FEHILY TIMONEY

CONSULTANTS IN ENGINEERING, ENVIRONMENTAL SCIENCE & PLANNING

DINGLE HISTORIC LANDFILL - H0203-01

RESPONSE TO REQUEST FOR INFORMATION

Prepared for: Kerry County Council

Comhairle Contae Chiarraí
Kerry County Council

Date: **December 2022**

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RESPONSE TO REQUEST FOR INFORMATION

REVISION CONTROL TABLE, CLIENT, KEYWORDS AND ABSTRACT
User is responsible for Checking the Revision Status of This Document

Rev. No.	Description of Changes	Prepared by:	Checked by:	Approved by:	Date:
0	Draft	BF/AMW	CJC	BG	29.11.2022
1	Issue for Submission	BF/AMW	CJC	BG	08.12.2022

Client: Kerry County Council

Keywords: Regulation 7, historical landfill, environmental risk assessment.

Abstract: Fehily Timoney and Company (FT) on behalf of Kerry County Council (KCC) submitted an application to the Environmental Protection Agency (EPA) for a certificate of authorisation (CoA) for the Dingle Historic Landfill. The EPA determined the application did not comply with Regulation 7(2) of the Waste Management (Certification of Historic Unlicenced Waste Disposal and Recovery Activity) Regulations, 2008.

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LIST OF APPENDICES

1. INTRODUCTION

1.1 Introduction

Fehily Timoney and Company (FT) on behalf of Kerry County Council (KCC) submitted an application to the Environmental Protection Agency (EPA) for a Certificate of Authorisation (CoA) for the Dingle Historic Landfill.

The EPA reviewed the CoA application and determined the application did not comply with Regulation 7(2) of the Waste Management (Certification of Historic Unlicenced Waste Disposal and Recovery Activity) Regulations, 2008. The EPA requested that KCC, in accordance with Regulation 7(4) supply the information listed in Appendix 1.

This report provides responses to the queries raised.

2. REQUEST FOR INFORMATION

This section outlines the 8 No. items (including an updated Non-Technical Summary) requested by the EPA and the responses to respective items.

2.1 Item 1

2.1.1 Request for Information

Provide the following letters for the Qualified Person, as required under Section 2.3 of the EPA Code of Practice – Environmental Risk Assessment for Unregulated Waste Disposal Sites, using template/sample letters for Qualified Person available at https://www.epa.ie/our-services/licensing/waste/historic-landfills/:

(i) Letter from the Professional Body to the Qualified Person; and

(ii) Letter from the Qualified Person to the Local Authority.

2.1.2 Response

A letter from the Qualified Body (Engineers Ireland) to the Qualified Person (Chris Cronin) confirming the Qualified Person has been assessed as a person who is qualified, trained and experienced to the standard set out in Section 2.3 of Code of Practice: Environmental Risk Assessment for Unregulated Waste Disposal Sites (EPA, 2007) is attached in Appendix 2.

2.2 Item 2

2.2.1 Request for Information

State the proposed use of the site, including the on-site shed, post remediation works.

2.2.2 Response

It is proposed that the site and existing on-site shed will be used for agricultural purposes post remediation works.

2.3 Item 3

2.3.1 Request for Information

The ALS Certificate of Analysis includes, amongst others, groundwater monitoring results for a borehole named BH02 Milltown. Include the location of this borehole on the Drawing required under Point 8.

2.3.2 Response

The BH02 Milltown is not located on the Dingle Historic Landfill site and refers to a different site. Correct ALS Certificates of Analyses have been included in Appendix 3 of this document.

2.4 Item 4

2.4.1 Request for Information

The site walkover checklist in Appendix 2 of the Tier 2 Assessment states that no leachate seepages were noted. However, Section 1.4.1 of the Tier 3 Assessment states that leachate was observed in adjacent surface water drains. Provide the following information:

(i) Show the adjacent surface water drains and the locations where leachate was observed on the Drawing required under Point 8.

(ii) Provide the date of the said walkover checklist and the date when leachate was observed in the surface water drains.

2.4.2 Response to Item 4(i)

Adjacent surface water drains and location where leachate breakout was observed have been included on the drawing required under Point 8, see Appendix 4.

2.4.3 Response to Item 4(ii)

The site walkover was undertaken on the 14th February 2019. This was the date when black liquid (assumed to be leachate) was observed in the adjacent surface water drain.

2.5 Item 5

2.5.1 Request for Information

Figure 4.1 'Groundwater Flow Direction' of the Tier 2 Assessment shows that groundwater beneath the site flows towards the south-east. State how this direction of groundwater flow was established.

2.5.2 Response

The groundwater flow direction was established based on the static groundwater levels measured in BH01 and BH02. The ground contours for the area also slope towards the watercourse and site observations. Ocre coloured water at discrete locations in surface drains removed from the site and parallel to the watercourse also suggested the drains were intercepting groundwater.

2.6 Item 6

2.6.1 Request for Information

Section 5.3.7 of the Tier 3 Assessment proposes that the gas collection layer shall make provision for management of 'below liner leachate breakouts following secondary consolidation or condensate using gravel soakaways or similar approved'. Provide the following information:

(i) Confirm that it is proposed to discharge leachate to ground using gravel soakaways. Please note that a discharge of leachate to ground cannot be authorised under a certificate of authorisation. Accordingly, propose an alternative system for managing leachate.

2.6.2 Response to Item 6(i)

FT confirms that no leachate will be discharged to ground using gravel soakaways.

The proposed remediation (alternate) design is an engineered cap that comprises 200 mm topsoil, over 800 mm subsoil over a subsurface geocomposite over a LLDPE barrier, over a gas collection geocomposite over waste.

The proposed design solution will prevent rainfall infiltration, decrease leachate generation and subsequent contamination of surface and ground waters.

2.7 Item 7

2.7.1 Request for Information

It is noted that groundwater monitoring boreholes BH01 and BH02 are referred to in Drawing P1788-0101-0001 'Dingle historic landfill proposed remediation plan' of the Tier 3 Assessment as 'Ground water extraction wells'. Confirm the nature/use of groundwater extraction in relation to these wells, if any.

2.7.2 Response

BH01 and BH02 are groundwater monitoring wells, drawing P1788-0101-0001 has been corrected and can be found in Appendix 5 of this report.

2.8 Item 8

2.8.1 Request for Information

Provide one Drawing showing all of the following elements interpolated:

(i) the entire site boundary in red;

(ii) the outline of the waste body boundary, in a different colour than red;

(iii) monitoring locations for groundwater, including the location referred to in Point 3, landfill gas and surface water; and

(iv) the adjacent surface water bodies, including the surface water drains referred to in Point 4(i).

2.8.2 Response

See Appendix 4 for figure containing all the elements above.

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APPENDIX 1

Regulation 7 Notice

Environmental Protection Agency
An Ghníomhaireacht um Chaomhnú Comhshaoil

Headquarters, PO Box 3000
Johnstown Castle Estate
Co Wexford,
Y35 W821, Ireland

Ceannchethrú, Bosca Poist 3000
Eastát Chaisleán Bhaile Sheáin
Contae Loch Gharman,
Y35 W821, Éire

T: +353 53 916 0600
F: +353 53 916 0699
E: info@epa.ie
W www.epa.ie
LoCall: 0818 33 55 99

Reg. No. H0203-01

Re: Dingle Historic Landfill – Notice in accordance with Regulation 7(4) of the Waste Management (Certification of Historic Unlicenced Waste Disposal and Recovery Activity) Regulations, 2008

Dear Mr. Lynch,

I am to refer to the above referenced application for a certificate of authorisation in relation to the above referenced historic landfill.

Having examined the foregoing, I am to advise that the Agency is of the view that the application does not comply with Regulation 7(2) of the Waste Management (Certification of Historic Unlicenced Waste Disposal and Recovery Activity) Regulations, 2008.

You are therefore requested in accordance with Regulation 7(4) of the Regulations, to take steps to supply the information detailed below:

REGULATION 7(2) COMPLIANCE REQUIREMENTS

1. Provide the following letters for the Qualified Person, as required under Section 2.3 of the EPA Code of Practice – Environmental Risk Assessment for Unregulated Waste Disposal Sites, using template/sample letters for Qualified Person available at https://www.epa.ie/our-services/licensing/waste/historic-landfills/:
   (i) Letter from the Professional Body to the Qualified Person; and
   (ii) Letter from the Qualified Person to the Local Authority.
2. State the proposed use of the site, including the on-site shed, post remediation works.

3. The ALS Certificate of Analysis includes, amongst others, groundwater monitoring results for a borehole named *BH02 Milltown*. Include the location of this borehole on the Drawing required under Point 8.

4. The site walkover checklist in Appendix 2 of the Tier 2 Assessment states that no leachate seepages were noted. However, Section 1.4.1 of the Tier 3 Assessment states that leachate was observed in adjacent surface water drains. Provide the following information:

   (i) Show the adjacent surface water drains and the locations where leachate was observed on the Drawing required under Point 8.

   (ii) Provide the date of the said walkover checklist and the date when leachate was observed in the surface water drains.

5. Figure 4.1 *'Groundwater Flow Direction'* of the Tier 2 Assessment shows that groundwater beneath the site flows towards the south-east. State how this direction of groundwater flow was established.

6. Section 5.3.7 of the Tier 3 Assessment proposes that the gas collection layer shall make provision for management of 'below liner leachate breakouts following secondary consolidation or condensate using gravel soakaways or similar approved'. Provide the following information:

   (i) Confirm that it is proposed to discharge leachate to ground using gravel soakaways. Please note that a discharge of leachate to ground cannot be authorised under a certificate of authorisation. Accordingly, propose an alternative system for managing leachate.

7. It is noted that groundwater monitoring boreholes BH01 and BH02 are referred to in Drawing P1788-0101-0001 *'Dingle historic landfill proposed remediation plan'* of the Tier 3 Assessment as 'Ground water extraction wells'. Confirm the nature/use of groundwater extraction in relation to these wells, if any.

8. Provide one Drawing showing all of the following elements interpolated:

   (i) the entire site boundary in red;

   (ii) the outline of the waste body boundary, in a different colour than red;

   (iii) monitoring locations for groundwater, including the location referred to in Point 3, landfill gas and surface water; and

   (iv) the adjacent surface water bodies, including the surface water drains referred to in Point 4(i).

Your reply to this notice should include a **revised Non-technical Summary**, which reflects the information you supply in compliance with the notice, insofar as that information impinges on the non-technical summary.

In the case where any drawings already submitted are subject to revision consequent on this request, a revised drawing should be prepared in each case. It is not sufficient to annotate the original drawing with a textual correction. The revision status, such as revised drawing number and/or revision date should be clearly stated. Also, where such revised drawings are submitted, provide a list of drawing titles, drawing numbers and revision status, which correlates the revised drawings with the superseded versions.

Please supply the requested information within ***four weeks*** of the date of this notice. Please note that during COVID-19 there are new arrangements in place for the receipt of all correspondence in relation to applications for Certificates of Authorisation. Accordingly, any correspondence in respect of the above referenced application should be sent to the Agency via file transfer by emailing historiclandfillapplications@epa.ie, quoting the Register Number H0203-01. The EPA doesn't accept files to be transferred using any file share application other than MS One Drive. Each file should be in a searchable .pdf format and a size not exceeding 10MB.

Please also note, post COVID-19, you may be contacted to submit the hard copies and CD-ROMs for the submitted electronic correspondence.

Yours sincerely,

Ewa Babiarczyk
Inspector
Circular Economy Regulation Team
Circular Economy Programme

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APPENDIX 2

A Letter from the Qualified Body to the Qualified Person

ENGINEERS IRELAND

Mr Chris Cronin MIEI
Fehily Timoney and Company
Core House,
Pouladuff Road,
Cork.

20th April 2022 **Via Email**

Re: Register of Chartered Engineers for Historic Landfill Register accordance with Section 2.3 of Code of Practice: Environmental Risk Assessment for Unregulated Waste Disposal Sites (EPA, 2007)

To Whom it May Concern,

This letter confirms that Mr Chris Cronin is a member of Engineers Ireland in good standing – membr number 045403. Engineers Ireland confirms that Mr Chris Cronin has been assessed as a person who is qualified, trained and experienced to the standard set out in Section 2.3 of Code of Practice: Environmental Risk Assessment for Unregulated Waste Disposal Sites (EPA, 2007).

Damien Owens
Registrar,
Engineers Ireland

Note: The up-to-date status of registrants is available on the Engineers Ireland website:
https://www.engineersireland.ie/Registers-and-Panels/10

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APPENDIX 3

Updated Certificate of Analysis

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528777
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Post Certification Report

Fehily Timoney
3rd Floor
North Park Offices
North Park Business Park
North Road
Dublin
Dublin 11
Attention: Daniel Hayden

Date:	06/10/2022	**Location:**	South & West Kerry Landfills
Customer:	Fehily Timoney	**No. Of Samples Received:**	2
Your Reference:	P1788 South & West Kerry	**Samples Scheduled:**	2

Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).

Post Certification Report

Customer : Fehily Timoney
Client Reference : P1788 South & West Ker **Location :** South & West Kerry Landfills

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
20676026	BH01 Dingle		0.00 - 0.00	04/09/2019
20676057	BH02 Dingle		0.00 - 0.00	04/09/2019

Only received samples which have had analysis scheduled will be shown on the following pages.

Post Certification Report

Customer : Fehily Timoney
Client Reference : P1788 South & West Ker **Location :** South & West Kerry Landfills

Results Legend

X Test

N No Determination Possible

Lab Sample No(s)			20676026							20676057						
Customer Sample Reference			BH01 Dingle							BH02 Dingle						
AGS Reference																
Depth (m)			0.00 - 0.00							0.00 - 0.00						
Container			0.5l glass bottle	500ml Plastic	H2SO4 (ALE244)	HNO3 Filtered	HNO3 Unfiltered	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle	500ml Plastic	H2SO4 (ALE244)	HNO3 Filtered	HNO3 Unfiltered	NaOH (ALE245)	Vial (ALE297)
Acid Herbicides by GCMS	All	NDPs: 0 Tests: 2	X							X						
Alkalinity as CaCO3	All	NDPs: 0 Tests: 2		X							X					
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 2			X							X				
Anions by Kone (w)	All	NDPs: 0 Tests: 2		X							X					
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 2		X							X					
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 2						X							X	
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 2				X							X			
Dissolved Oxygen by Probe	All	NDPs: 0 Tests: 2		X							X					
Fluoride	All	NDPs: 0 Tests: 2		X							X					
Mercury Dissolved	All	NDPs: 0 Tests: 2				X							X			
Mineral Oil C10-40 Aqueous (W)	All	NDPs: 0 Tests: 2	X							X						
PCB Congeners - Aqueous (W)	All	NDPs: 0 Tests: 2	X							X						
Pesticides (Suite I) by GCMS	All	NDPs: 0 Tests: 2	X							X						
Pesticides (Suite II) by GCMS	All	NDPs: 0 Tests: 2	X							X						
Pesticides (Suite III) by GCMS	All	NDPs: 0 Tests: 2	X							X						
pH Value	All	NDPs: 0 Tests: 2		X							X					
Phosphate by Kone (w)	All	NDPs: 0 Tests: 2		X							X					
Suspended Solids	All	NDPs: 0 Tests: 2		X							X					

Post Certification Report

Customer : Fehily Timoney
Client Reference : P1788 South & West Ker **Location :** South & West Kerry Landfills

Results Legend

X **Test**

N **No Determination Possible**

Lab Sample No(s)			20676026	20676057
Customer Sample Reference			BH01 Dingle	BH02 Dingle
AGS Reference				
Depth (m)			0.00 - 0.00	0.00 - 0.00
Container			0.5l glass bottle / 500ml Plastic / H2SO4 (ALE244) / HNO3 Filtered / HNO3 Unfiltered / NaOH (ALE245) / Vial (ALE297)	0.5l glass bottle / 500ml Plastic / H2SO4 (ALE244) / HNO3 Filtered / HNO3 Unfiltered / NaOH (ALE245) / Vial (ALE297)
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 2	X	X
Total Dissolved Solids	All	NDPs: 0 Tests: 2	X	X
Total Metals by ICP-MS	All	NDPs: 0 Tests: 2	X	X
Total Organic and Inorganic Carbon	All	NDPs: 0 Tests: 2	X	X
VOC MS (W)	All	NDPs: 0 Tests: 2	X	X

Post Certification Report

Customer : Fehily Timoney
Client Reference : P1788 South & West Ker **Location :** South & West Kerry Landfills

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH01 Dingle	BH02 Dingle
			Depth (m)	0.00 - 0.00	0.00 - 0.00
			Sample Type	Ground Water (GW)	Ground Water (GW)
			Date Sampled	04/09/2019	04/09/2019
			Date Received	07/09/2019	07/09/2019
			SDG Ref	190907-96	190907-96
			Lab Sample No.(s)	20676026	20676057
			AGS Reference		
Suspended solids, Total	<2 mg/l	TM022		344 #	43.4 #
Alkalinity, Total as CaCO3	<2 mg/l	TM043		130 #	135 #
Oxygen, dissolved	<0.3 mg/l	TM046		9.24	8.71
Organic Carbon, Total	<3 mg/l	TM090		<3 @ #	<3 #
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	0.402 #
Fluoride	<0.5 mg/l	TM104		<0.5 #	<0.5 #
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		0.356 #	0.365 #
Dissolved solids, Total (meter)	<5 mg/l	TM123		278 #	284 #
Arsenic (diss.filt)	<0.5 µg/l	TM152		3.06 #	<0.5 #
Barium (diss.filt)	<0.2 µg/l	TM152		34.4 #	9.82 #
Boron (diss.filt)	<10 µg/l	TM152		14.1 #	13.5 #
Cadmium (diss.filt)	<0.08 µg/l	TM152		0.112 #	<0.08 #
Chromium (diss.filt)	<1 µg/l	TM152		3.56 #	<1 #
Copper (diss.filt)	<0.3 µg/l	TM152		16.7 #	2.58 #
Lead (diss.filt)	<0.2 µg/l	TM152		32.3 #	<0.2 #
Phosphorus (tot.unfilt)	<20 µg/l	TM152		663 #	79.5 #
Manganese (diss.filt)	<3 µg/l	TM152		506 #	3690 #
Nickel (diss.filt)	<0.4 µg/l	TM152		2.01 #	0.886 #
Phosphorus (diss.filt)	<10 µg/l	TM152		341 #	<10 #
Selenium (diss.filt)	<1 µg/l	TM152		<1 #	<1 #
Thallium (diss.filt)	<2 µg/l	TM152		<2 #	<2 #
Zinc (diss.filt)	<1 µg/l	TM152		14.8 #	12.6 #
Sodium (Dis.Filt)	<0.076 mg/l	TM152		22.8 #	25.2 #
Magnesium (Dis.Filt)	<0.036 mg/l	TM152		10.9 #	7.87 #
Potassium (Dis.Filt)	<0.2 mg/l	TM152		1.51 #	1.25 #
Calcium (Dis.Filt)	<0.2 mg/l	TM152		37.1 #	34.9 #
Iron (Dis.Filt)	<0.019 mg/l	TM152		4.94 #	0.0857 #
Mineral oil >C10 C40 (aq)	<100 µg/l	TM172		<100	<100
Mercury (diss.filt)	<0.01 µg/l	TM183		0.0324 #	<0.01 #
Phosphate (Ortho as PO4)	<0.05 mg/l	TM184		<0.05 #	<0.05 #
Chloride	<2 mg/l	TM184		39.6 #	42.6 #
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184		2.39 #	0.104 #
Sulphate (soluble) as S	<1 mg/l	TM184		3.37 #	2.97 #
PCB congener 28	<0.015 µg/l	TM197		<0.015	<0.015
PCB congener 52	<0.015 µg/l	TM197		<0.015	<0.015
PCB congener 101	<0.015 µg/l	TM197		<0.015	<0.015

Post Certification Report

Customer : Fehily Timoney
Client Reference : P1788 South & West Ker **Location :** South & West Kerry Landfills

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.
1-4♦§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH01 Dingle	BH02 Dingle				
			Depth (m)	0.00 - 0.00	0.00 - 0.00				
			Sample Type	Ground Water (GW)	Ground Water (GW)				
			Date Sampled	04/09/2019	04/09/2019				
			Date Received	07/09/2019	07/09/2019				
			SDG Ref	190907-96	190907-96				
			Lab Sample No.(s)	20676026	20676057				
			AGS Reference						
PCB congener 118	<0.015 µg/l	TM197		<0.015	<0.015				
PCB congener 138	<0.015 µg/l	TM197		<0.015	<0.015				
PCB congener 153	<0.015 µg/l	TM197		<0.015	<0.015				
PCB congener 180	<0.015 µg/l	TM197		<0.015	<0.015				
Sum of detected EC7 PCB's	<0.105 µg/l	TM197		<0.105	<0.105				
Cyanide, Total	<0.05 mg/l	TM227		<0.05 #	<0.05 #				
pH	<1 pH Units	TM256		6.71 #	6.7 #				
Trifluralin	<0.01 µg/l	TM343		<0.01	<0.01				
alpha-HCH	<0.01 µg/l	TM343		<0.01	<0.01				
gamma-HCH (Lindane)	<0.01 µg/l	TM343		<0.01	<0.01				
Heptachlor	<0.01 µg/l	TM343		<0.01	<0.01				
Aldrin	<0.01 µg/l	TM343		<0.01	<0.01				
beta-HCH	<0.01 µg/l	TM343		<0.01	<0.01				
Isodrin	<0.01 µg/l	TM343		<0.01	<0.01				
delta-HCH	<0.01 µg/l	TM343		<0.01	<0.01				
Heptachlor epoxide	<0.01 µg/l	TM343		<0.01	<0.01				
o,p'-DDE	<0.01 µg/l	TM343		<0.01	<0.01				
Endosulphan I	<0.01 µg/l	TM343		<0.01	<0.01				
trans-Chlordane	<0.01 µg/l	TM343		<0.01	<0.01				
cis-Chlordane	<0.01 µg/l	TM343		<0.01	<0.01				
p,p'-DDE	<0.01 µg/l	TM343		<0.01	<0.01				
Dieldrin	<0.01 µg/l	TM343		<0.01	<0.01				
o,p'-DDD (TDE)	<0.01 µg/l	TM343		<0.01	<0.01				
Endrin	<0.01 µg/l	TM343		<0.02	<0.01				
o,p'-DDT	<0.01 µg/l	TM343		<0.01	<0.01				
p,p'-DDD (TDE)	<0.01 µg/l	TM343		<0.01	<0.01				
Endosulphan II	<0.02 µg/l	TM343		<0.02	<0.02				
p,p'-DDT	<0.01 µg/l	TM343		<0.01	<0.01				
o,p'-Methoxychlor	<0.01 µg/l	TM343		<0.01	<0.01				
p,p'-Methoxychlor	<0.01 µg/l	TM343		<0.01	<0.01				
Endosulphan Sulphate	<0.02 µg/l	TM343		<0.06	<0.02				
Permethrin I	<0.01 µg/l	TM343		<0.01	<0.01				
Permethrin II	<0.01 µg/l	TM343		<0.01	<0.01				
1,3,5-Trichlorobenzene	<0.01 µg/l	TM344		<0.01	<0.01				
Hexachlorobutadiene	<0.01 µg/l	TM344		<0.01	<0.01				
1,2,4-Trichlorobenzene	<0.01 µg/l	TM344		<0.01	<0.01				

Post Certification Report

Customer : Fehily Timoney
Client Reference : P1788 South & West Ker **Location :** South & West Kerry Landfills

Results Legend	
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			Lab Sample No.(s)	20676026	20676057				
			AGS Reference						
1,2,3-Trichlorobenzene	<0.01 µg/l	TM344		<0.01	<0.01				
Dichlorvos	<0.01 µg/l	TM344		<0.01	<0.01				
Dichlobenil	<0.01 µg/l	TM344		<0.01	<0.01				
Mevinphos	<0.01 µg/l	TM344		<0.01	<0.01				
Tecnazene	<0.01 µg/l	TM344		<0.01	<0.01				
Hexachlorobenzene	<0.01 µg/l	TM344		<0.01	<0.01				
Demeton-S-methyl	<0.01 µg/l	TM344		<0.01	<0.01				
Phorate	<0.01 µg/l	TM344		<0.01	<0.01				
Diazinon	<0.01 µg/l	TM344		<0.01	<0.01				
Triallate	<0.01 µg/l	TM344		<0.01	<0.01				
Atrazine	<0.01 µg/l	TM344		<0.01	<0.01				
Simazine	<0.01 µg/l	TM344		<0.01	<0.01				
Disulfoton	<0.01 µg/l	TM344		<0.01	<0.01				
Propetamphos	<0.01 µg/l	TM344		<0.01	<0.01				
Chlorpyriphos-methyl	<0.01 µg/l	TM344		<0.01	<0.01				
Dimethoate	<0.01 µg/l	TM344		<0.01	<0.01				
Pirimiphos-methyl	<0.01 µg/l	TM344		<0.01	<0.01				
Chlorpyriphos	<0.01 µg/l	TM344		<0.01	<0.01				
Methyl Parathion	<0.01 µg/l	TM344		<0.01	<0.01				
Malathion	<0.01 µg/l	TM344		<0.01	<0.01				
Fenthion	<0.01 µg/l	TM344		<0.01	<0.01				
Fenitrothion	<0.01 µg/l	TM344		<0.01	<0.01				
Triadimefon	<0.01 µg/l	TM344		<0.01	<0.01				
Pendimethalin	<0.01 µg/l	TM344		<0.01	<0.01				
Parathion	<0.01 µg/l	TM344		<0.01	<0.01				
Chlorfenvinphos	<0.01 µg/l	TM344		<0.01	<0.01				
trans-Chlordane	<0.01 µg/l	TM344		<0.01	<0.01				
cis-Chlordane	<0.01 µg/l	TM344		<0.01	<0.01				
Ethion	<0.01 µg/l	TM344		<0.01	<0.01				
Carbophenothion	<0.01 µg/l	TM344		<0.01	<0.01				
Triazophos	<0.01 µg/l	TM344		<0.01	<0.01				
Phosalone	<0.01 µg/l	TM344		<0.01	<0.01				
Azinphos methyl	<0.02 µg/l	TM344		<0.02	<0.02				
Azinphos ethyl	<0.02 µg/l	TM344		<0.02	<0.02				
Etridiazole	<0.01 µg/l	TM345		<0.01	<0.01				
Pentachlorobenzene	<0.01 µg/l	TM345		<0.01	<0.01				

Post Certification Report

Customer : Fehily Timoney
Client Reference : P1788 South & West Ker **Location :** South & West Kerry Landfills

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.
1-4♦§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH01 Dingle	BH02 Dingle				
			Depth (m)	0.00 - 0.00	0.00 - 0.00				
			Sample Type	Ground Water (GW)	Ground Water (GW)				
			Date Sampled	04/09/2019	04/09/2019				
			Date Received	07/09/2019	07/09/2019				
			SDG Ref	190907-96	190907-96				
			Lab Sample No.(s)	20676026	20676057				
			AGS Reference						
Propachlor	<0.01 µg/l	TM345		<0.01	<0.01				
Quintozene (PCNB)	<0.01 µg/l	TM345		<0.01	<0.01				
Omethoate	<0.01 µg/l	TM345		<0.01	<0.01				
Propazine	<0.01 µg/l	TM345		<0.01	<0.01				
Propyzamide	<0.01 µg/l	TM345		<0.01	<0.01				
Alachlor	<0.01 µg/l	TM345		<0.01	<0.01				
Prometryn	<0.01 µg/l	TM345		<0.01	<0.01				
Telodrin	<0.01 µg/l	TM345		<0.01	<0.01				
Terbutryn	<0.01 µg/l	TM345		<0.01	<0.01				
Chlorothalonil	<0.01 µg/l	TM345		<0.01	<0.01				
Etrimphos	<0.01 µg/l	TM345		<0.01	<0.01				
Metazachlor	<0.01 µg/l	TM345		<0.01	<0.01				
Cyanazine	<0.01 µg/l	TM345		<0.01	<0.01				
Trietazine	<0.01 µg/l	TM345		<0.01	<0.01				
Coumaphos	<0.01 µg/l	TM345		<0.01	<0.01				
Phosphamidon I	<0.01 µg/l	TM345		<0.01	<0.01				
Phosphamidon II	<0.01 µg/l	TM345		<0.01	<0.01				
Dinitro-o-cresol	<0.1 µg/l	TM411		0.17	<0.1				
Clopyralid	<0.04 µg/l	TM411		<0.04	<0.04				
MCPA	<0.05 µg/l	TM411		<0.05	<0.05				
Mecoprop	<0.04 µg/l	TM411		<0.04	<0.04				
Dicamba	<0.04 µg/l	TM411		<0.04	<0.04				
MCPB	<0.05 µg/l	TM411		<0.05	<0.05				
2,4-DB	<0.1 µg/l	TM411		<0.1	<0.1				
2,3,6-Trichlorobenzoic acid	<0.05 µg/l	TM411		<0.05	<0.05				
Dichlorprop	<0.1 µg/l	TM411		<0.1	<0.1				
Triclopyr	<0.05 µg/l	TM411		<0.05	<0.05				
Fenoprop (Silvex)	<0.1 µg/l	TM411		<0.1	<0.1				
2,4-Dichlorophenoxyacetic acid	<0.05 µg/l	TM411		<0.05	<0.05				
2,4,5-Trichlorophenoxyacetic acid	<0.05 µg/l	TM411		<0.05	<0.05				
Bromoxynil	<0.04 µg/l	TM411		<0.04	<0.04				
Benazolin	<0.04 µg/l	TM411		<0.04	<0.04				
Ioxynil	<0.05 µg/l	TM411		<0.05	<0.05				
Pentachlorophenol	<0.04 µg/l	TM411		<0.04	<0.04				
Fluoroxypyr	<0.1 µg/l	TM411		<0.1	<0.1				

Post Certification Report

Customer : Fehily Timoney
Client Reference : P1788 South & West Ker **Location :** South & West Kerry Landfills

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.
1-4♦§@	Sample deviation (see appendix)

Customer Sample Ref.			BH01 Dingle	BH02 Dingle				
Depth (m)			0.00 - 0.00	0.00 - 0.00				
Sample Type			Ground Water (GW)	Ground Water (GW)				
Date Sampled			04/09/2019	04/09/2019				
Date Received			07/09/2019	07/09/2019				
SDG Ref			190907-96	190907-96				
Lab Sample No.(s)			20676026	20676057				
AGS Reference								
Component	**LOD/Units**	**Method**						
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
2,4-Dichlorophenol (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
2,4-Dimethylphenol (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
2-Chloronaphthalene (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
2-Chlorophenol (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
2-Methylnaphthalene (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
2-Methylphenol (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
2-Nitroaniline (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
2-Nitrophenol (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
3-Nitroaniline (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
4-Bromophenylphenylether (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
4-Chloroaniline (aq)	<1 µg/l	TM176	<1	<1				
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
4-Methylphenol (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
4-Nitroaniline (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
4-Nitrophenol (aq)	<1 µg/l	TM176	<1	<1				
Azobenzene (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
Acenaphthylene (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
Acenaphthene (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
Anthracene (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176	<2 @ #	<2 @ #				
Butylbenzyl phthalate (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
Benzo(a)anthracene (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
Benzo(b)fluoranthene (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
Benzo(a)pyrene (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				

Post Certification Report

Customer : Fehily Timoney
Client Reference : P1788 South & West Ker **Location :** South & West Kerry Landfills

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.
1-4♦§@	Sample deviation (see appendix)

Customer Sample Ref.			BH01 Dingle	BH02 Dingle				
Depth (m)			0.00 - 0.00	0.00 - 0.00				
Sample Type			Ground Water (GW)	Ground Water (GW)				
Date Sampled			04/09/2019	04/09/2019				
Date Received			07/09/2019	07/09/2019				
SDG Ref			190907-96	190907-96				
Lab Sample No.(s)			20676026	20676057				
AGS Reference								
Component	**LOD/Units**	**Method**						
Benzo(g,h,i)perylene (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
Carbazole (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
Chrysene (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
Dibenzofuran (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
n-Dibutyl phthalate (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
Diethyl phthalate (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
Dibenzo(a,h)anthracene (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
Dimethyl phthalate (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
n-Dioctyl phthalate (aq)	<5 µg/l	TM176	<5 @ #	<5 @ #				
Fluoranthene (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
Fluorene (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
Hexachlorobenzene (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
Hexachlorobutadiene (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
Pentachlorophenol (aq)	<1 µg/l	TM176	<1	<1				
Phenol (aq)	<1 µg/l	TM176	<1	<1				
n-Nitroso-n-dipropylamine (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
Hexachloroethane (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
Nitrobenzene (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
Naphthalene (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
Isophorone (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
Hexachlorocyclopentadiene (aq)	<1 µg/l	TM176	<1	<1				
Phenanthrene (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
Indeno(1,2,3-cd)pyrene (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				
Pyrene (aq)	<1 µg/l	TM176	<1 @ #	<1 @ #				

Post Certification Report

Customer : Fehily Timoney
Client Reference : P1788 South & West Ker **Location :** South & West Kerry Landfills

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.
1-4♦§@	Sample deviation (see appendix)

Customer Sample Ref.			BH01 Dingle	BH02 Dingle				
Depth (m)			0.00 - 0.00	0.00 - 0.00				
Sample Type			Ground Water (GW)	Ground Water (GW)				
Date Sampled			04/09/2019	04/09/2019				
Date Received			07/09/2019	07/09/2019				
SDG Ref			190907-96	190907-96				
Lab Sample No.(s)			20676026	20676057				
AGS Reference								
Component	**LOD/Units**	**Method**						
Dibromofluoromethane**	%	TM208	112	108				
Toluene-d8**	%	TM208	99.1	99.4				
4-Bromofluorobenzene**	%	TM208	98.2	98				
Dichlorodifluoromethane	<1 µg/l	TM208	<1	<1				
Chloromethane	<1 µg/l	TM208	<1 #	<1 #				
Vinyl chloride	<1 µg/l	TM208	<1 #	<1 #				
Bromomethane	<1 µg/l	TM208	<1 #	<1 #				
Chloroethane	<1 µg/l	TM208	<1 #	<1 #				
Trichlorofluoromethane	<1 µg/l	TM208	<1 #	<1 #				
1,1-Dichloroethene	<1 µg/l	TM208	<1 #	<1 #				
Carbon disulphide	<1 µg/l	TM208	<1 #	<1 #				
Dichloromethane	<3 µg/l	TM208	<3 #	<3 #				
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208	<1 #	<1 #				
trans-1,2-Dichloroethene	<1 µg/l	TM208	<1 #	<1 #				
1,1-Dichloroethane	<1 µg/l	TM208	<1 #	<1 #				
cis-1,2-Dichloroethene	<1 µg/l	TM208	<1 #	<1 #				
2,2-Dichloropropane	<1 µg/l	TM208	<1	<1				
Bromochloromethane	<1 µg/l	TM208	<1 #	<1 #				
Chloroform	<1 µg/l	TM208	<1 #	<1 #				
1,1,1-Trichloroethane	<1 µg/l	TM208	<1 #	<1 #				
1,1-Dichloropropene	<1 µg/l	TM208	<1 #	<1 #				
Carbontetrachloride	<1 µg/l	TM208	<1 #	<1 #				
1,2-Dichloroethane	<1 µg/l	TM208	<1 #	<1 #				
Benzene	<1 µg/l	TM208	<1 #	<1 #				
Trichloroethene	<1 µg/l	TM208	<1 #	<1 #				
1,2-Dichloropropane	<1 µg/l	TM208	<1 #	<1 #				
Dibromomethane	<1 µg/l	TM208	<1 #	<1 #				
Bromodichloromethane	<1 µg/l	TM208	<1 #	<1 #				
cis-1,3-Dichloropropene	<1 µg/l	TM208	<1 #	<1 #				
Toluene	<1 µg/l	TM208	<1 #	<1 #				
trans-1,3-Dichloropropene	<1 µg/l	TM208	<1 #	<1 #				
1,1,2-Trichloroethane	<1 µg/l	TM208	<1 #	<1 #				
1,3-Dichloropropane	<1 µg/l	TM208	<1 #	<1 #				
Tetrachloroethene	<1 µg/l	TM208	<1 #	<1 #				
Dibromochloromethane	<1 µg/l	TM208	<1 #	<1 #				
1,2-Dibromoethane	<1 µg/l	TM208	<1 #	<1 #				

Post Certification Report

Customer : Fehily Timoney
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Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.
1-4♦§@	Sample deviation (see appendix)

Customer Sample Ref.	BH01 Dingle	BH02 Dingle
Depth (m)	0.00 - 0.00	0.00 - 0.00
Sample Type	Ground Water (GW)	Ground Water (GW)
Date Sampled	04/09/2019	04/09/2019
Date Received	07/09/2019	07/09/2019
SDG Ref	190907-96	190907-96
Lab Sample No.(s)	20676026	20676057
AGS Reference		

Component	LOD/Units	Method		
Chlorobenzene	<1 µg/l	TM208	<1 #	<1 #
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208	<1 #	<1 #
Ethylbenzene	<1 µg/l	TM208	<1 #	<1 #
m,p-Xylene	<1 µg/l	TM208	<1 #	<1 #
o-Xylene	<1 µg/l	TM208	<1 #	<1 #
Styrene	<1 µg/l	TM208	<1 #	<1 #
Bromoform	<1 µg/l	TM208	<1 #	<1 #
Isopropylbenzene	<1 µg/l	TM208	<1 #	<1 #
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208	<1 #	<1 #
1,2,3-Trichloropropane	<1 µg/l	TM208	<1 #	<1 #
Bromobenzene	<1 µg/l	TM208	<1 #	<1 #
Propylbenzene	<1 µg/l	TM208	<1 #	<1 #
2-Chlorotoluene	<1 µg/l	TM208	<1 #	<1 #
1,3,5-Trimethylbenzene	<1 µg/l	TM208	<1 #	<1 #
4-Chlorotoluene	<1 µg/l	TM208	<1 #	<1 #
tert-Butylbenzene	<1 µg/l	TM208	<1 #	<1 #
1,2,4-Trimethylbenzene	<1 µg/l	TM208	<1 #	<1 #
sec-Butylbenzene	<1 µg/l	TM208	<1 #	<1 #
4-iso-Propyltoluene	<1 µg/l	TM208	<1 #	<1 #
1,3-Dichlorobenzene	<1 µg/l	TM208	<1 #	<1 #
1,4-Dichlorobenzene	<1 µg/l	TM208	<1 #	<1 #
n-Butylbenzene	<1 µg/l	TM208	<1 #	<1 #
1,2-Dichlorobenzene	<1 µg/l	TM208	<1 #	<1 #
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208	<1	<1
1,2,4-Trichlorobenzene	<1 µg/l	TM208	<1 #	<1 #
Hexachlorobutadiene	<1 µg/l	TM208	<1 #	<1 #
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208	<1 #	<1 #
Naphthalene	<1 µg/l	TM208	<1 3 #	<1 #
1,2,3-Trichlorobenzene	<1 µg/l	TM208	<1 #	<1 #
1,3,5-Trichlorobenzene	<1 µg/l	TM208	<1	<1

Post Certification Report

Customer : Fehily Timoney
Client Reference : P1788 South & West Ker **Location :** South & West Kerry Landfills

Table of Results - Appendix

REPORT KEY

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03x10-7

NDP	No Determination Possible	#	ISO 17025 Accredited	*	Subcontracted Test	M	MCERTS Accredited
NFD	No Fibres Detected	PFD	Possible Fibres Detected	»	Result previously reported (Incremental reports only)	EC	Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control

Method No	Reference	Description
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part120 1981;BS EN 872	Determination of total suspended solids in waters
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples
TM046	Method 4500G, AWWA/APHA, 20th Ed., 1999	Measurement of Dissolved Oxygen by Oxygen Meter
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)
TM090	Method 5310, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 415.1 & 9060	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM104	Method 4500F, AWWA/APHA, 20th Ed., 1999	Determination of Fluoride using the Kone Analyser
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM123	BS 2690: Part 121:1981	The Determination of Total Dissolved Solids in Water
TM152	ISO 17294-2:2016 Water quality - Application of inductively coupled plasma mass spectrometry (ICP-MS)	Analysis of Aqueous Samples by ICP-MS
TM172	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	EPH in Waters
TM176	EPA 8270D Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of SVOCs in Water by GCMS
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM197	Modified: US EPA Method 8082.EA Method 174 and 5109631	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Waters
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4, Standard Methods for the examination of waters and wastewaters 20th Edition, PHA, Washington DC, USA. ISBN 0-87553-235-7 and The Determination of Alkalinity and Acidity in water HMSO, 1981, ISBN 0 11 751601 5.	Determination of pH, EC, TDS and Alkalinity in Aqueous samples
TM343	EPA 8270D - Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of Selected Pesticides (Suite I) in Liquids by GCMS
TM344	EPA 8270D – Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of selected pesticides (Suite II) by GCMS
TM345	EPA 8270D – Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of selected pesticides (Suite III) by GCMS
TM411	Acid_Herbs_GCMS	Acid Herbs in Water by GCMS

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).

Post Certification Report

Customer : Fehily Timoney
Client Reference : P1788 South & West Ker **Location :** South & West Kerry Landfills

Test Completion Dates

Lab Sample No(s)	20676026	20676057
Customer Sample Ref.	BH01 Dingle	BH02 Dingle
AGS Ref.		
Depth	0.00 - 0.00	0.00 - 0.00
Type	GROUND_W	GROUND_W
Acid Herbicides by GCMS	11-Sep-2019	12-Sep-2019
Alkalinity as CaCO3	15-Sep-2019	15-Sep-2019
Ammoniacal Nitrogen	12-Sep-2019	12-Sep-2019
Anions by Kone (w)	13-Sep-2019	12-Sep-2019
Conductivity (at 20 deg.C)	11-Sep-2019	11-Sep-2019
Cyanide Comp/Free/Total/Thiocyanate	12-Sep-2019	12-Sep-2019
Dissolved Metals by ICP-MS	16-Sep-2019	16-Sep-2019
Dissolved Oxygen by Probe	12-Sep-2019	12-Sep-2019
Fluoride	11-Sep-2019	11-Sep-2019
Mercury Dissolved	11-Sep-2019	11-Sep-2019
Mineral Oil C10-40 Aqueous (W)	16-Sep-2019	16-Sep-2019
PCB Congeners - Aqueous (W)	16-Sep-2019	16-Sep-2019
Pesticides (Suite I) by GCMS	11-Sep-2019	13-Sep-2019
Pesticides (Suite II) by GCMS	13-Sep-2019	13-Sep-2019
Pesticides (Suite III) by GCMS	10-Sep-2019	12-Sep-2019
pH Value	12-Sep-2019	12-Sep-2019
Phosphate by Kone (w)	11-Sep-2019	11-Sep-2019
Suspended Solids	12-Sep-2019	12-Sep-2019
SVOC MS (W) - Aqueous	25-Sep-2019	18-Sep-2019
Total Dissolved Solids	11-Sep-2019	11-Sep-2019
Total Metals by ICP-MS	14-Sep-2019	14-Sep-2019
Total Organic and Inorganic Carbon	12-Sep-2019	11-Sep-2019
VOC MS (W)	13-Sep-2019	13-Sep-2019

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2017).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

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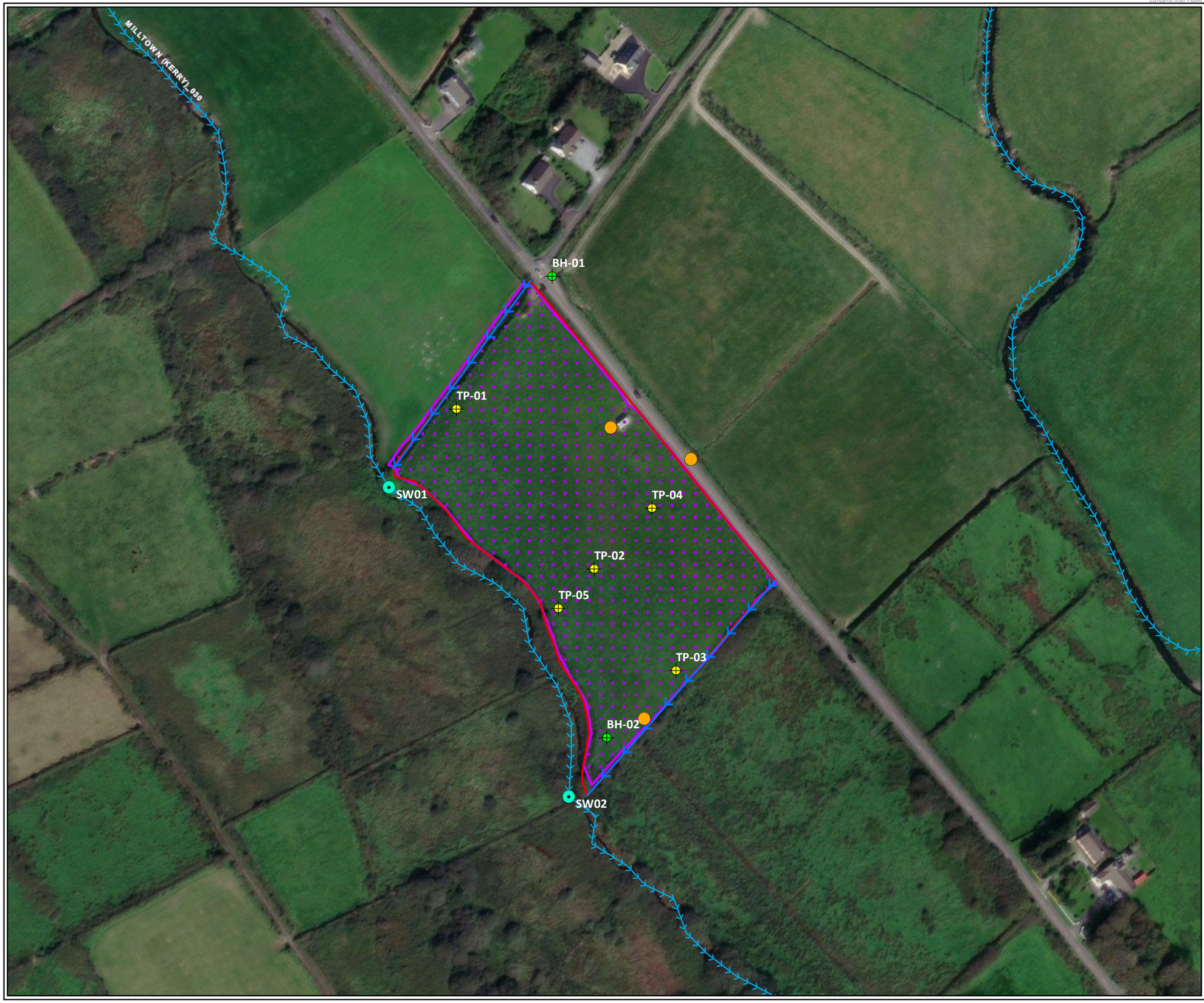
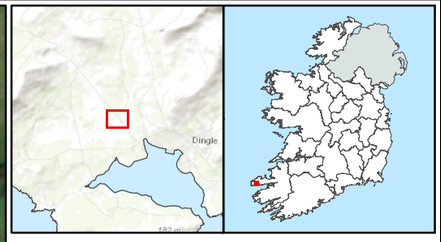
& PLANNING

APPENDIX 4

Drawing requested under
Point 8

Path: R:\Map Production\2022\P22-163\Workspaces\P22-163_Figxx_Dingle_Historic_Landfill_A3.mxd





Legend

- Site Boundary
- Waste Boundary
- Rivers
- Surface Water Drain
- Surface Water Sampling Locations
- Leachate Breakout Observation

Borehole Locations

Type

- Groundwater / Gas Monitoring Well
- Trial Pit

N W E S

0 50 100 200 Meters

TITLE:	Dingle Historic Landfill		
PROJECT:	Dingle Landfill, Co. Kerry		
FIGURE NO:	-		
CLIENT:	Kerry County Council		
SCALE:	1:2000	**REVISION:**	0
DATE:	18/11/2022	**PAGE SIZE:**	A3

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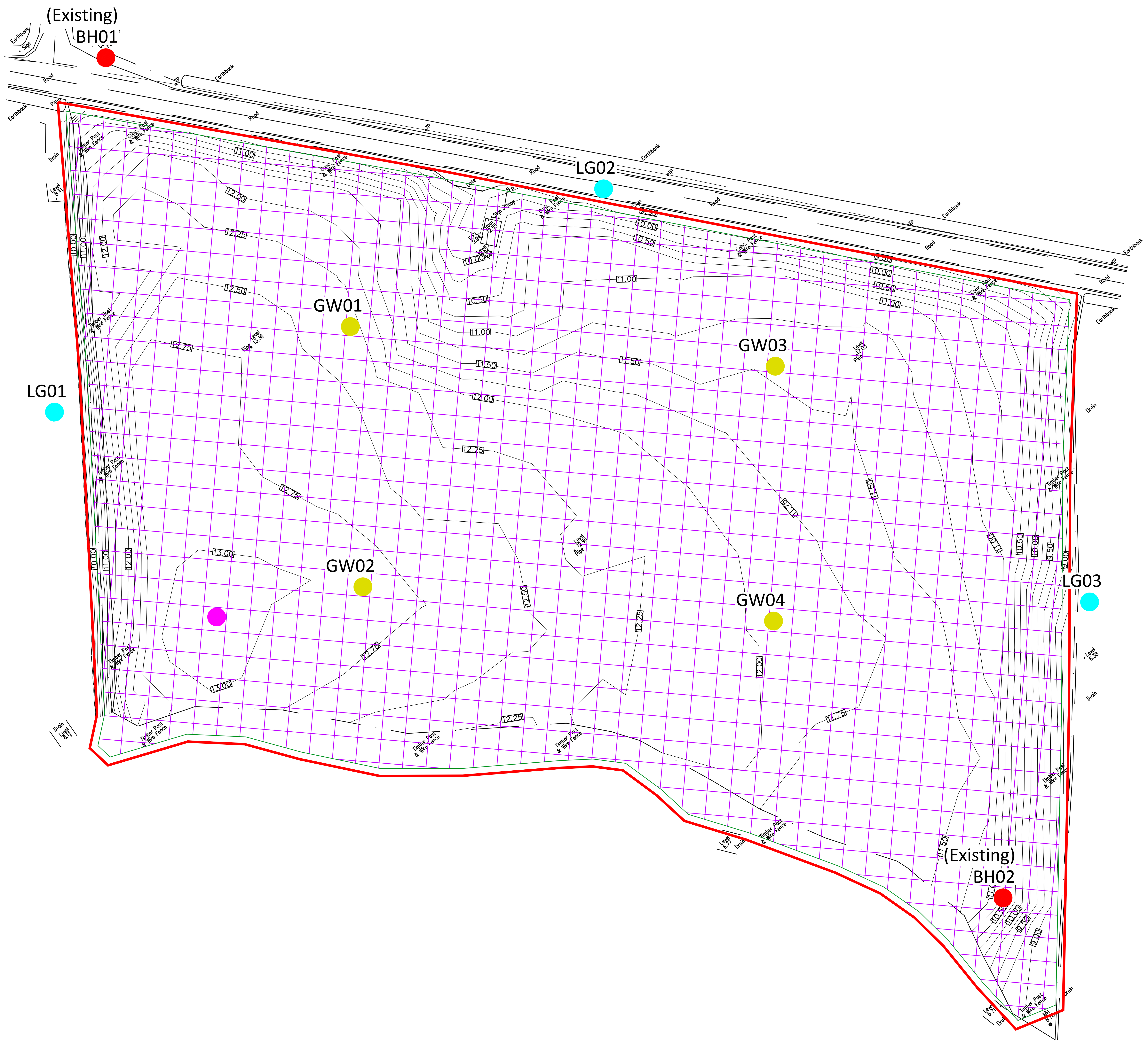
APPENDIX 5

Updated Drawing P1788-0101-0001



Legend

- Site Boundary
- Capping Area
- Proposed Cap Footprint
- xxxxx Ground Water Monitoring Wells
- xxxxx Permitted Gas Monitoring Well
- xxxxx Proposed Gas Well
- xxxxx Proposed Passive Vent/Excration Location

B Rev

0m 5m 10m 15m 20m 25m 30m 35m 40m 45m 50m

Scale 1:500

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Rev.	Description	App By	Date
A	ISSUE FOR PLANNING	CJC	13.03.20
B	ISSUE FOR PLANNING	CJC	06.10.22

PROJECT
SOUTH AND WEST KERRY LANDFILLS

CLIENT
KERRY COUNTY COUNCIL

SHEET
DINGLE HISTORIC LANDFILL PROPOSED REMEDIATION PLAN

Date 13.03.20	Project number P1788		Scale (@ A1-) 1:500	
Drawn by SOC	Drawing Number			Rev
Checked by EA	**P1788-0101-0001**			**B**

O:\ACAD\2020\P1788\P1788-0101-0001

Thursday 6 October 2022

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CONSULTANTS IN ENGINEERING, ENVIRONMENTAL SCIENCE & PLANNING

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