/l	05/04/2017	Y Cov	WAS049
pH	7.4	pH units	03/04/2017	Y Cov	WAS039
Conductivity- Electrical 20C	673	uS/cm	03/04/2017	Y Cov	WAS039
Alkalinity as CaCO3	732	mg/l	05/04/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.22	mg/l	29/03/2017	Y Cov	WAS067
Chloride as Cl	25.8	mg/l	29/03/2017	N Cov	WAS036
Sulphate as SO4	30.7	mg/l	29/03/2017	N Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	03/04/2017	Y Cov	WAS001
COD (Total)	174	mg/l	31/03/2017	Y Cov	WAS040
TOC (Filtered)	<0.7	mg/l	29/03/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	31/03/2017	N Cov	WAS018

## Analyst Comments for 15978336:

This sample has been analysed for pH, Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **C. Law**

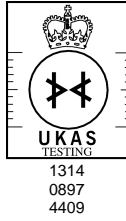
Date: **11 April 2017**

Title: **Inorganics Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1375530/2017**

Issue **1**

Laboratory Number: **15978337**

Sample **2** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB10**

Sample Matrix: **Ground Water**

Sample Date/Time: **27 March 2017**

Sample Received: **28 March 2017**

Analysis Complete: **11 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	29/03/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.0072	mg/l	05/04/2017	Y Cov	WAS060
Calcium , Total as Ca	773	mg/l	05/04/2017	Y Cov	WAS049
Iron , Total as Fe	25.7	mg/l	05/04/2017	Y Cov	WAS049
Manganese , Total as Mn	6.61	mg/l	05/04/2017	Y Cov	WAS049
Potassium , Total as K	4.04	mg/l	05/04/2017	Y Cov	WAS049
Sodium , Total as Na	4.92	mg/l	05/04/2017	Y Cov	WAS049
pH	7.4	pH units	03/04/2017	Y Cov	WAS039
Conductivity- Electrical 20C	508	uS/cm	03/04/2017	Y Cov	WAS039
Alkalinity as CaCO3	2210	mg/l	05/04/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.58	mg/l	29/03/2017	Y Cov	WAS067
Chloride as Cl	20.7	mg/l	29/03/2017	N Cov	WAS036
Sulphate, total as SO4 by I.C.	15.00	mg/l	06/04/2017	Y Cov	CON27
BOD + ATU (5 day)	1	mg/l	03/04/2017	Y Cov	WAS001
COD (Total)	304	mg/l	31/03/2017	Y Cov	WAS040
TOC (Filtered)	90.2	mg/l	29/03/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	31/03/2017	N Cov	WAS018

## Analyst Comments for 15978337:

This sample has been analysed for pH, Sodium Total as Na outside recommended stability times. It is therefore possible that the results provided may be compromised. {/\*\*} Sulphate analysed by ion chromatography due to interference with turbidmetric determination{\*/}

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **C. Law**

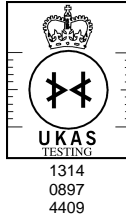
Date: **11 April 2017**

Title: **Inorganics Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1375530/2017**

Issue **1**

Laboratory Number: **15978338**

Sample **3** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB02**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 March 2017**

Sample Received: **28 March 2017**

Analysis Complete: **11 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron, Total	6.3	mg/l	31/03/2017	N Cov	WAS043
Nitrate as NO3	<3.1	mg/l	29/03/2017	N Cov	WAS036
Antimony Ultra Low Total as Sb	<0.0012	mg/l	06/04/2017	Y Cov	WAS060
Selenium Ultra Low Total as Se	0.0253	mg/l	05/04/2017	Y Cov	WAS060
Arsenic, Ultra Low Total as As	0.017	mg/l	05/04/2017	Y Cov	WAS060
Fluoride	0.216	mg/l	04/04/2017	Y S	SUBCON
Aluminium, Total as Al	15.5	mg/l	05/04/2017	Y Cov	WAS049
Barium, Total as Ba	1.74	mg/l	05/04/2017	Y Cov	WAS049
Beryllium, Total as Be	<0.0420	mg/l	05/04/2017	Y Cov	WAS049
Boron, Total as B	<4.60	mg/l	05/04/2017	Y Cov	WAS049
Cadmium , Total as Cd	0.0286	mg/l	05/04/2017	Y Cov	WAS049
Calcium , Total as Ca	1300	mg/l	05/04/2017	Y Cov	WAS049
Chromium , Total as Cr	0.042	mg/l	05/04/2017	Y Cov	WAS049
Copper, Ultra-low Total as Cu	361	ug/l	06/04/2017	Y Cov	WAS060
Iron , Total as Fe	29.7	mg/l	05/04/2017	Y Cov	WAS049
Ferrous Iron	6.4	mg/l	31/03/2017	N Cov	WAS043
Ferric Iron	<0.5	mg/l	31/03/2017	N Cov	WAS043
Lead , Total as Pb	0.368	mg/l	05/04/2017	Y Cov	WAS049
Magnesium, Total as Mg	88.3	mg/l	05/04/2017	Y Cov	WAS049
Manganese , Total as Mn	21.4	mg/l	05/04/2017	Y Cov	WAS049
Mercury, Total as Hg	<0.00001	mg/l	06/04/2017	N Cov	WAS013
Nickel, Total as Ni	0.317	mg/l	05/04/2017	Y Cov	WAS049
Potassium , Total as K	75.7	mg/l	05/04/2017	Y Cov	WAS049
Sodium , Total as Na	205	mg/l	05/04/2017	Y Cov	WAS049
Vanadium , Total as V	<0.080	mg/l	05/04/2017	Y Cov	WAS049
Zinc, Total as Zn	0.778	mg/l	05/04/2017	Y Cov	WAS049
pH	7.2	pH units	29/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	3790	uS/cm	29/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	4610	mg/l	05/04/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	1.36	mg/l	29/03/2017	Y Cov	WAS067
Chloride as Cl	294	mg/l	29/03/2017	N Cov	WAS036
Nitrite as N	<0.08	mg/l	29/03/2017	N Cov	WAS036

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1375530/2017**

Issue **1**

Laboratory Number: **15978338**

Sample **3** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB02**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 March 2017**

Sample Received: **28 March 2017**

Analysis Complete: **11 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Phosphates , Total as P	2.9	mg/l	05/04/2017	Y Cov	WAS049
Sulphate, total as SO4 by I.C.	27.58	mg/l	06/04/2017	Y Cov	CON27
BOD + ATU (5 day)	15	mg/l	04/04/2017	Y Cov	WAS001
COD (Total)	362	mg/l	11/04/2017	Y Cov	WAS040
TOC (Filtered)	2.0	mg/l	29/03/2017	Y Cov	WAS005
Cyanide, Free as CN	<0.008	mg/l	31/03/2017	N Cov	WAS018
Cyanide, Total as CN	<0.009	mg/l	31/03/2017	N Cov	WAS018
Sulphide as S	0.911	mg/l	07/04/2017	N Cov	WAS033
Formaldehyde	<0.029	mg/l	29/03/2017	N Cov	WAS030
1,2,3-Trichlorobenzene	<10	ng/l	05/04/2017	Y Cov	GEO47
1,2,4-Trichlorobenzene	<10	ng/l	05/04/2017	Y Cov	GEO47
1,3,5-Trichlorobenzene	<10	ng/l	05/04/2017	N Cov	GEO47
SVOC with TICs	Y	ug/l	06/04/2017	N Cov	GEO40
Aldrin	<5	ng/l	05/04/2017	Y Cov	GEO47
alpha-Endosulphan	<8	ng/l	05/04/2017	Y Cov	GEO47
alpha-HCH	<7	ng/l	05/04/2017	Y Cov	GEO47
beta-Endosulphan	<6	ng/l	05/04/2017	Y Cov	GEO47
beta-HCH	<4	ng/l	05/04/2017	Y Cov	GEO47
alpha-Chlordane	<6	ng/l	05/04/2017	Y Cov	GEO47
Dichlobenil	22	ng/l	05/04/2017	Y Cov	GEO47
Dieldrin	<5	ng/l	05/04/2017	Y Cov	GEO47
Endrin	<6	ng/l	05/04/2017	Y Cov	GEO47
gamma-HCH	<4.3	ng/l	05/04/2017	Y Cov	GEO47
Heptachlor Epoxide	<6	ng/l	05/04/2017	Y Cov	GEO47
Hexachlorobenzene	<4	ng/l	05/04/2017	Y Cov	GEO47
Hexachlorobutadiene	<7	ng/l	05/04/2017	N Cov	GEO47
Isodrin	<6	ng/l	05/04/2017	Y Cov	GEO47
o,p - DDE	<4	ng/l	05/04/2017	Y Cov	GEO47
p,p - DDE	<4	ng/l	05/04/2017	Y Cov	GEO47
o,p - TDE	<4	ng/l	05/04/2017	Y Cov	GEO47
p,p - TDE	<4	ng/l	05/04/2017	Y Cov	GEO47
o,p - DDT	<5	ng/l	05/04/2017	Y Cov	GEO47
p,p - DDT	<6	ng/l	05/04/2017	Y Cov	GEO47

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1375530/2017**

Issue **1**

Laboratory Number: **15978338**

Sample **3** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB02**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 March 2017**

Sample Received: **28 March 2017**

Analysis Complete: **11 April 2017**

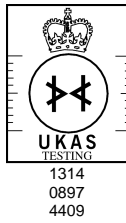
Test Description	Result	Units	Analysis Date	Accreditation	Method
Tecnazene	<14	ng/l	05/04/2017	Y Cov	GEO47
gamma-Chlordane	<6	ng/l	05/04/2017	Y Cov	GEO47
Triallate	<17	ng/l	05/04/2017	Y Cov	GEO47
Trifluralin	<30	ng/l	05/04/2017	Y Cov	GEO47
Azinphos-ethyl	<0.004	ug/l	05/04/2017	Y Cov	GEO47
Azinphos-methyl	<0.004	ug/l	10/04/2017	Y Cov	GEO47
Carbophenothion	<0.006	ug/l	05/04/2017	Y Cov	GEO47
Chlorfenvinphos	<0.004	ug/l	05/04/2017	Y Cov	GEO47
Chlorpyrifos	<0.004	ug/l	05/04/2017	Y Cov	GEO47
Diazinon	<0.005	ug/l	05/04/2017	Y Cov	GEO47
Dichlorvos	<0.002	ug/l	05/04/2017	Y Cov	GEO47
Dimethoate	<0.02	ug/l	05/04/2017	Y Cov	GEO47
Fenitrothion	<0.005	ug/l	05/04/2017	Y Cov	GEO47
Fenthion	<0.005	ug/l	05/04/2017	Y Cov	GEO47
Malathion	<0.004	ug/l	05/04/2017	Y Cov	GEO47
Mevinphos	<0.020	ug/l	05/04/2017	Y Cov	GEO47
Parathion-ethyl	<0.004	ug/l	05/04/2017	Y Cov	GEO47
Parathion-methyl	<0.004	ug/l	05/04/2017	Y Cov	GEO47
Phorate	<0.006	ug/l	05/04/2017	Y Cov	GEO47
Phosalone	<0.007	ug/l	05/04/2017	Y Cov	GEO47
Pirimiphos-methyl	<0.005	ug/l	05/04/2017	Y Cov	GEO47
Propetamphos	<0.003	ug/l	05/04/2017	Y Cov	GEO47
Triazophos	<0.004	ug/l	05/04/2017	Y Cov	GEO47
2,3,6 - TBA	<2.00	ug/l	07/04/2017	Y Cov	GEO20
2,4 - D	<2.00	ug/l	07/04/2017	Y Cov	GEO20
2,4 - DB	<2.00	ug/l	07/04/2017	Y Cov	GEO20
2,4,5 - T	<2.00	ug/l	07/04/2017	Y Cov	GEO20
Benazolin	<2.00	ug/l	07/04/2017	Y Cov	GEO20
Bentazone	<2.00	ug/l	07/04/2017	Y Cov	GEO20
Chlopyralid	<2.00	ug/l	07/04/2017	Y Cov	GEO20
Bromoxynil	<2.00	ug/l	07/04/2017	Y Cov	GEO20
Dicamba	<2.00	ug/l	07/04/2017	Y Cov	GEO20
Dichlorprop	<2.00	ug/l	07/04/2017	Y Cov	GEO20

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575



# Certificate of Analysis



Report Number: **COV/1375530/2017**

Issue **1**

Laboratory Number: **15978338**

Sample **3** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB02**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 March 2017**

Sample Received: **28 March 2017**

Analysis Complete: **11 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Fenoprop	<2.00	ug/l	07/04/2017	Y Cov	GEO20
loxynil	<2.00	ug/l	07/04/2017	Y Cov	GEO20
MCPA	<2.00	ug/l	07/04/2017	Y Cov	GEO20
MCPB	<2.00	ug/l	07/04/2017	Y Cov	GEO20
Triclopyr	<2.00	ug/l	07/04/2017	Y Cov	GEO20
Mecoprop	19.1	ug/l	07/04/2017	Y Cov	GEO20
Catechol	<0.10	ug/l	10/04/2017	N Cov	338
Cresol, Total	<0.10	ug/l	10/04/2017	N Cov	338
Xylenol, Total	3.4	ug/l	10/04/2017	N Cov	338
Naphthol	<0.10	ug/l	10/04/2017	N Cov	338
Phenol	1.3	ug/l	10/04/2017	N Cov	338
Trimethylphenol, Total	37	ug/l	10/04/2017	N Cov	338
Phenols, Total	42	ug/l	10/04/2017	N Cov	338
Aliphatic VPH >C5 - C6	14	ug/l	06/04/2017	Y Cov	GEO45
Aliphatic VPH >C6 - C8	15	ug/l	06/04/2017	Y Cov	GEO45
Aliphatic VPH >C8 - 10	<10	ug/l	06/04/2017	Y Cov	GEO45
Aliphatic VPH >C5 - C10	29	ug/l	06/04/2017	Y Cov	GEO45
Aromatic VPH >C5 - C7	<10	ug/l	06/04/2017	Y Cov	GEO45
Aromatic VPH >C7 - C8	<10	ug/l	06/04/2017	Y Cov	GEO45
Aromatic VPH >C8 - C10	<10	ug/l	06/04/2017	Y Cov	GEO45
Aromatic VPH >C5 - C10	<10	ug/l	06/04/2017	Y Cov	GEO45
VPH >C5 - C10	29	ug/l	06/04/2017	Y Cov	GEO45
Aliphatic EPH >C10 - C12	<40	ug/l	05/04/2017	N Cov	GEO46
Aliphatic EPH >C12 - C16	<40	ug/l	05/04/2017	N Cov	GEO46
Aliphatic EPH >C16 - C35	<40	ug/l	05/04/2017	N Cov	GEO46
Aliphatic EPH >C35 - C44	<40	ug/l	05/04/2017	N Cov	GEO46
Aliphatic EPH >C10 - C44	<40	ug/l	05/04/2017	N Cov	GEO46
Aromatic EPH >C10 - C12	<40	ug/l	05/04/2017	N Cov	GEO46
Aromatic EPH >C12 - C16	<40	ug/l	05/04/2017	N Cov	GEO46
Aromatic EPH >C16 - C21	<40	ug/l	05/04/2017	N Cov	GEO46
Aromatic EPH >C21 - C35	<40	ug/l	05/04/2017	N Cov	GEO46
Aromatic EPH >C35 - C44	<40	ug/l	05/04/2017	N Cov	GEO46
Aromatic EPH >C10 - C44	<40	ug/l	05/04/2017	N Cov	GEO46

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1375530/2017**

Issue **1**

Laboratory Number: **15978338**

Sample **3** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB02**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 March 2017**

Sample Received: **28 March 2017**

Analysis Complete: **11 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
EPH >C10 - C44	<40	ug/l	05/04/2017	N Cov	GEO46
Aliphatic VPH/EPH >C5 - C44	<40	ug/l	06/04/2017	N Cov	GEO45/GEO4
Aromatic VPH/EPH >C5 - C44	<40	ug/l	06/04/2017	N Cov	GEO45/GEO4
VPH/EPH >C5 - C44	<40	ug/l	06/04/2017	N Cov	GEO45/GEO4
Acenaphthene	<0.04	ug/l	06/04/2017	Y Cov	GEO19
Acenaphthylene	<0.04	ug/l	06/04/2017	Y Cov	GEO19
Anthracene	<0.04	ug/l	06/04/2017	Y Cov	GEO19
Benzo (a) anthracene	<0.04	ug/l	06/04/2017	Y Cov	GEO19
Benzo (g,h,i) perylene	<0.04	ug/l	06/04/2017	Y Cov	GEO19
Benzo (a) pyrene	<0.04	ug/l	06/04/2017	Y Cov	GEO19
Benzo (b) fluoranthene	<0.04	ug/l	06/04/2017	Y Cov	GEO19
Benzo (k) fluoranthene	<0.04	ug/l	06/04/2017	Y Cov	GEO19
Chrysene	<0.04	ug/l	06/04/2017	Y Cov	GEO19
Dibenz (a,h) anthracene	<0.04	ug/l	06/04/2017	Y Cov	GEO19
Fluoranthene	0.046	ug/l	06/04/2017	Y Cov	GEO19
Fluorene	<0.04	ug/l	06/04/2017	Y Cov	GEO19
Indeno (1,2,3) cd pyrene	<0.04	ug/l	06/04/2017	Y Cov	GEO19
Naphthalene	<0.04	ug/l	06/04/2017	Y Cov	GEO19
Phenanthrene	0.047	ug/l	06/04/2017	Y Cov	GEO19
Pyrene	<0.04	ug/l	06/04/2017	Y Cov	GEO19
PAH, Total	0.092	ug/l	06/04/2017	N Cov	GEO19
VOC	Y	ug/l	10/04/2017	N Cov	GEO32
Dichlorodifluoromethane	<20.0	ug/l	10/04/2017	Y Cov	GEO32
Chloromethane	<20.0	ug/l	10/04/2017	Y Cov	GEO32
Chloroethane	<20.0	ug/l	10/04/2017	Y Cov	GEO32
Bromomethane	<20.0	ug/l	10/04/2017	Y Cov	GEO32
Trichlorofluoromethane	<20.0	ug/l	10/04/2017	Y Cov	GEO32
1,1-Dichloroethene	<20.0	ug/l	10/04/2017	Y Cov	GEO32
Dichloromethane	<20.0	ug/l	10/04/2017	Y Cov	GEO32
1,1-Dichloroethane	<20.0	ug/l	10/04/2017	Y Cov	GEO32
cis-1,2-Dichloroethene	<20.0	ug/l	10/04/2017	Y Cov	GEO32
2,2-Dichloropropane	<20.0	ug/l	10/04/2017	N Cov	GEO32
Chloroform	<20.0	ug/l	10/04/2017	Y Cov	GEO32

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1375530/2017**

Issue **1**

Laboratory Number: **15978338**

Sample **3** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB02**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 March 2017**

Sample Received: **28 March 2017**

Analysis Complete: **11 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Bromochloromethane	<20.0	ug/l	10/04/2017	Y Cov	GEO32
1,1,1-Trichloroethane	<20.0	ug/l	10/04/2017	Y Cov	GEO32
1,1-Dichloropropene	<20.0	ug/l	10/04/2017	Y Cov	GEO32
1,2-Dichloroethane	<20.0	ug/l	10/04/2017	Y Cov	GEO32
Benzene	<20.0	ug/l	10/04/2017	Y Cov	GEO32
1,2-Dichloropropane	<20.0	ug/l	10/04/2017	Y Cov	GEO32
Trichloroethene	<20.0	ug/l	10/04/2017	Y Cov	GEO32
Bromodichloromethane	<20.0	ug/l	10/04/2017	Y Cov	GEO32
Dibromomethane	<20.0	ug/l	10/04/2017	Y Cov	GEO32
cis-1,3-Dichloropropene	<20.0	ug/l	10/04/2017	Y Cov	GEO32
Toluene	<20.0	ug/l	10/04/2017	Y Cov	GEO32
trans-1,3-Dichloropropene	<20.0	ug/l	10/04/2017	Y Cov	GEO32
1,1,2-Trichloroethane	<20.0	ug/l	10/04/2017	Y Cov	GEO32
Carbon Tetrachloride	<20.0	ug/l	10/04/2017	Y Cov	GEO32
Vinyl Chloride	<10.0	ug/l	10/04/2017	Y Cov	GEO32
1,3-Dichloropropane	<20.0	ug/l	10/04/2017	Y Cov	GEO32
Tetrachloroethene	<20.0	ug/l	10/04/2017	Y Cov	GEO32
Dibromochloromethane	<20.0	ug/l	10/04/2017	Y Cov	GEO32
1,2-Dibromoethane	<20.0	ug/l	10/04/2017	Y Cov	GEO32
Chlorobenzene	<20.0	ug/l	10/04/2017	Y Cov	GEO32
1,1,1,2-Tetrachloroethane	<20.0	ug/l	10/04/2017	Y Cov	GEO32
Ethyl Benzene	<20.0	ug/l	10/04/2017	Y Cov	GEO32
m&p-Xylene	<20.0	ug/l	10/04/2017	Y Cov	GEO32
o-Xylene	<20.0	ug/l	10/04/2017	Y Cov	GEO32
Styrene	<20.0	ug/l	10/04/2017	Y Cov	GEO32
Bromoform	<20.0	ug/l	10/04/2017	Y Cov	GEO32
trans-1,2-Dichloroethene	<20.0	ug/l	10/04/2017	Y Cov	GEO32
Isopropylbenzene	<20.0	ug/l	10/04/2017	Y Cov	GEO32
1,1,2,2-Tetrachloroethane	<20.0	ug/l	10/04/2017	Y Cov	GEO32
1,2,3-Trichloropropane	<20.0	ug/l	10/04/2017	Y Cov	GEO32
n-Propylbenzene	<20.0	ug/l	10/04/2017	Y Cov	GEO32
Bromobenzene	<20.0	ug/l	10/04/2017	Y Cov	GEO32
2-Chlorotoluene	<20.0	ug/l	10/04/2017	Y Cov	GEO32

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1375530/2017**

Issue **1**

Laboratory Number: **15978338**

Sample **3** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB02**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 March 2017**

Sample Received: **28 March 2017**

Analysis Complete: **11 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
1,3,5-Trimethylbenzene	<20.0	ug/l	10/04/2017	Y Cov	GEO32
4-Chlorotoluene	<20.0	ug/l	10/04/2017	Y Cov	GEO32
tert-Butylbenzene	<20.0	ug/l	10/04/2017	Y Cov	GEO32
1,2,4-Trimethylbenzene	<20.0	ug/l	10/04/2017	Y Cov	GEO32
sec-Butylbenzene	<20.0	ug/l	10/04/2017	Y Cov	GEO32
p-Isopropyltoluene	<20.0	ug/l	10/04/2017	Y Cov	GEO32
1,3-Dichlorobenzene	<20.0	ug/l	10/04/2017	Y Cov	GEO32
1,4-Dichlorobenzene	<20.0	ug/l	10/04/2017	Y Cov	GEO32
n-Butylbenzene	<20.0	ug/l	10/04/2017	Y Cov	GEO32
1,2-Dichlorobenzene	<20.0	ug/l	10/04/2017	Y Cov	GEO32
1,2-Dibromo-3-chloropropane	<40.0	ug/l	10/04/2017	Y Cov	GEO32
1,2,4-Trichlorobenzene	<20.0	ug/l	10/04/2017	Y Cov	GEO32
Hexachlorobutadiene	<20.0	ug/l	10/04/2017	Y Cov	GEO32
Naphthalene	<20.0	ug/l	10/04/2017	Y Cov	GEO32
1,2,3-Trichlorobenzene	<20.0	ug/l	10/04/2017	Y Cov	GEO32
MTBE	<20.0	ug/l	10/04/2017	Y Cov	GEO32
Dibromofluoromethane	97.0	%Recovery	10/04/2017	N Cov	GEO32
Toluene-d8	95.1	%Recovery	10/04/2017	N Cov	GEO32
4-Bromofluorobenzene	96.1	%Recovery	10/04/2017	N Cov	GEO32
SVOC	Y	ug/l	06/04/2017	N Cov	GEO40
Phenol	<4.0	ug/l	06/04/2017	Y Cov	GEO40
Bis(2-chloroethyl)ether	<4.0	ug/l	06/04/2017	Y Cov	GEO40
2-Chlorophenol	<4.0	ug/l	06/04/2017	Y Cov	GEO40
1,3-Dichlorobenzene	<4.0	ug/l	06/04/2017	Y Cov	GEO40
1,4-Dichlorobenzene	<4.0	ug/l	06/04/2017	Y Cov	GEO40
2-Methylphenol	<4.0	ug/l	06/04/2017	Y Cov	GEO40
3&4-Methylphenol	<4.0	ug/l	06/04/2017	N Cov	GEO40
Dibenzofuran	<4.0	ug/l	06/04/2017	N Cov	GEO40
1,2-Dichlorobenzene	<4.0	ug/l	06/04/2017	Y Cov	GEO40
Bis(2-chloroisopropyl)ether	<4.0	ug/l	06/04/2017	Y Cov	GEO40
n-Nitrosodi-n-propylamine	<4.0	ug/l	06/04/2017	Y Cov	GEO40
Hexachloroethane	<4.0	ug/l	06/04/2017	Y Cov	GEO40
Nitrobenzene	<4.0	ug/l	06/04/2017	Y Cov	GEO40

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1375530/2017**

Issue **1**

Laboratory Number: **15978338**

Sample **3** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB02**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 March 2017**

Sample Received: **28 March 2017**

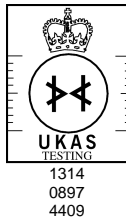
Analysis Complete: **11 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Isophorone	<4.0	ug/l	06/04/2017	Y Cov	GEO40
2,4-Dimethylphenol	<4.0	ug/l	06/04/2017	Y Cov	GEO40
2-Nitrophenol	<4.0	ug/l	06/04/2017	Y Cov	GEO40
Bis(2-chloroethoxy)methane	<4.0	ug/l	06/04/2017	Y Cov	GEO40
2,4-Dichlorophenol	<4.0	ug/l	06/04/2017	Y Cov	GEO40
1,2,4-Trichlorobenzene	<4.0	ug/l	06/04/2017	Y Cov	GEO40
Naphthalene	<8.0	ug/l	06/04/2017	Y Cov	GEO40
Hexachlorobutadiene	<4.0	ug/l	06/04/2017	Y Cov	GEO40
4-Chloro-3-methylphenol	<4.0	ug/l	06/04/2017	Y Cov	GEO40
2-Methylnaphthalene	<4.0	ug/l	06/04/2017	Y Cov	GEO40
2,4,6-Trichlorophenol	<4.0	ug/l	06/04/2017	Y Cov	GEO40
2,4,5-Trichlorophenol	<4.0	ug/l	06/04/2017	Y Cov	GEO40
2-Chloronaphthalene	<4.0	ug/l	06/04/2017	Y Cov	GEO40
Dimethylphthalate	<4.0	ug/l	06/04/2017	Y Cov	GEO40
2,6-Dinitrotoluene	<4.0	ug/l	06/04/2017	Y Cov	GEO40
Acenaphthylene	<4.0	ug/l	06/04/2017	Y Cov	GEO40
Acenaphthene	<4.0	ug/l	06/04/2017	Y Cov	GEO40
2,4-Dinitrotoluene	<4.0	ug/l	06/04/2017	Y Cov	GEO40
Diethylphthalate	<4.0	ug/l	06/04/2017	Y Cov	GEO40
4-Nitrophenol	<20.0	ug/l	06/04/2017	Y Cov	GEO40
4-Chlorophenyl phenyl ether	<4.0	ug/l	06/04/2017	Y Cov	GEO40
Fluorene	<4.0	ug/l	06/04/2017	Y Cov	GEO40
Diphenylamine	<4.0	ug/l	06/04/2017	N Cov	GEO40
4-Bromophenyl Phenyl Ether	<4.0	ug/l	06/04/2017	Y Cov	GEO40
Hexachlorobenzene	<4.0	ug/l	06/04/2017	Y Cov	GEO40
Pentachlorophenol	<4.0	ug/l	06/04/2017	Y Cov	GEO40
Phenanthrene	<4.0	ug/l	06/04/2017	Y Cov	GEO40
Anthracene	<4.0	ug/l	06/04/2017	Y Cov	GEO40
di-n-Butylphthalate	<4.0	ug/l	06/04/2017	Y Cov	GEO40
Fluoranthene	<4.0	ug/l	06/04/2017	Y Cov	GEO40
Pyrene	<4.0	ug/l	06/04/2017	Y Cov	GEO40
Benzyl Butyl Phthalate	<4.0	ug/l	06/04/2017	Y Cov	GEO40
Benzo(a)anthracene	<4.0	ug/l	06/04/2017	Y Cov	GEO40

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1375530/2017**  
 Laboratory Number: **15978338**

Issue **1**  
 Sample **3** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**  
 Sample Point Description:  
 Sample Description: **DB02**  
 Sample Matrix: **Ground Water**  
 Sample Date/Time: **28 March 2017**  
 Sample Received: **28 March 2017**  
 Analysis Complete: **11 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Chrysene	<4.0	ug/l	06/04/2017	Y Cov	GEO40
Bis(2-ethylhexyl)phthalate	<20.0	ug/l	06/04/2017	Y Cov	GEO40
Di-n-octylphthalate	<4.0	ug/l	06/04/2017	Y Cov	GEO40
Benzo(b)fluoranthene	<4.0	ug/l	06/04/2017	Y Cov	GEO40
Benzo(k)fluoranthene	<4.0	ug/l	06/04/2017	Y Cov	GEO40
Benzo(a)pyrene	<4.0	ug/l	06/04/2017	Y Cov	GEO40
Indeno(1,2,3-c,d)pyrene	<4.0	ug/l	06/04/2017	Y Cov	GEO40
Dibenz(a,h)anthracene	<4.0	ug/l	06/04/2017	Y Cov	GEO40
Benzo(g,h,i)perylene	<4.0	ug/l	06/04/2017	Y Cov	GEO40
2-Fluorophenol	91.0	%Recovery	06/04/2017	N Cov	GEO40
Phenol-d6	84.2	%Recovery	06/04/2017	N Cov	GEO40
Nitrobenzene-d5	92.7	%Recovery	06/04/2017	N Cov	GEO40
2-Fluorobiphenyl	96.2	%Recovery	06/04/2017	N Cov	GEO40
2,4,6-Tribromophenol	111.8	%Recovery	06/04/2017	N Cov	GEO40
Terphenyl-d14	96.7	%Recovery	06/04/2017	N Cov	GEO40
Nitrite as NO2	<0.28	mg/l	30/03/2017	N Cov	WAS036
Fluoroxypyr	<2.00	ug/l	07/04/2017	Y Cov	GEO20

**Analyst Comments for 15978338:**


This sample has been analysed for Pesticides method GEO47, COD (Total) outside recommended stability times. It is therefore possible that the results provided may be compromised. Sulphate analysed by ion chromatography due to interference with turbidmetric determination  
 The ferrous iron analysis was not carried out on site and there is the possibility of change in ferrous-ferric ratio between sampling and analysis. COD filtered due to nature of sample.  
 Raised reporting limits for EPH Waters and PAH due to the nature of the sample matrix.  
 Reporting limits raised for GCMSMS Pesticides due to nature of sample matrix. Reporting limit raised for alpha-HCH due to interferences of sample matrix.  
 The reporting limit has been raised for metals due to interference with the internal standard  
 SVOC: Reporting limits raised - insufficient sample due to rework.  
 Acid Herbicides reporting limits raised due to nature of sample matrix.  
 VOC reporting limits raised due to nature of sample.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

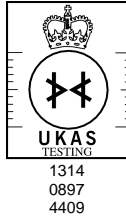
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:  Name: **C. Law** Date: **11 April 2017**  
 Title: **Inorganics Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
 Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1375530/2017**

Issue **1**

Laboratory Number: **15978339**

Sample **4** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB03**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 March 2017**

Sample Received: **28 March 2017**

Analysis Complete: **11 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	30.7	mg/l	29/03/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.0070	mg/l	05/04/2017	Y Cov	WAS060
Calcium , Total as Ca	502	mg/l	05/04/2017	Y Cov	WAS049
Iron , Total as Fe	13.6	mg/l	05/04/2017	Y Cov	WAS049
Manganese , Total as Mn	3.72	mg/l	05/04/2017	Y Cov	WAS049
Potassium , Total as K	8.24	mg/l	05/04/2017	Y Cov	WAS049
Sodium , Total as Na	66.6	mg/l	05/04/2017	Y Cov	WAS049
pH	7.2	pH units	29/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	1120	uS/cm	29/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	1000	mg/l	05/04/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	6.96	mg/l	29/03/2017	Y Cov	WAS067
Chloride as Cl	123	mg/l	29/03/2017	N Cov	WAS036
Sulphate as SO4	57.1	mg/l	29/03/2017	N Cov	WAS036
BOD + ATU (5 day)	2	mg/l	04/04/2017	Y Cov	WAS001
COD (Total)	380	mg/l	05/04/2017	Y Cov	WAS040
TOC (Filtered)	2.4	mg/l	29/03/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	31/03/2017	N Cov	WAS018

### Analyst Comments for 15978339:

This sample has been analysed for COD (Total) outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **C. Law**

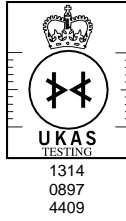
Date: **11 April 2017**

Title: **Inorganics Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1375530/2017**

Issue **1**

Laboratory Number: **15978340**

Sample **5** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM01**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 March 2017**

Sample Received: **28 March 2017**

Analysis Complete: **11 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	29/03/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.032	mg/l	05/04/2017	Y Cov	WAS060
Calcium , Total as Ca	122	mg/l	31/03/2017	Y Cov	WAS049
Iron , Total as Fe	29.7	mg/l	31/03/2017	Y Cov	WAS049
Manganese , Total as Mn	0.707	mg/l	31/03/2017	Y Cov	WAS049
Potassium , Total as K	0.93	mg/l	31/03/2017	Y Cov	WAS049
Sodium , Total as Na	10.9	mg/l	31/03/2017	Y Cov	WAS049
pH	7.9	pH units	29/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	623	uS/cm	29/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	312	mg/l	05/04/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.09	mg/l	29/03/2017	Y Cov	WAS067
Chloride as Cl	18.3	mg/l	29/03/2017	N Cov	WAS036
Sulphate as SO4	18.8	mg/l	29/03/2017	N Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	04/04/2017	Y Cov	WAS001
COD (Total)	16.0	mg/l	03/04/2017	Y Cov	WAS040
TOC (Filtered)	1.4	mg/l	29/03/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	31/03/2017	N Cov	WAS018

Analyst Comments for 15978340:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **C. Law**

Date: **11 April 2017**

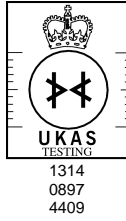
Title: **Inorganics Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575



# Certificate of Analysis



Report Number: **COV/1375530/2017**

Issue **1**

Laboratory Number: **15978341**

Sample **6** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM02**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 March 2017**

Sample Received: **28 March 2017**

Analysis Complete: **11 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	8.3	mg/l	29/03/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.0056	mg/l	05/04/2017	Y Cov	WAS060
Calcium , Total as Ca	113	mg/l	31/03/2017	Y Cov	WAS049
Iron , Total as Fe	4.21	mg/l	31/03/2017	Y Cov	WAS049
Manganese , Total as Mn	0.286	mg/l	31/03/2017	Y Cov	WAS049
Potassium , Total as K	1.47	mg/l	31/03/2017	Y Cov	WAS049
Sodium , Total as Na	9.73	mg/l	31/03/2017	Y Cov	WAS049
pH	8.1	pH units	29/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	564	uS/cm	29/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	274	mg/l	05/04/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.06	mg/l	29/03/2017	Y Cov	WAS067
Chloride as Cl	16.3	mg/l	29/03/2017	N Cov	WAS036
Sulphate as SO4	20.6	mg/l	29/03/2017	N Cov	WAS036
BOD + ATU (5 day)	1	mg/l	04/04/2017	Y Cov	WAS001
COD (Total)	15.0	mg/l	03/04/2017	Y Cov	WAS040
TOC (Filtered)	1.1	mg/l	29/03/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	31/03/2017	N Cov	WAS018

Analyst Comments for 15978341:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **C. Law**

Date: **11 April 2017**

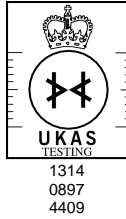
Title: **Inorganics Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Page 15 of 16

# Certificate of Analysis



Report Number: **COV/1375530/2017**

Issue **1**

Laboratory Number: **15978342**

Sample **7** of **7**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BB02**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 March 2017**

Sample Received: **28 March 2017**

Analysis Complete: **11 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	7.6	mg/l	29/03/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.0030	mg/l	05/04/2017	Y Cov	WAS060
Calcium , Total as Ca	121	mg/l	31/03/2017	Y Cov	WAS049
Iron , Total as Fe	1.49	mg/l	31/03/2017	Y Cov	WAS049
Manganese , Total as Mn	0.489	mg/l	31/03/2017	Y Cov	WAS049
Potassium , Total as K	1.95	mg/l	31/03/2017	Y Cov	WAS049
Sodium , Total as Na	18.8	mg/l	31/03/2017	Y Cov	WAS049
pH	7.4	pH units	29/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	689	uS/cm	29/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	338	mg/l	05/04/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	29/03/2017	Y Cov	WAS067
Chloride as Cl	42.5	mg/l	29/03/2017	N Cov	WAS036
Sulphate as SO4	39.4	mg/l	29/03/2017	N Cov	WAS036
BOD + ATU (5 day)	2	mg/l	04/04/2017	Y Cov	WAS001
COD (Total)	47.0	mg/l	03/04/2017	Y Cov	WAS040
TOC (Filtered)	<0.7	mg/l	29/03/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	31/03/2017	N Cov	WAS018

Analyst Comments for 15978342:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **C. Law**

Date: **11 April 2017**

Title: **Inorganics Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Page 16 of 16

ALS Environmental Ltd  
Torrington Avenue  
Coventry  
CV4 9GU

T: +44 (0)24 7642 1213  
F: +44 (0)24 7685 6575  
www.alsenvironmental.co.uk

**Mr Downes**  
**SKM Ireland c/o Jacobs**  
**Engineering Ireland**  
**Jacobs**  
**Merrion House**  
**Merrion Road**  
**Dublin 4 South Dublin**

06 April 2017

**Test Report: COV/1375894/2017**

Dear Mr Downes

Analysis of your sample(s) submitted on 29 March 2017 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

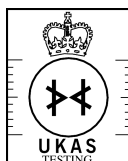
Signed: 

Name: C. Law

Title: Inorganics Operations Manager



# Report Summary



1314  
0897  
4409



**Mr Ultan Downes**  
**SKM Ireland c/o Jacobs**  
**Engineering Ireland**  
**Jacobs**  
**Merrion House**  
**Merrion Road**  
**Dublin 4**  
**South Dublin**

Date of Issue: **06 April 2017**

Report Number: **COV/1375894/2017**

Issue **1**

This issue replaces  
all previous issues

**Job Description:** Kerdiffstown Landfill

**Job Location:** 32EW5604 KLRP

Number of Samples  
included in this report **9**

Job Received: **29 March 2017**

Number of Test Results  
included in this report **162**

Analysis Commenced: **30 March 2017**

Signed:

Name: **C. Law**

Date: **06 April 2017**

Title: **Inorganics Operations Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.

Information on the methods of analysis and performance characteristics are available on request.

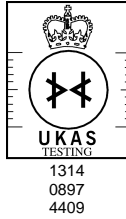
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

(c) ALS Environmental Ltd 2017. All rights reserved. We, ALS Environmental Ltd, are the owner of all copyright in this report. You must not copy, reproduce, amend or adapt this report, its contents or any format in which it is delivered without our prior written agreement. If you copy, reproduce, amend, or adapt this report in any way without our agreement you will be liable for any damage or loss to us. In the event of a dispute the copy of the report held by us shall be the reference copy.

# Certificate of Analysis



Report Number: **COV/1375894/2017**

Issue **1**

Laboratory Number: **15981398**

Sample **1** of **9**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM03**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 March 2017**

Sample Received: **29 March 2017**

Analysis Complete: **06 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	5.1	mg/l	30/03/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.0079	mg/l	06/04/2017	Y Cov	WAS060
Calcium , Total as Ca	176	mg/l	31/03/2017	Y Cov	WAS049
Iron , Total as Fe	4.05	mg/l	31/03/2017	Y Cov	WAS049
Manganese , Total as Mn	0.484	mg/l	31/03/2017	Y Cov	WAS049
Potassium , Total as K	2.12	mg/l	31/03/2017	Y Cov	WAS049
Sodium , Total as Na	40.4	mg/l	31/03/2017	Y Cov	WAS049
pH	7.3	pH units	30/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	1020	uS/cm	30/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	486	mg/l	30/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.60	mg/l	30/03/2017	Y Cov	WAS067
Chloride as Cl	33.6	mg/l	30/03/2017	N Cov	WAS036
Sulphate as SO4	63.7	mg/l	30/03/2017	N Cov	WAS036
BOD + ATU (5 day)	5	mg/l	04/04/2017	Y Cov	WAS001
COD (Total)	31.0	mg/l	03/04/2017	Y Cov	WAS040
TOC (Filtered)	4.8	mg/l	30/03/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	31/03/2017	N Cov	WAS018

Analyst Comments for 15981398:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **C. Law**

Date: **06 April 2017**

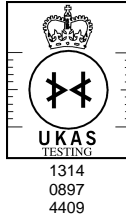
Title: **Inorganics Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Page 2 of 10

# Certificate of Analysis



Report Number: **COV/1375894/2017**

Issue **1**

Laboratory Number: **15981399**

Sample **2** of **9**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM04**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 March 2017**

Sample Received: **29 March 2017**

Analysis Complete: **06 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	30/03/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.011	mg/l	06/04/2017	Y Cov	WAS060
Calcium , Total as Ca	149	mg/l	31/03/2017	Y Cov	WAS049
Iron , Total as Fe	13.9	mg/l	31/03/2017	Y Cov	WAS049
Manganese , Total as Mn	0.865	mg/l	31/03/2017	Y Cov	WAS049
Potassium , Total as K	0.98	mg/l	31/03/2017	Y Cov	WAS049
Sodium , Total as Na	11.6	mg/l	31/03/2017	Y Cov	WAS049
pH	7.5	pH units	30/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	701	uS/cm	30/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	366	mg/l	30/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.84	mg/l	30/03/2017	Y Cov	WAS067
Chloride as Cl	22.1	mg/l	30/03/2017	N Cov	WAS036
Sulphate as SO4	18.7	mg/l	30/03/2017	N Cov	WAS036
BOD + ATU (5 day)	3	mg/l	04/04/2017	Y Cov	WAS001
COD (Total)	62.0	mg/l	03/04/2017	Y Cov	WAS040
TOC (Filtered)	1.7	mg/l	30/03/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	31/03/2017	N Cov	WAS018

Analyst Comments for 15981399:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **C. Law**

Date: **06 April 2017**

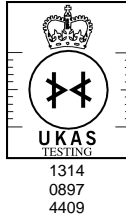
Title: **Inorganics Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Page 3 of 10

# Certificate of Analysis



Report Number: **COV/1375894/2017**

Issue **1**

Laboratory Number: **15981400**

Sample **3** of **9**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM05**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 March 2017**

Sample Received: **29 March 2017**

Analysis Complete: **06 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	30/03/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.0075	mg/l	06/04/2017	Y Cov	WAS060
Calcium , Total as Ca	105	mg/l	31/03/2017	Y Cov	WAS049
Iron , Total as Fe	2.96	mg/l	31/03/2017	Y Cov	WAS049
Manganese , Total as Mn	0.345	mg/l	31/03/2017	Y Cov	WAS049
Potassium , Total as K	1.24	mg/l	31/03/2017	Y Cov	WAS049
Sodium , Total as Na	8.34	mg/l	31/03/2017	Y Cov	WAS049
pH	7.8	pH units	30/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	599	uS/cm	30/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	277	mg/l	30/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	30/03/2017	Y Cov	WAS067
Chloride as Cl	18.7	mg/l	30/03/2017	N Cov	WAS036
Sulphate as SO4	24.2	mg/l	30/03/2017	N Cov	WAS036
BOD + ATU (5 day)	<1	mg/l	04/04/2017	Y Cov	WAS001
COD (Total)	<11.0	mg/l	03/04/2017	Y Cov	WAS040
TOC (Filtered)	1.2	mg/l	30/03/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	31/03/2017	N Cov	WAS018

Analyst Comments for 15981400:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **C. Law**

Date: **06 April 2017**

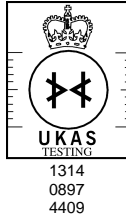
Title: **Inorganics Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Page 4 of 10

# Certificate of Analysis



Report Number: **COV/1375894/2017**

Issue **1**

Laboratory Number: **15981401**

Sample **4** of **9**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RM06**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 March 2017**

Sample Received: **29 March 2017**

Analysis Complete: **06 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	30/03/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.0045	mg/l	06/04/2017	Y Cov	WAS060
Calcium , Total as Ca	112	mg/l	31/03/2017	Y Cov	WAS049
Iron , Total as Fe	4.64	mg/l	31/03/2017	Y Cov	WAS049
Manganese , Total as Mn	1.36	mg/l	31/03/2017	Y Cov	WAS049
Potassium , Total as K	0.92	mg/l	31/03/2017	Y Cov	WAS049
Sodium , Total as Na	7.52	mg/l	31/03/2017	Y Cov	WAS049
pH	7.7	pH units	30/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	597	uS/cm	30/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	283	mg/l	30/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.29	mg/l	30/03/2017	Y Cov	WAS067
Chloride as Cl	18.6	mg/l	30/03/2017	N Cov	WAS036
Sulphate as SO4	9.4	mg/l	30/03/2017	N Cov	WAS036
BOD + ATU (5 day)	6	mg/l	04/04/2017	Y Cov	WAS001
COD (Total)	17.0	mg/l	03/04/2017	Y Cov	WAS040
TOC (Filtered)	0.9	mg/l	30/03/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	31/03/2017	N Cov	WAS018

Analyst Comments for 15981401:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).  
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **C. Law**

Date: **06 April 2017**

Title: **Inorganics Operations Manager**

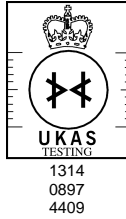
**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Page 5 of 10



# Certificate of Analysis



Report Number: **COV/1375894/2017**

Issue **1**

Laboratory Number: **15981402**

Sample **5** of **9**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BB01**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 March 2017**

Sample Received: **29 March 2017**

Analysis Complete: **06 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron, Total	9.0	mg/l	31/03/2017	N Cov	WAS043
Nitrate as NO3	<3.1	mg/l	30/03/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.011	mg/l	06/04/2017	Y Cov	WAS060
Calcium, Total as Ca	118	mg/l	31/03/2017	Y Cov	WAS049
Iron, Total as Fe	9.26	mg/l	31/03/2017	Y Cov	WAS049
Ferrous Iron	8.9	mg/l	31/03/2017	N Cov	WAS043
Ferric Iron	<0.5	mg/l	31/03/2017	N Cov	WAS043
Manganese, Total as Mn	0.934	mg/l	31/03/2017	Y Cov	WAS049
Potassium, Total as K	3.22	mg/l	31/03/2017	Y Cov	WAS049
Sodium, Total as Na	11.6	mg/l	31/03/2017	Y Cov	WAS049
pH	7.5	pH units	30/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	649	uS/cm	30/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	316	mg/l	30/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	1.75	mg/l	30/03/2017	Y Cov	WAS067
Chloride as Cl	21.7	mg/l	30/03/2017	N Cov	WAS036
Sulphate, total as SO4 by I.C.	10.16	mg/l	06/04/2017	Y Cov	CON27
BOD + ATU (5 day)	6	mg/l	04/04/2017	Y Cov	WAS001
COD (Total)	21.0	mg/l	03/04/2017	Y Cov	WAS040
TOC (Filtered)	2.2	mg/l	30/03/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	31/03/2017	N Cov	WAS018

## Analyst Comments for 15981402:

{/\*} Sulphate analysed by ion chromatography due to interference with turbidmetric determination  
The ferrous iron analysis was not carried out on site and there is the possibility of change in ferrous-ferric ratio between sampling and analysis. {\*/}

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry (CV4 9GU), Che = Chester (CH4 9EP), Ott = Otterbourne (SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge (BA14 0XD), Wak = Wakefield (WF5 9TG).  
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **C. Law**

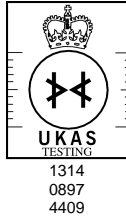
Date: **06 April 2017**

Title: **Inorganics Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel: +44 (0)24 7642 1213 Fax: +44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1375894/2017**

Issue **1**

Laboratory Number: **15981403**

Sample **6** of **9**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **RCBB01**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 March 2017**

Sample Received: **29 March 2017**

Analysis Complete: **06 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron, Total	10.7	mg/l	31/03/2017	N Cov	WAS043
Nitrate as NO3	<3.1	mg/l	30/03/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.072	mg/l	06/04/2017	Y Cov	WAS060
Calcium , Total as Ca	145	mg/l	31/03/2017	Y Cov	WAS049
Iron , Total as Fe	51.8	mg/l	31/03/2017	Y Cov	WAS049
Ferrous Iron	7.2	mg/l	31/03/2017	N Cov	WAS043
Ferric Iron	3.5	mg/l	31/03/2017	N Cov	WAS043
Manganese , Total as Mn	1.55	mg/l	31/03/2017	Y Cov	WAS049
Potassium , Total as K	3.02	mg/l	31/03/2017	Y Cov	WAS049
Sodium , Total as Na	16.5	mg/l	31/03/2017	Y Cov	WAS049
pH	7.5	pH units	30/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	803	uS/cm	30/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	365	mg/l	30/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	1.77	mg/l	30/03/2017	Y Cov	WAS067
Chloride as Cl	30.3	mg/l	30/03/2017	N Cov	WAS036
Sulphate as SO4	38.5	mg/l	30/03/2017	N Cov	WAS036
BOD + ATU (5 day)	4	mg/l	04/04/2017	Y Cov	WAS001
COD (Total)	32.0	mg/l	03/04/2017	Y Cov	WAS040
TOC (Filtered)	3.0	mg/l	30/03/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	31/03/2017	N Cov	WAS018

## Analyst Comments for 15981403:

{/\*}The ferrous iron analysis was not carried out on site and there is the possibility of change in ferrous-ferric ratio between sampling and analysis.{/\*}

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **C. Law**

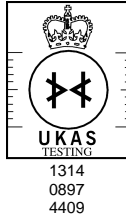
Date: **06 April 2017**

Title: **Inorganics Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1375894/2017**

Issue **1**

Laboratory Number: **15981404**

Sample **7** of **9**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BB04**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 March 2017**

Sample Received: **29 March 2017**

Analysis Complete: **06 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron, Total	<0.5	mg/l	31/03/2017	N Cov	WAS043
Nitrate as NO3	<3.1	mg/l	30/03/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	<0.0010	mg/l	06/04/2017	Y Cov	WAS060
Calcium , Total as Ca	121	mg/l	31/03/2017	Y Cov	WAS049
Iron , Total as Fe	0.56	mg/l	31/03/2017	Y Cov	WAS049
Ferrous Iron	<0.5	mg/l	31/03/2017	N Cov	WAS043
Ferric Iron	<0.5	mg/l	31/03/2017	N Cov	WAS043
Manganese , Total as Mn	0.831	mg/l	31/03/2017	Y Cov	WAS049
Potassium , Total as K	2.34	mg/l	31/03/2017	Y Cov	WAS049
Sodium , Total as Na	31.4	mg/l	31/03/2017	Y Cov	WAS049
pH	7.6	pH units	30/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	830	uS/cm	30/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	367	mg/l	30/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.23	mg/l	30/03/2017	Y Cov	WAS067
Chloride as Cl	36.4	mg/l	30/03/2017	N Cov	WAS036
Sulphate as SO4	45.1	mg/l	30/03/2017	N Cov	WAS036
BOD + ATU (5 day)	3	mg/l	04/04/2017	Y Cov	WAS001
COD (Total)	<11.0	mg/l	03/04/2017	Y Cov	WAS040
TOC (Filtered)	1.3	mg/l	30/03/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	31/03/2017	N Cov	WAS018

## Analyst Comments for 15981404:

{/\*}The ferrous iron analysis was not carried out on site and there is the possibility of change in ferrous-ferric ratio between sampling and analysis.{/\*}

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **C. Law**

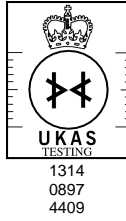
Date: **06 April 2017**

Title: **Inorganics Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1375894/2017**

Issue **1**

Laboratory Number: **15981405**

Sample **8** of **9**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB05**

Sample Matrix: **Ground Water**

Sample Date/Time: **28 March 2017**

Sample Received: **29 March 2017**

Analysis Complete: **06 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	30/03/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.0044	mg/l	06/04/2017	Y Cov	WAS060
Calcium , Total as Ca	161	mg/l	31/03/2017	Y Cov	WAS049
Iron , Total as Fe	1.76	mg/l	31/03/2017	Y Cov	WAS049
Manganese , Total as Mn	0.428	mg/l	31/03/2017	Y Cov	WAS049
Potassium , Total as K	0.38	mg/l	31/03/2017	Y Cov	WAS049
Sodium , Total as Na	5.86	mg/l	31/03/2017	Y Cov	WAS049
pH	7.3	pH units	30/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	681	uS/cm	30/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	349	mg/l	30/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	30/03/2017	Y Cov	WAS067
Chloride as Cl	12.2	mg/l	30/03/2017	N Cov	WAS036
Sulphate as SO4	18.8	mg/l	30/03/2017	N Cov	WAS036
BOD + ATU (5 day)	4	mg/l	04/04/2017	Y Cov	WAS001
COD (Total)	26.0	mg/l	03/04/2017	Y Cov	WAS040
TOC (Filtered)	0.9	mg/l	30/03/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	31/03/2017	N Cov	WAS018

Analyst Comments for 15981405:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).  
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **C. Law**

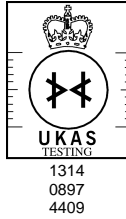
Date: **06 April 2017**

Title: **Inorganics Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1375894/2017**

Issue **1**

Laboratory Number: **15981406**

Sample **9** of **9**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB06**

Sample Matrix: **Ground Water**

Sample Date/Time: **29 March 2017**

Sample Received: **29 March 2017**

Analysis Complete: **06 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	30/03/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.0058	mg/l	06/04/2017	Y Cov	WAS060
Calcium , Total as Ca	109	mg/l	31/03/2017	Y Cov	WAS049
Iron , Total as Fe	7.07	mg/l	31/03/2017	Y Cov	WAS049
Manganese , Total as Mn	1.06	mg/l	31/03/2017	Y Cov	WAS049
Potassium , Total as K	1.36	mg/l	31/03/2017	Y Cov	WAS049
Sodium , Total as Na	9.52	mg/l	31/03/2017	Y Cov	WAS049
pH	7.4	pH units	30/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	591	uS/cm	30/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	318	mg/l	30/03/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.65	mg/l	30/03/2017	Y Cov	WAS067
Chloride as Cl	22.5	mg/l	30/03/2017	N Cov	WAS036
Sulphate, total as SO4 by I.C.	7.16	mg/l	06/04/2017	Y Cov	CON27
BOD + ATU (5 day)	4	mg/l	04/04/2017	Y Cov	WAS001
COD (Total)	19.0	mg/l	04/04/2017	Y Cov	WAS040
TOC (Filtered)	1.4	mg/l	30/03/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	31/03/2017	N Cov	WAS018

**Analyst Comments for 15981406:**

{\*}Sulphate analysed by ion chromatography due to interference with turbidmetric determination{\*}

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed:

Name: **C. Law**

Date: **06 April 2017**

Title: **Inorganics Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

**ALS Environmental Ltd**  
Torrington Avenue  
Coventry  
CV4 9GU

T: +44 (0)24 7642 1213  
F: +44 (0)24 7685 6575  
[www.alsenvironmental.co.uk](http://www.alsenvironmental.co.uk)

**Mr Downes**  
**SKM Ireland c/o Jacobs**  
**Engineering Ireland**  
**Jacobs**  
**Merrion House**  
**Merrion Road**  
**Dublin 4 South Dublin**

18 April 2017

**Test Report: COV/1376271/2017**

Dear Mr Downes

Analysis of your sample(s) submitted on 30 March 2017 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed: 

Name: A. Horobin

Title: Organic Operations Manager



# Report Summary



1314  
0897  
4409



**Mr Ultan Downes  
SKM Ireland c/o Jacobs  
Engineering Ireland  
Jacobs  
Merrion House  
Merrion Road  
Dublin 4  
South Dublin**

Date of Issue: **18 April 2017**

Report Number: **COV/1376271/2017**

Issue **1**

This issue replaces  
all previous issues

**Job Description:** Kerdiffstown Landfill

Number of Samples  
included in this report **3**

Job Received: **30 March 2017**

Number of Test Results  
included in this report **51**

Analysis Commenced: **31 March 2017**

Signed: *A I Horobin*

Name: **A. Horobin**

Date: **18 April 2017**

Title: **Organic Operations Manager**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated. Sampling is not covered by our UKAS accreditation.

Information on the methods of analysis and performance characteristics are available on request.

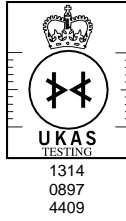
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

(c) ALS Environmental Ltd 2017. All rights reserved. We, ALS Environmental Ltd, are the owner of all copyright in this report. You must not copy, reproduce, amend or adapt this report, its contents or any format in which it is delivered without our prior written agreement. If you copy, reproduce, amend, or adapt this report in any way without our agreement you will be liable for any damage or loss to us. In the event of a dispute the copy of the report held by us shall be the reference copy.

# Certificate of Analysis



Report Number: **COV/1376271/2017**

Issue **1**

Laboratory Number: **15984379**

Sample **1** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB04**

Sample Matrix: **Ground Water**

Sample Date/Time: **29 March 2017**

Sample Received: **30 March 2017**

Analysis Complete: **18 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	11.4	mg/l	31/03/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.012	mg/l	04/04/2017	Y Cov	WAS060
Calcium , Total as Ca	3900	mg/l	05/04/2017	Y Cov	WAS049
Iron , Total as Fe	27.4	mg/l	05/04/2017	Y Cov	WAS049
Manganese , Total as Mn	34.9	mg/l	05/04/2017	Y Cov	WAS049
Potassium , Total as K	6.55	mg/l	05/04/2017	Y Cov	WAS049
Sodium , Total as Na	48.9	mg/l	05/04/2017	Y Cov	WAS049
pH	7.1	pH units	31/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	1090	uS/cm	31/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	12700	mg/l	11/04/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	31/03/2017	Y Cov	WAS067
Chloride as Cl	17.5	mg/l	31/03/2017	N Cov	WAS036
Sulphate as SO4	106	mg/l	31/03/2017	N Cov	WAS036
BOD + ATU (5 day)	14	mg/l	05/04/2017	Y Cov	WAS001
COD (Total)	6000	mg/l	11/04/2017	Y Cov	WAS040
TOC (Filtered)	1.7	mg/l	03/04/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	01/04/2017	N Cov	WAS018

## Analyst Comments for 15984379:

This sample has been analysed for COD (Total) outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed: *A I Horobin*

Name: **A. Horobin**

Date: **18 April 2017**

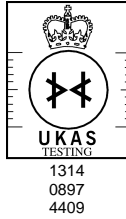
Title: **Organic Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575



# Certificate of Analysis



Report Number: **COV/1376271/2017**

Issue **1**

Laboratory Number: **15984380**

Sample **2** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **DB08**

Sample Matrix: **Ground Water**

Sample Date/Time: **29 March 2017**

Sample Received: **30 March 2017**

Analysis Complete: **18 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	<3.1	mg/l	31/03/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	<0.0010	mg/l	04/04/2017	Y Cov	WAS060
Calcium , Total as Ca	102	mg/l	03/04/2017	Y Cov	WAS049
Iron , Total as Fe	0.55	mg/l	03/04/2017	Y Cov	WAS049
Manganese , Total as Mn	0.495	mg/l	03/04/2017	Y Cov	WAS049
Potassium , Total as K	2.33	mg/l	03/04/2017	Y Cov	WAS049
Sodium , Total as Na	15.6	mg/l	03/04/2017	Y Cov	WAS049
pH	7.3	pH units	31/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	607	uS/cm	31/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	302	mg/l	07/04/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	31/03/2017	Y Cov	WAS067
Chloride as Cl	30.3	mg/l	31/03/2017	N Cov	WAS036
Sulphate as SO4	19.5	mg/l	31/03/2017	N Cov	WAS036
BOD + ATU (5 day)	3	mg/l	05/04/2017	Y Cov	WAS001
COD (Total)	39.0	mg/l	04/04/2017	Y Cov	WAS040
TOC (Filtered)	1.3	mg/l	03/04/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	01/04/2017	N Cov	WAS018

Analyst Comments for 15984380:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed: *A I Horobin*

Name: **A. Horobin**

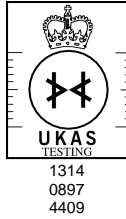
Date: **18 April 2017**

Title: **Organic Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis



Report Number: **COV/1376271/2017**

Issue **1**

Laboratory Number: **15984381**

Sample **3** of **3**

Sample Source: **SKM Ireland c/o Jacobs Engineering Ireland**

Sample Point Description:

Sample Description: **BB03**

Sample Matrix: **Ground Water**

Sample Date/Time: **29 March 2017**

Sample Received: **30 March 2017**

Analysis Complete: **18 April 2017**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Nitrate as NO3	4.1	mg/l	31/03/2017	N Cov	WAS036
Arsenic, Ultra Low Total as As	0.0050	mg/l	04/04/2017	Y Cov	WAS060
Calcium , Total as Ca	226	mg/l	05/04/2017	Y Cov	WAS049
Iron , Total as Fe	7.82	mg/l	05/04/2017	Y Cov	WAS049
Manganese , Total as Mn	3.92	mg/l	05/04/2017	Y Cov	WAS049
Potassium , Total as K	<3.60	mg/l	05/04/2017	Y Cov	WAS049
Sodium , Total as Na	<6.00	mg/l	05/04/2017	Y Cov	WAS049
pH	7.3	pH units	31/03/2017	Y Cov	WAS039
Conductivity- Electrical 20C	561	uS/cm	31/03/2017	Y Cov	WAS039
Alkalinity as CaCO3	352	mg/l	07/04/2017	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	31/03/2017	Y Cov	WAS067
Chloride as Cl	22.9	mg/l	31/03/2017	N Cov	WAS036
Sulphate as SO4	25.7	mg/l	31/03/2017	N Cov	WAS036
BOD + ATU (5 day)	3	mg/l	05/04/2017	Y Cov	WAS001
COD (Total)	440	mg/l	04/04/2017	Y Cov	WAS040
TOC (Filtered)	<0.7	mg/l	03/04/2017	Y Cov	WAS005
Cyanide, Total as CN	<0.009	mg/l	01/04/2017	N Cov	WAS018

**Analyst Comments for 15984381:**

{/\*}The reporting limit has been raised for metals due to interference with the internal standard.{\*/}

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: Cov = Coventry(CV4 9GU), Che = Chester(CH4 9EP), Ott = Otterbourne(SO21 2SW), S = Subcontracted, Trb = Subcontracted to Trowbridge(BA14 0XD), Wak = Wakefield(WF5 9TG).  
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. The LOD for the Legionella analysis will increase where the volume analysed is <1000g (1g is approximately equivalent to 1ml for sample volume analysed).

Signed: *A I Horobin*

Name: **A. Horobin**

Date: **18 April 2017**

Title: **Organic Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575