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Inner Bantry Harbour Development – Phase 1
Seafield & Reenrour West,
Bantry, Co. Cork

WASTE LICENCE W0290-01 Annual Environmental Report

On behalf of
Port of Cork Company

Project	Document	Revision	Prepared	Checked	Approved	Date
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1 Introduction

The Environmental Protection Agency granted the Port of Cork Company a Waste Licence (WL 0290-01) on 13th October 2016 to carry out licensed waste activities at Bantry Inner Harbour Development Phase 1, Seafield and Reenrour West, Bantry, Co. Cork.

1.1 Licensee Details

Licence Register Number:	W0290-01
Applicant:	Port of Cork Company
Location of Facility:	Seafield and Reenrour West, Bantry, Co. Cork

1.2 Description of Licensed Activities

The activities licensed include the ex-situ treatment and recovery as fill of contaminated and uncontaminated dredge sediment taken from the Inner Bantry Harbour.

The dredge consists of the following;

- Fine-grained sediment which is contaminated to some extent with heavy metals, hydrocarbons, PAHs and/or PCBs;
- Uncontaminated fine-grained sediment; and
- Uncontaminated course-grained sediment.

1.3 Classes of Activity Licensed

The waste activities associated with the works, in accordance with the Fourth Schedule of the European Communities (Waste Directive) Regulations 2011 (S.I. 126 of 2011) are as follows:

- R 5:** Recycling/reclamation of other inorganic materials, which includes soil cleaning resulting in recovery of the soil and recycling of inorganic construction materials
- R 11:** Use of waste obtained from any of the operations numbered R 1 to R 10
- R 13:** Storage of waste pending any of the operations numbered R 1 to R12 (excluding temporary storage (being preliminary storage according to the definition of ‘collection’ in section 5(1)), pending collection, on the site where the waste is produced)”.

2 Background to the Project

2.1 Proposal

The Port of Cork (Bantry Bay Harbour Commissioners) commissioned the design of a scheme which will provide a sheltered harbour environment and marina with increased water depth and improved pier facilities to promote fishing and tourism activities in the Bantry area. The scheme will also provide additional and improved recreational and amenity areas for the town. The scheme includes proposals for the beneficial re-use of dredged material.

The overall proposal involves the development of Inner Bantry Harbour with additional plans to improve recreational and amenity facilities in the greater harbour area through land reclamation. There are several key work elements which will be dealt with on a phased basis to achieve the overall plan.

2.2 Waste Application and Grant of Licence

An application was made on the 29th March 2016 by the Port of Cork Company to the EPA for a Waste Licence. Subsequently, the Agency granted a Waste Licence with 12 Conditions on the 13th October 2016.

2.3 Commencement of Works and Appointed Contractor

The works commenced in November 2016 and BAM Contractors were appointed the Main Contractor for the Works at Bantry.

2.4 Appointed Resident Engineer

Port of Cork appointed a Resident Engineer to oversee the works at Bantry and to liaise with the Appointed Contractor and the Agency as required.

3 Description of Site

Bantry is a thriving market town with a population of approximately 3,000 people, popular with both domestic and international visitors. The town lies in the far south-eastern corner of Bantry Bay which stretches some 35km in a north-east south-west direction into the Atlantic Ocean. The town boasts a large harbour which is utilised by both commercial and amenity vessels. Although the bay is in the region of 10km wide at its head the harbour itself is narrow with an average width of 100m.

While overall the bay is considered to be one of the deepest harbours in Europe, usage of the inner harbour is restricted due to existing water depth. At low tide parts of the inner harbour drain completely and mudflats become exposed which limits access by commercial and amenity vessels to pier facilities. Existing facilities within Bantry Inner Harbour currently comprise two main piers, one of which extends along the southern side of the harbour, adjacent to the N71 National Road. A second pier extends out along the seaward side of the harbour, perpendicular to the roadway. The town surrounds the inner harbour on three sides with existing car-parking facilities located on the eastern and northern edges of the harbour.

4 Annual Environmental Report Requirements

4.1 Emissions from the Facility

There are no emissions to air, water, or to a sewer.

Schedule B of the Licence include Emission Limits for -

- Noise;
- Dust; and
- Leachate.

Appendix 1 contains the results of the Noise Monitoring Programme.

Appendix 2 contains the results of the Dust Monitoring carried out from 30.11.2013 to 30.12.2016.

Appendix 3 contains the results of the Leachate Testing; there were no limit breaches regarding Leachate in 2016. Laboratory testing would be completed using the Monolithic Tank Test in accordance with NEN 7375:2004 where treated dredge samples are re-tested typically after 1, 2, 4, 9, 16 and 28 days. The Monolithic Tank Test is considered to be representative of leaching.

To manage any possible leachate in the Fine Grained Material excavated during the Dredging Operation, BAM deposited the material into a number of Cells on the Northern Shore of the Inner Harbour, which was subsequently treated with Portland Cement to immobilise any possible contaminants in the dredged material.

Cement was added to the fine grained material by way of an Allu PMX500 power mixer attached to a 30tn Excavator. Following a suitable curing period, the now stabilised fine grained dredged material was placed into its final location in the amenity area.

Dredged Sediment was also tested and all results are presented in Appendix 4.

4.1.1 Marine Water Monitoring In Bantry Harbour

Under the Waste Licence there are three monitoring points which include two automatic monitors; SW-A01 and SW-A02 and manual monitoring at SW-M01. The results from the monitoring are included in Appendix 5 and Appendix 6.

4.2 Waste Management Record

The following are the waste volumes recovered during operation in 2016.

Anticipated wastes include dredge, stones and granular material and construction wastes. There was no construction waste in 2016. All dredged materials were re-used in the site works.

WASTE	EWC	VOLUME	DISPOSAL/RECOVERY
Fine Grained Dredge Material	17 05 04	9,235 m ³	R 5, R 11
Granular Dredge Material	17 05 06	5,300 m ³	R 5, R 11
Construction waste	17 09 04	0	
Compound mixed waste	20 03 01	1,100 l bin x 19	D 1
Recycled Waste	20 03 01	1,100 l bin x 2	R 3

TOTAL WASTE RECOVERED ON SITE 2016	
Fine Grained Dredge Material	9,235 m ³
Granular Dredge Material	5,300 m ³
Total waste recovered (re-used in site works)	14,535 m³

4.3 Resource Consumption Summary

In 2016, works were underway in late November and in December.

Diesel was the resource required for operation under the Waste Licence. The table below outlines approximate Diesel Consumption in 2016.

PLANT	L OF DIESEL
60tn Excavator on Dredger	15,500 L
30tn Excavator with Allu Mixer	8,100 L
20tn Excavator	3,960 L
Total	27,560L

No significant storage capacity is required for construction raw materials, as materials will be delivered on a 'just in time' basis to the site. Cement will be stored in one or two cement silos, each with a 100 tonne capacity.

Storage capacity for wastes will be provided as part of the overall development works, where the location where the solidified/stabilised dredge spoil is placed will be the final storage location for this material. The dredge spoil material will be temporarily stored in the dredge dump barges from when it is excavated until it is offloaded and placed within the stabilisation/solidification area, and the dump barges have a capacity of 300 m³ each.

The project involves a positive use of resources in the treatment and recovery of dredge spoil as fill to develop the pier and amenity area at Bantry. The scheme includes the beneficial re-use of dredged material which will be solidified and stabilised prior to placement in specific locations within the works area, negating the need to import virgin fill material and applying a recovery benefit to the material.

4.4 Complaints Summary

No complaints were received in 2016.

4.5 Schedule of Environmental Objectives and Targets

The appointed contractor for the works, BAM, completed an Environmental Management Plan for the project, which included Environmental Objectives & Targets in Section 7 of the EMP.

4.5.1 Environmental Objectives & Targets

The objectives and targets are set in relation to the aspects identified from each site in order to reduce our significant aspects. As a minimum they should include:-

- The prevention of pollution, including missions to air, water and land
- Nuisance impacts including dust, noise and vibration
- Protection of habitat areas and individual species, if applicable
- Storage and use of fuels and hazardous substances, including spills
- Waste management

4.5.2 Environmental Management Targets

The environmental management targets are as follows;

TARGETS	MEASURABLE	METHODOLOGY	RESPONSIBILITY	TIMESCALE
Ensure no incidents of pollution to water.	Water monitoring (TTS, Turbidity, TBT etc), Slump testing of stabilised dredge material. No of Environmental Incidents. Quarterly audits, No of complaints reported	Sediment controls to be used (environmental bucket, silt curtain, lined cells for stabilisation methods. No contaminated waters to be discharged to the harbour waters. Work with CIRIA guidelines, site EPA waste licence conditions and apply BAM precautionary measures	Site Management Team	Start to completion
Ensure sediment on roads is cleared.	Raise needs for road cleaning duties during wet or busy periods	Ensure roads are swept and cleaned on a regular basis. Road conditions within the site should be kept clean at all times.	Site Management Team	Start to completion
Minimise waste production	Lean Construction Techniques, segregation more, reuse more (waste hierarchy)	Purchase less, ensure packaging is removed by supplier where possible and other materials reused & recycled	Site Management Team	Start to completion
Minimise fuel and oil spillages from site activities. Bunds to be used with all fuels and oils	Environmental Incidents, spills contained in bunds	Ensure that drip trays are used at all times under static plant, when refilling, & storing, ensure fuel storage areas are bunded.	Site Management Team	Start to completion
Ensure correct disposal of all hazardous wastes e.g aerosol cans	Waste segregation, waste costs	All hazardous wastes to be disposed as per Irish Legislation and BAM requirements	Site Management Team	Start to completion
Lower consumption of materials and fuel on monthly basis (relative to project revenue)	Smart meters, energy bills, service costs	Ensure all energy using equipment is switched off when not in use. Select best value for money providers where possible	Site Management Team	Start to completion
Reduce site electricity by 2.5% on monthly basis (relative to project revenue)	Smart meters, energy bills, service costs	Ensure all energy using equipment is switched off when not in use. Select best value for money providers where possible	Site Management Team	Start to completion
Lower emissions of dust, smoke and fumes during works	Air quality, dust particle increase	Ensure all equipment is well serviced and maintained. Switch of equipment when not in use. Use dust suppression techniques when applicable	Site Management Team	Start to completion

Minimise amount of Public complaints	Complaints received to Site Management Team	Ensure when works which will impede public access are taking place, all residents are informed for the timescale (where applicable) and all restrictions are kept to a minimum	Site Management Team	Start to completion
Minimise water usage consumption	Water charges, waste water disposal (discharge volumes)	All grey water to be reused on site where possible. 'Fresh' water supply to be kept to a minimum where possible. TBT-12 Water on Construction Sites	Site Management Team	Start to completion
Minimise airborne & groundbourne noise	Noise triggers breached (where applicable)	All construction noise limits set out in the requirements will be adhered to.	Site Management Team	Start to completion
Minimise vibration	Vibration triggers breached (where applicable)	All vibration limits set out in the works requirements will be adhered to.	Site Management Team	Start to completion
Ensure no vehicle movement and material placement does not cause damage to flora and fauna	Correct habitat protection used. Wildlife surveys where applicable	All fauna/animal species to be untouched where possible. Professional advice to be sought on removal procedures	Site Management Team	Start to completion

4.6 Environmental Management Programme

MONITORING	METHOD	FREQUENCY	DURATION	REFERENCE POINTS
Automatic Marine Monitoring	Bouys	Continuous	Permanent (CRAMP)	SW-01 (outer buoy) SW-02 (inner buoy)
Manual Marine Monitoring	Manual	Daily Weekly Monthly Annually	During Works. 1 st month after. 12 months subsequent. Thereafter.	SW-M01
Leachate	Monolith Test	Weekly or every 1,000 m ³	During Works.	Samples
Dust	Bergerhoff Jars	Monthly	During Construction works	D1 (AA-01) D2 (AA-02)
Noise	Noise Monitoring	Monthly	During Construction works	N1 N2 N3

4.7 Pollutant Release and Transfer Register

The waste licence granted by the EPA to the Port of Cork Company (W0290-01) relates specifically to the management of dredge spoil material from the dredging works in Bantry Inner Harbour.

In 2016, the 'waste', the dredge spoil was stabilised and re-used as material in the construction works. The dredge spoil is solidified and stabilised prior to placement in specific locations within the works area, negating the need to import virgin fill material and applying a recovery benefit to the material. The dredge spoil material will be temporarily stored in the dredge dump barges from when it is excavated until it is offloaded and placed within the stabilisation/solidification area, and the dump barges have a capacity of 300 m³ each.

Therefore, principal waste activity associated with the works is therefore:

R5 Recycling/reclamation of other inorganic materials, which includes soil cleaning resulting in recovery of the soil and recycling of inorganic construction materials.

If there are any requirements to submit records for the PRTR, Port of Cork Company will do so under instruction of the Agency.

The results of all the Chemical Analyses carried out by Chemtest (dredge, Leachate, and Marine Water Monitoring) are included in the Appendices to this report.

4.8 Noise Monitoring Report Summary

The 2016 Noise results for N1, N2 and N3 are included in Appendix 1.

The following are the averages at the Noise Monitoring Locations

N1: 51.08 dBA

N2: 53.9 dBA

N3: 50.75 dBA

4.9 Ambient Monitoring Summary

Schedule B of the Waste Licence, Emission Limits, includes B.5 Dust Deposition Limits and sets a level of 350 mg/m²/day, based on a 30 day composite sample.

Ambient monitoring of dust is carried out by the standard Bergerhoff method, whereby Bergerhoff jars are placed in the licensed positions for 30 days, during which time any airborne particles are deposited into the jar along with rainfall. After the 30 days, the jars are removed and analysed at the laboratory.

The December 2016 jars contained grit and it is interpreted that tampering likely took place.

The results are included in Appendix 2.

Dust monitoring will continue monthly throughout the works.

4.10 Tank and Pipeline Testing and Inspection Report

BAM constructed 3 No. cells on the northern shore of the Inner Harbour. The cells were 200m³ each, constructed with a rock core material around the perimeter and each cell was 2m deep.

During the dredging operation, the excavated fine grained material was deposited into the cells and subsequently treated with Portland Cement to immobilise any possible contaminants. Cement was added to the fine grained material by way of an Allu PMX500 power mixer attached to a 30tn Excavator. Following a suitable curing period, the now stabilised dredged material was placed into its final location in the amenity area.

4.11 Reported Incidents Summary

No Incidents were reported in 2016.

It is thought that the Bergerhoff Dust pots for the month of December were tampered with as there was grit inside which the Laboratory noted (refer to Appendix 2 for Laboratory Results).

4.12 Energy Efficiency Audit Report Summary

The operations under this Waste Licence are temporary and for a short duration project. Machinery involved with the works includes a 60tn Excavator on Dredger, a 30tn Excavator with Allu Mixer and a 20tn Excavator.

4.13 Closure Restoration and Aftercare Management Plan

A Closure Plan was finalised in January 2107 by Fehily Timoney and Company, on behalf of the Port of Cork Company for Waste Activities as part of the Bantry Inner Harbour – Phase 1 Works. This satisfies Condition 10 of Waste Licence W0290-01.

The document (P0821_RPT002_0_Closure Plan) was uploaded to the EDEN system on 29/03/2017.

Port of Cork Company retained Fehily Timoney & Company (FTC) to complete a closure plan (CP) to inform the identification of the financial commitments required by the Port of Cork to cover potential liabilities during the closure and aftercare period associated with the construction period of the development of Phase 1 of the Bantry Inner Harbour Development works.

According to the CP and based on the activities on site and condition 10.1 of the facility waste licence, the scope of the facility closure plan relates to the relatively short-term measures necessary to close the site satisfactorily including decommissioning and residuals management. It is noted at this stage that it would be the intention of the applicant to surrender any licence within an appropriate timeline, agreed with the Agency and upon demonstration of no environmental impacts resulting from the placement of the solidified dredge spoil material. 12 -24 months after completion of the construction works associated with the Phase 1 Bantry Inner Harbour Development works may, at this stage, be considered an appropriate timeline for licence surrender. As such there will be no clear 'closure' event, other than construction completion, and there will be no significant 'aftercare management' other than monitoring.

The financial provision to cover an abandonment closure scenario at the Bantry Inner Harbour Works Phase 1 is identified as €710,479.

4.14 Environmental Liabilities Risk Assessment

An Environmental Liabilities Risk Assessment (ELRA) was finalised in January 2107 by Fehily Timoney and Company, on behalf of the Port of Cork Company for Waste Activities as part of the Bantry Inner Harbour Development - Phase 1 Works. This satisfies Condition 12.2.2 of Waste Licence W0290-01.

The documents (P0821_RPT001_0_ELRA and 6 Appendices) were uploaded to the EDEN system on 29/03/2017.

The ELRA presented the likely costs associated with the environmental liabilities of the worst case risk events to be associated with site operations. The document is submitted to the EPA for agreement prior to identification of the appropriate financial provision instrument.

The financial provision to cover the environmental liability for the proposed development is based on a plausible worst case scenario. This is the maximum liability that may be incurred and is calculated at €36,888.

5 Conclusion

The Environmental Protection Agency granted the Port of Cork Company a Waste Licence (WL 0290-01) on 13th October 2016 to carry out licensed waste activities as part of the Bantry Inner Harbour Development Phase 1.

Upon construction completion, it would be the intention of the applicant to surrender any licence within an appropriate timeline, agreed with the Agency. It is envisaged that there will be no significant 'aftercare management' related to the WL other than monitoring.

6 List of Appendices

- Appendix 1 Noise Results – Locations N1, N2, N3 - 2016
- Appendix 2 Dust Analysis Results 2016
- Appendix 3-A Leachate - Monolith Tank 1,2,4,9 Day Results 2016
- Appendix 3-B Leachate - Contamination for Mercury Lead and TBT 2016
- Appendix 4 Dredged Sediment Results – 2 Stage WAC 2016
- Appendix 5-A Inner Buoy Monitoring SW-A02
- Appendix 5-B Outer Buoy Monitoring SW-A01
- Appendix 6 Manual Marine Monitoring SW-M01 - 2016

Appendix 1

Noise Results – Locations N1, N2, N3 - 2016

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Noise Monitoring Amenity

Date: 11/11/2016

Location N1: E 99220; N 48461



Date	Time	Reading	DATA	LOGGER	SamplingRate:59.0;
		51.08085106	dBA		
11/01/2016	13:29:35	54	dBA		
11/01/2016	13:30:34	53.3	dBA		
11/01/2016	13:31:33	47.4	dBA		
11/01/2016	13:32:32	48.1	dBA		
11/01/2016	13:33:31	51.3	dBA		
11/01/2016	13:34:30	43.4	dBA		
11/01/2016	13:35:29	44.9	dBA		
11/01/2016	13:36:28	44.8	dBA		
11/01/2016	13:37:27	52.9	dBA		
11/01/2016	13:38:26	51.2	dBA		
11/01/2016	13:39:25	55.5	dBA		
11/01/2016	13:40:24	51.5	dBA		
11/01/2016	13:41:23	54	dBA		
11/01/2016	13:42:22	50.4	dBA		
11/01/2016	13:43:21	40.5	dBA		
11/01/2016	13:44:20	49.4	dBA		
11/01/2016	13:45:19	51.9	dBA		
11/01/2016	13:46:18	49.7	dBA		
11/01/2016	13:47:17	45.3	dBA		
11/01/2016	13:48:16	44.2	dBA		
11/01/2016	13:49:15	46.3	dBA		
11/01/2016	13:50:14	55.6	dBA		
11/01/2016	13:51:13	48.1	dBA		
11/01/2016	13:52:12	57.6	dBA		
11/01/2016	13:53:11	49.4	dBA		
11/01/2016	13:54:10	51.8	dBA		
11/01/2016	13:55:09	59.2	dBA		
11/01/2016	13:56:08	50.6	dBA		
11/01/2016	13:57:07	64.8	dBA		
11/01/2016	13:58:06	51.7	dBA		
11/01/2016	13:59:05	55.7	dBA		
11/01/2016	14:00:04	50.2	dBA		
11/01/2016	14:01:03	58.2	dBA		
11/01/2016	14:02:02	56.8	dBA		
11/01/2016	14:03:01	40.5	dBA		
11/01/2016	14:04:00	48	dBA		
11/01/2016	14:04:59	57.1	dBA		
11/01/2016	14:05:58	53.7	dBA		
11/01/2016	14:06:57	40.5	dBA		
11/01/2016	14:07:56	56	dBA		
11/01/2016	14:08:55	51.7	dBA		
11/01/2016	14:09:54	56.2	dBA		
11/01/2016	14:10:53	52.1	dBA		
11/01/2016	14:11:52	49.3	dBA		
11/01/2016	14:12:51	50.4	dBA		
11/01/2016	14:13:50	56.8	dBA		
11/01/2016	14:14:49	52.3	dBA		
11/01/2016	14:15:48	57.9	dBA		
11/01/2016	14:16:47	57	dBA		
11/01/2016	14:17:46	40.5	dBA		
11/01/2016	14:18:45	52.3	dBA		
11/01/2016	14:19:44	47.3	dBA		
11/01/2016	14:20:43	50.2	dBA		
11/01/2016	14:21:42	47.6	dBA		
11/01/2016	14:22:41	49.4	dBA		
11/01/2016	14:23:40	56.7	dBA		

11/01/2016	14:24:39	46.7	dBA
11/01/2016	14:25:38	47.3	dBA
11/01/2016	14:26:37	55.3	dBA
11/01/2016	14:27:36	47.6	dBA
11/01/2016	14:28:35	49.4	dBA
11/01/2016	14:29:34	47.4	dBA
11/01/2016	14:30:33	46.2	dBA
11/01/2016	14:31:32	58	dBA
11/01/2016	14:32:31	56	dBA
11/01/2016	14:33:30	45.8	dBA
11/01/2016	14:34:29	46.5	dBA
11/01/2016	14:35:28	52.3	dBA
11/01/2016	14:36:27	49.5	dBA
11/01/2016	14:37:26	59.6	dBA
11/01/2016	14:38:25	57.5	dBA
11/01/2016	14:39:24	47.3	dBA
11/01/2016	14:40:23	50.4	dBA
11/01/2016	14:41:22	48.2	dBA
11/01/2016	14:42:21	48.7	dBA
11/01/2016	14:43:20	53.9	dBA
11/01/2016	14:44:19	61.3	dBA
11/01/2016	14:45:18	58.2	dBA
11/01/2016	14:46:17	52.1	dBA
11/01/2016	14:47:16	47.6	dBA
11/01/2016	14:48:15	56.6	dBA
11/01/2016	14:49:14	55.7	dBA
11/01/2016	14:50:13	50.6	dBA
11/01/2016	14:51:12	48.8	dBA
11/01/2016	14:52:11	52.1	dBA
11/01/2016	14:53:10	48.4	dBA
11/01/2016	14:54:09	48.8	dBA
11/01/2016	14:55:08	49.4	dBA
11/01/2016	14:56:07	39.5	dBA
11/01/2016	14:57:06	50.1	dBA
11/01/2016	14:58:05	47.7	dBA
11/01/2016	14:59:04	57	dBA
11/01/2016	15:00:03	49.4	dBA
11/01/2016	15:01:02	51.5	dBA

Bantry Inner Harbour Phase 1 Development C6023 -

Noise Monitoring Amenity

Date : 20/12/2016

Location N2: E99377; N48617



STANDARD	HD600	DATA	LOGGER	SamplingRate:59.0;
Average	53.9			
20-12-20167:48:23	52.953	dB		
20-12-20167:49:22	49.753	dB		
20-12-20167:50:21	49.253	dB		
20-12-20167:51:20	48.353	dB		
20-12-20167:52:19	49.453	dB		
20-12-20167:53:18	49.053	dB		
20-12-20167:54:17	49.253	dB		
20-12-20167:55:16	50.253	dB		
20-12-20167:56:15	48.453	dB		
20-12-20167:57:14	57.953	dB		
20-12-20167:58:13	50.853	dB		
20-12-20167:59:12	51.253	dB		
20-12-20168:00:11	50.053	dB		
20-12-20168:01:10	49.853	dB		
20-12-20168:02:09	50.453	dB		
20-12-20168:03:08	49.053	dB		
20-12-20168:04:07	49.153	dB		
20-12-20168:05:06	50.053	dB		
20-12-20168:06:05	51.853	dB		
20-12-20168:07:04	51.653	dB		
20-12-20168:08:03	50.253	dB		
20-12-20168:09:02	49.453	dB		
20-12-20168:10:01	49.453	dB		
20-12-20168:11:00	50.153	dB		
20-12-20168:11:59	51.053	dB		
20-12-20168:12:58	50.053	dB		
20-12-20168:13:57	56.453	dB		
20-12-20168:14:56	51.053	dB		
20-12-20168:15:55	52.653	dB		
20-12-20168:16:54	54.153	dB		
20-12-20168:17:53	53.553	dB		
20-12-20168:18:52	56.753	dB		
20-12-20168:19:51	52.753	dB		
20-12-20168:20:50	52.953	dB		
20-12-20168:21:49	53.553	dB		
20-12-20168:22:48	54.053	dB		
20-12-20168:23:47	53.553	dB		
20-12-20168:24:46	51.253	dB		
20-12-20168:25:45	63.953	dB		
20-12-20168:26:44	52.453	dB		
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20-12-201615:50:13	44.253 dBA

20-12-201615:51:12	60.253 dBA
20-12-201615:52:11	44.053 dBA
20-12-201615:53:10	44.553 dBA
20-12-201615:54:09	42.553 dBA
20-12-201615:55:08	42.353 dBA
20-12-201615:56:07	55.653 dBA
20-12-201615:57:06	44.353 dBA
20-12-201615:58:05	46.653 dBA
20-12-201615:59:04	43.253 dBA
20-12-201616:00:03	44.353 dBA
20-12-201616:01:02	43.653 dBA
20-12-201616:02:01	46.153 dBA
20-12-201616:03:00	44.253 dBA
20-12-201616:03:59	43.753 dBA
20-12-201616:04:58	44.353 dBA
20-12-201616:05:57	43.853 dBA
20-12-201616:06:56	44.553 dBA
20-12-201616:07:55	43.453 dBA
20-12-201616:08:54	44.053 dBA
20-12-201616:09:53	44.353 dBA
20-12-201616:10:52	46.153 dBA
20-12-201616:11:51	44.353 dBA
20-12-201616:12:50	43.853 dBA
20-12-201616:13:49	49.253 dBA
20-12-201616:14:48	47.053 dBA
20-12-201616:15:47	48.653 dBA
20-12-201616:16:46	45.853 dBA
20-12-201616:17:45	46.153 dBA
20-12-201616:18:44	43.553 dBA
20-12-201616:19:43	51.053 dBA
20-12-201616:20:42	43.953 dBA
20-12-201616:21:41	42.453 dBA
20-12-201616:22:40	44.353 dBA
20-12-201616:23:39	42.453 dBA
20-12-201616:24:38	48.453 dBA
20-12-201616:25:37	45.253 dBA
20-12-201616:26:36	44.253 dBA
20-12-201616:27:35	44.253 dBA
20-12-201616:28:34	44.753 dBA
20-12-201616:29:33	45.753 dBA
20-12-201616:30:32	44.353 dBA
20-12-201616:31:31	44.653 dBA
20-12-201616:32:30	45.953 dBA
20-12-201616:33:29	44.553 dBA
20-12-201616:34:28	44.553 dBA
20-12-201616:35:27	44.053 dBA
20-12-201616:36:26	43.053 dBA
20-12-201616:37:25	42.453 dBA
20-12-201616:38:24	43.553 dBA
20-12-201616:39:23	43.353 dBA

20-12-201616:40:22	44.353 dBA
20-12-201616:41:21	45.153 dBA
20-12-201616:42:20	44.253 dBA
20-12-201616:43:19	47.553 dBA
20-12-201616:44:18	44.053 dBA
20-12-201616:45:17	43.953 dBA
20-12-201616:46:16	44.353 dBA
20-12-201616:47:15	44.253 dBA
20-12-201616:48:14	43.653 dBA
20-12-201616:49:13	44.053 dBA
20-12-201616:50:12	41.853 dBA
20-12-201616:51:11	40.653 dBA
20-12-201616:52:10	47.353 dBA
20-12-201616:53:09	50.853 dBA
20-12-201616:54:08	41.953 dBA
20-12-201616:55:07	40.453 dBA
20-12-201616:56:06	44.753 dBA
20-12-201616:57:05	43.653 dBA
20-12-201616:58:04	44.453 dBA
20-12-201616:59:03	44.753 dBA
20-12-201617:00:02	54.553 dBA
20-12-201617:01:01	41.153 dBA
20-12-201617:02:00	42.453 dBA
20-12-201617:02:59	42.453 dBA
20-12-201617:03:58	41.653 dBA
20-12-201617:04:57	41.653 dBA
20-12-201617:05:56	40.653 dBA
20-12-201617:06:55	43.253 dBA
20-12-201617:07:54	42.953 dBA
20-12-201617:08:53	45.553 dBA
20-12-201617:09:52	63.553 dBA
20-12-201617:10:51	62.753 dBA
20-12-201617:11:50	49.853 dBA
20-12-201617:12:49	45.553 dBA
20-12-201617:13:48	43.153 dBA
20-12-201617:14:47	50.053 dBA
20-12-201617:15:46	42.653 dBA
20-12-201617:16:45	41.253 dBA
20-12-201617:17:44	54.053 dBA
20-12-201617:18:43	62.953 dBA
20-12-201617:19:42	40.153 dBA
20-12-201617:20:41	40.253 dBA
20-12-201617:21:40	41.153 dBA
20-12-201617:22:39	46.153 dBA
20-12-201617:23:38	40.853 dBA
20-12-201617:24:37	41.553 dBA
20-12-201617:25:36	40.153 dBA
20-12-201617:26:35	40.753 dBA
20-12-201617:27:34	42.553 dBA
20-12-201617:28:33	40.253 dBA

20-12-201617:29:32	41.253 dBA
20-12-201617:30:31	47.453 dBA
20-12-201617:31:30	42.153 dBA
20-12-201617:32:29	41.353 dBA

Bantry Inner Harbour Phase 1 Development C6023 -

Noise Monitoring Amenity

Date : 21/11/2016

Location N3: E991223 ; N: 48591



STANDARD HD600 DATA LOGGER SamplingRate:59.0;

Date	Time	Reading	
		50.75	dBA
21/12/2016	12:29:35	53.67	dBA
21/12/2016	12:30:34	52.97	dBA
21/12/2016	12:31:33	47.07	dBA
21/12/2016	12:32:32	47.77	dBA
21/12/2016	12:33:31	50.97	dBA
21/12/2016	12:34:30	43.07	dBA
21/12/2016	12:35:29	44.57	dBA
21/12/2016	12:36:28	44.47	dBA
21/12/2016	12:37:27	52.57	dBA
21/12/2016	12:38:26	50.87	dBA
21/12/2016	12:39:25	55.17	dBA
21/12/2016	12:40:24	51.17	dBA
21/12/2016	12:41:23	53.67	dBA
21/12/2016	12:42:22	50.07	dBA
21/12/2016	12:43:21	40.17	dBA
21/12/2016	12:44:20	49.07	dBA
21/12/2016	12:45:19	51.57	dBA
21/12/2016	12:46:18	49.37	dBA
21/12/2016	12:47:17	44.97	dBA
21/12/2016	12:48:16	43.87	dBA
21/12/2016	12:49:15	45.97	dBA
21/12/2016	12:50:14	55.27	dBA
21/12/2016	12:51:13	47.77	dBA
21/12/2016	12:52:12	57.27	dBA
21/12/2016	12:53:11	49.07	dBA
21/12/2016	12:54:10	51.47	dBA
21/12/2016	12:55:09	58.87	dBA
21/12/2016	12:56:08	50.27	dBA
21/12/2016	12:57:07	64.47	dBA
21/12/2016	12:58:06	51.37	dBA
21/12/2016	12:59:05	55.37	dBA
21/12/2016	13:00:04	49.87	dBA
21/12/2016	13:01:03	57.87	dBA
21/12/2016	13:02:02	56.47	dBA
21/12/2016	13:03:01	40.17	dBA
21/12/2016	13:04:00	47.67	dBA
21/12/2016	13:04:59	56.77	dBA
21/12/2016	13:05:58	53.37	dBA
21/12/2016	13:06:57	40.17	dBA

21/12/2016	13:07:56	55.67	dBA
21/12/2016	13:08:55	51.37	dBA
21/12/2016	13:09:54	55.87	dBA
21/12/2016	13:10:53	51.77	dBA
21/12/2016	13:11:52	48.97	dBA
21/12/2016	13:12:51	50.07	dBA
21/12/2016	13:13:50	56.47	dBA
21/12/2016	13:14:49	51.97	dBA
21/12/2016	13:15:48	57.57	dBA
21/12/2016	13:16:47	56.67	dBA
21/12/2016	13:17:46	40.17	dBA
21/12/2016	13:18:45	51.97	dBA
21/12/2016	13:19:44	46.97	dBA
21/12/2016	13:20:43	49.87	dBA
21/12/2016	13:21:42	47.27	dBA
21/12/2016	13:22:41	49.07	dBA
21/12/2016	13:23:40	56.37	dBA
21/12/2016	13:24:39	46.37	dBA
21/12/2016	13:25:38	46.97	dBA
21/12/2016	13:26:37	54.97	dBA
21/12/2016	13:27:36	47.27	dBA
21/12/2016	13:28:35	49.07	dBA
21/12/2016	13:29:34	47.07	dBA
21/12/2016	13:30:33	45.87	dBA
21/12/2016	13:31:32	57.67	dBA
21/12/2016	13:32:31	55.67	dBA
21/12/2016	13:33:30	45.47	dBA
21/12/2016	13:34:29	46.17	dBA
21/12/2016	13:35:28	51.97	dBA
21/12/2016	13:36:27	49.17	dBA
21/12/2016	13:37:26	59.27	dBA
21/12/2016	13:38:25	57.17	dBA
21/12/2016	13:39:24	46.97	dBA
21/12/2016	13:40:23	50.07	dBA
21/12/2016	13:41:22	47.87	dBA
21/12/2016	13:42:21	48.37	dBA
21/12/2016	13:43:20	53.57	dBA
21/12/2016	13:44:19	60.97	dBA
21/12/2016	13:45:18	57.87	dBA
21/12/2016	13:46:17	51.77	dBA
21/12/2016	13:47:16	47.27	dBA
21/12/2016	13:48:15	56.27	dBA
21/12/2016	13:49:14	55.37	dBA
21/12/2016	13:50:13	50.27	dBA
21/12/2016	13:51:12	48.47	dBA
21/12/2016	13:52:11	51.77	dBA
21/12/2016	13:53:10	48.07	dBA
21/12/2016	13:54:09	48.47	dBA
21/12/2016	13:55:08	49.07	dBA
21/12/2016	13:56:07	39.17	dBA

21/12/2016	13:57:06	49.77	dBA
21/12/2016	13:58:05	47.37	dBA
21/12/2016	13:59:04	56.67	dBA
21/12/2016	14:00:03	49.07	dBA
21/12/2016	14:01:02	51.17	dBA

Appendix 2
Dust Analysis Results 2016

TEST REPORT NO.: 133554

Analysing
Testing
Consulting
Calibrating



Client: BAM Civil Ltd
Kill
Co. Kildare

BHP Ref. No.: 17/01/0895-0896

Order No:

Date Received: 20/01/17

Date Tested: 30/12/16

Test Specification: Nil

Item : See below

BHP

New Road

Thomondgate

Limerick

Ireland

Tel +353 61 455399

Fax + 353 61 455447

E Mail johnhalloran@bhp.ie

Project: Bantry In-Harbour Development
FAO: Cathal Tuohy

TEST	Client Reference	Units	Results	Test Method
Dust Deposition	D1 30/11/16 to 30/12/16*	mg/m ² /day	414	BHP AC 017
Dust Deposition	D2**	mg/m ² /day	484	BHP AC 017

Additional Information: All Sample Locations were outside the EPA Limit of 350 mg/m²/day.

*Sampling period was provided by the Client.

**Sample Jat at Location D2 contained grit.

Authorised by:

Colette Hannan

Date of Issue: 08/02/17

This Test Report shall not be duplicated except in full and then only with the permission of the test laboratory

Appendix 3-A

Leachate - Monolith Tank 1,2,4,9 Day Results 2016

Project: C6023 - Bantry Inner Harbor Development

Client: BAM Contractors	Chemtest Job No.:				16-30030	16-30030	16-30030	16-30030
Quotation No.: Q16-07624	Chemtest Sample ID.:				388026	388027	388028	388029
	Client Sample ID.:				MT1 Day	MT2 Day	MT4 Day	MT9 Day
	Sample Type:				SOIL	SOIL	SOIL	SOIL
	Date Sampled:				30-Nov-2016	30-Nov-2016	30-Nov-2016	30-Nov-2016
Determinand	Accred.	SOP	Units	LOD				
pH	U	1010		N/A	11.2	11.7	12.0	12.0
Electrical Conductivity	U	1020	µS/cm	1.0	4800	1500	2200	2600
Sulphate	U	1220	mg/l	1.0	13	4.6	3.8	2.0
Calcium	U	1415	mg/l	5.0	140	400	480	410
Arsenic (Dissolved)	U	1450	µg/l	1.0	3.7	1.7	1.2	< 1.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	0.22	0.11	0.12	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	12	7.7	6.9	5.7
Copper (Dissolved)	U	1450	µg/l	1.0	74	21	15	10
Mercury (Dissolved)	U	1450	µg/l	0.50	0.63	< 0.50	< 0.50	< 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	65	24	16	11
Lead (Dissolved)	U	1450	µg/l	1.0	6.0	5.6	6.1	4.1
Selenium (Dissolved)	U	1450	µg/l	1.0	11	3.0	2.4	1.8
Zinc (Dissolved)	U	1450	µg/l	1.0	1.9	24	2.9	2.0
Total TPH >C6-C40	U	1670	mg/l	0.010	[BC] < 0.010	[BC] 0.20	[BC] < 0.010	[BC] < 0.010
Total Of 17 PAH's	N	1700	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0
Tributyl Tin	N	1730	µg/l	0.001	< 0.001	< 0.001	< 0.001	< 0.001
Benzene	U	1760	µg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
Toluene	U	1760	µg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
Ethylbenzene	U	1760	µg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
m & p-Xylene	U	1760	µg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
o-Xylene	U	1760	µg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0

**7th of December 2016
Readings**
Project: C6023 0032 - Bantry Inner Harbour Development

Client: BAM Contractors	Chemtest Job No.:		16-30453	16-30453	16-30453	16-30453	16-30453	16-30453	16-30453	16-30453	16-30453	16-30453	16-30453
Quotation No.: Q16-07624	Chemtest Sample ID.:		390084	405198	405199	405200	405201	405202	405203	405204	405205	405205	405205
Order No.: C6023	Client Sample Ref.:		D34/D22	TC1 1 Day	TC1 2 Day	TC1 4 Day	TC1 9 Day	TC2 1 Day	TC2 2 Day	TC2 4 Day	TC2 9 Day	TC2 9 Day	TC2 9 Day
	Client Sample ID.:		Ref. No. 1	Ref. No. 1-6	Ref. No. 1-6	Ref. No. 1-6	Ref. No. 1-6	Ref. No. 1-6	Ref. No. 1-6	Ref. No. 1-6	Ref. No. 1-6	Ref. No. 1-6	Ref. No. 1-6
	Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Date Sampled:		05-Dec-2016	05-Dec-2016	05-Dec-2016	05-Dec-2016	05-Dec-2016	05-Dec-2016	05-Dec-2016	05-Dec-2016	05-Dec-2016	05-Dec-2016	05-Dec-2016
Determinand	Accred.	SOP	Units	LOD									
Arsenic (Dissolved)	U	1450	µg/l	1.0		4.4	3.6	2.3	2.7	5.5	5.0	2.5	2.5
Cadmium (Dissolved)	U	1450	µg/l	0.080		0.35	0.27	0.23	0.29	0.45	0.45	0.30	0.35
Chromium (Dissolved)	U	1450	µg/l	1.0		28	21	11	11	31	26	13	11
Copper (Dissolved)	U	1450	µg/l	1.0		63	50	26	25	87	85	39	34
Mercury (Dissolved)	U	1450	µg/l	0.50		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Mercury (Dissolved)	U	1450	µg/l	0.50	0.56								
Nickel (Dissolved)	U	1450	µg/l	1.0		37	32	19	24	50	50	25	22
Lead (Dissolved)	U	1450	µg/l	1.0		1.7	1.7	1.7	3.6	2.4	2.3	1.8	2.7
Lead (Dissolved)	U	1450	µg/l	1.0	1.5								
Selenium (Dissolved)	U	1450	µg/l	1.0		14	9.0	3.8	3.7	15	11	4.7	3.5
Zinc (Dissolved)	U	1450	µg/l	1.0		3.1	1.5	1.4	5.7	1.8	2.0	1.5	3.7
Total Of 17 PAH's	N	1700	µg/l	2.0		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Tributyl Tin	N	1730	µg/l	0.001		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050								

Project: C6023 Bantry Inner Harbour Development

Client: BAM Contractors		Chemtest Job No.:							
Quotation No.: Q16-07624	Chemtest Sample ID.:								
Order No.: C6023-0032	Client Sample Ref.:								
	Client Sample ID.:								
	Sample Type:								
	Date Sampled:								
Determinand	Accred.	SOP	Units	LOD	16-30329	16-30329	16-30329	16-30329	16-30329
Arsenic (Dissolved)	U	1450	µg/l	1.0		9.9	4.1	2.4	3.3
Cadmium (Dissolved)	U	1450	µg/l	0.080		0.68	0.34	0.18	0.48
Chromium (Dissolved)	U	1450	µg/l	1.0		63	29	21	34
Copper (Dissolved)	U	1450	µg/l	1.0		200	94	50	93
Mercury (Dissolved)	U	1450	µg/l	0.50		2.3	< 0.50	< 0.50	< 0.50
Mercury (Dissolved)	U	1450	µg/l	0.50	0.50				
Nickel (Dissolved)	U	1450	µg/l	1.0		86	37	16	26
Lead (Dissolved)	U	1450	µg/l	1.0		< 1.0	< 1.0	< 1.0	7.1
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0				
Selenium (Dissolved)	U	1450	µg/l	1.0		36	16	7.4	16
Zinc (Dissolved)	U	1450	µg/l	1.0		13	5.5	1.7	29
Total Of 17 PAH's	N	1700	µg/l	2.0		< 2.0	< 2.0	< 2.0	< 2.0
Tributyl Tin	N	1730	µg/l	0.001		< 0.001	< 0.001	< 0.001	< 0.001
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050				

Project: C6023 - Bantry Inner Harbour Development

Client: BAM Contractors		Chemtest Job No.:											
Quotation No.: Q16-07624	Chemtest Sample ID.:	16-30955	16-30955	16-30955	16-30955	16-30955	16-30955	16-30955	16-30955	16-30955	16-30955	16-30955	
Order No.: C6023 - 0032	Client Sample Ref.:	405223	405224	405225	405226	405227	405228	405229	405230	405231			
	Client Sample ID.:	TC2 1 Day	TC2 2 Day	TC2 4 Day	TC2 9 Day	TC3 1 Day	TC3 2 Day	TC2 4 Day	TC2 9 Day	TC1 1 Day			
	Sample Type:	M1	M1	M1	M1	M1	M1	M1	M1	M1			
	Date Sampled:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
		12-Dec-2016	12-Dec-2016	12-Dec-2016	12-Dec-2016	14-Dec-2016	14-Dec-2016	14-Dec-2016	14-Dec-2016	14-Dec-2016	15-Dec-2016		
Determinand	Accred.	SOP	Units	LOD									
Arsenic (Dissolved)	U	1450	µg/l	1.0	2.7	3.4	2.0	2.2	8.5	4.2	3.1	3.9	2.7
Cadmium (Dissolved)	U	1450	µg/l	0.080	0.16	0.15	0.097	0.13	0.31	0.16	0.11	0.17	0.17
Chromium (Dissolved)	U	1450	µg/l	1.0	20	27	16	19	47	30	21	27	26
Copper (Dissolved)	U	1450	µg/l	1.0	9.2	11	5.9	6.5	15	9.1	5.8	5.9	6.0
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	3.4	5.9	1.6	3.2	11	5.3	3.1	5.5	3.2
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.3	< 1.0	< 1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	8.1	11	5.8	8.1	20	11	7.7	10	12
Zinc (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Of 17 PAH's	N	1700	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Tributyl Tin	N	1730	µg/l	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001

Project: C6023 - Bantry Inner Harbour Development

Client: BAM Contractors	Chemtest Job No.:				16-30955	16-30955	16-30955
Quotation No.: Q16-07624	Chemtest Sample ID.:				405232	405233	405234
Order No.: C6023 - 0032	Client Sample Ref.:				TC1 2 Day	TC1 4 Day	TC1 9 Day
	Client Sample ID.:				M1	M1	M1
	Sample Type:				SOIL	SOIL	SOIL
	Date Sampled:				15-Dec-2016	15-Dec-2016	15-Dec-2016
Determinand	Accred.	SOP	Units	LOD			
Arsenic (Dissolved)	U	1450	µg/l	1.0	2.3	1.8	2.7
Cadmium (Dissolved)	U	1450	µg/l	0.080	0.14	0.099	0.23
Chromium (Dissolved)	U	1450	µg/l	1.0	21	17	25
Copper (Dissolved)	U	1450	µg/l	1.0	3.2	1.1	2.9
Mercury (Dissolved)	U	1450	µg/l	0.50	13	1.6	1.4
Nickel (Dissolved)	U	1450	µg/l	1.0	2.8	1.5	6.0
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	10	7.1	11
Zinc (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	2.0
Total Of 17 PAH's	N	1700	µg/l	2.0	< 2.0	< 2.0	< 2.0
Tributyl Tin	N	1730	µg/l	0.001	< 0.001	< 0.001	< 0.001

Project: C6023 - Bantry Inner Harbour Development

Client: BAM Contractors	Chemtest Job No.:												
Quotation No.: Q16-07624	Chemtest Sample ID.:												
Order No.: C6023 - 0032	Client Sample Ref.:												
	Client Sample ID.:												
	Sample Type:												
	Date Sampled:												
Determinand	Accred.	SOP	Units	LOD									
Arsenic (Dissolved)	U	1450	µg/l	1.0		3.1	2.4	1.4	3.8	2.2	1.6	1.5	3.1
Cadmium (Dissolved)	U	1450	µg/l	0.080		0.12	0.10	< 0.080	0.20	0.17	0.11	0.11	0.21
Chromium (Dissolved)	U	1450	µg/l	1.0		24	21	15	28	21	17	14	21
Copper (Dissolved)	U	1450	µg/l	1.0		2.7	4.0	3.1	2.6	10	7.5	6.3	13
Mercury (Dissolved)	U	1450	µg/l	0.50		< 0.50	< 0.50	< 0.50	0.84	< 0.50	< 0.50	< 0.50	< 0.50
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50								
Nickel (Dissolved)	U	1450	µg/l	1.0		1.9	2.0	< 1.0	5.6	11	7.9	6.9	16
Lead (Dissolved)	U	1450	µg/l	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.5
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0								
Selenium (Dissolved)	U	1450	µg/l	1.0		9.3	8.3	5.3	11	7.6	5.1	4.5	7.5
Zinc (Dissolved)	U	1450	µg/l	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.4
Total Of 17 PAH's	N	1700	µg/l	2.0		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Tributyl Tin	N	1730	µg/l	0.001		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050								

Appendix 3-B

Leachate - Contamination for Mercury Lead and TBT 2016

Project: C6023 Bantry Inner Harbour Development

Client: BAM Contractors	Chemtest Job No.: 16-27887				
Quotation No.: Q16-07624	Chemtest Sample ID.: 378992				
Order No.: C6023 - 0032	Client Sample Ref.: D28				
	Client Sample ID.: 1				
	Sample Type: SOIL				
	Top Depth (m): 2.5				
	Date Sampled: 09-Nov-2016				
Determinand	Accred.	SOP	Units	LOD	
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0
Tributyl Tin	N	1730	µg/l	0.001	< 0.001

Project: C6023 - Bantry Inner Harbour Development

Client: BAM Contractors	Chemtest Job No.: 16-29645				
Quotation No.: Q16-07624	Chemtest Sample ID.: 386356				
Order No.: C6023 - 0032	Client Sample Ref.: D26(CG)-1				
	Client Sample ID.: 1				
	Sample Type: SOIL				
	Top Depth (m): 2.50				
	Date Sampled: 01-Dec-2016				
Determinand	Accred.	SOP	Units	LOD	
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0
Tributyl Tin	N	1730	µg/l	0.001	< 0.001

Project: C6023 0032 - Bantry Inner Harbour Development

Client: BAM Contractors	Chemtest Job No.: 16-30453				
Quotation No.: Q16-07624	Chemtest Sample ID.: 390084				
Order No.: C6023	Client Sample Ref.: D34/D22				
	Client Sample ID.: Ref. No. 1				
	Sample Type: SOIL				
	Date Sampled: 05-Dec-2016				
Determinand	Accred.	SOP	Units	LOD	
Mercury (Dissolved)	U	1450	µg/l	0.50	0.56
Lead (Dissolved)	U	1450	µg/l	1.0	1.5
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050

Project: C6023 Bantry Inner Harbour Development

Client: BAM Contractors	Chemtest Job No.: 16-30329				
Quotation No.: Q16-07624	Chemtest Sample ID.: 389284				
Order No.: C6023-0032	Client Sample Ref.: D22/D34				
	Client Sample ID.: REF NO 1				
	Sample Type: SOIL				
	Date Sampled: 08-Dec-2016				
Determinand	Accred.	SOP	Units	LOD	
Mercury (Dissolved)	U	1450	µg/l	0.50	0.50
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0
Tributyl Tin	N	1730	µg/l	0.001	< 0.001

Project: C6023 - Bantry Inner Harbour Development

Client: BAM Contractors	Chemtest Job No.:				16-31004	16-31004	16-31004
Quotation No.: Q16-07624	Chemtest Sample ID.:				392505	392506	392507
Order No.: C6023 - 0032	Client Sample Ref.:				D37/D38	D26/D35	D23
	Client Sample ID.:				DR1	DR1	DR1
	Sample Type:				SOIL	SOIL	SOIL
	Date Sampled:				10-Dec-2016	12-Dec-2016	15-Dec-2016
Determinand	Accred.	SOP	Units	LOD			
Mercury (Dissolved)	U	1450	µg/l	0.50	5.7	1.7	1.2
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0
Tributyl Tin	N	1730	µg/l	0.001	< 0.001	< 0.001	< 0.001

Appendix 4

Dredged Sediment Results – 2 Stage WAC 2016

Project: C6023 - Bantry Inner Harbor Development

Chemtest Job No: 16-30027							Landfill Waste Acceptance Criteria					
Chemtest Sample ID: 388018							Limits					
Sample Ref: WAC 1							Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill			
Sample ID: WAC 1												
Top Depth(m):												
Bottom Depth(m):												
Sampling Date: 29-Nov-2016												
Determinand	SOP	Accred.	Units									
Total Organic Carbon	2625	U	%				1.2	3	5	6		
Loss On Ignition	2610	U	%				3.3	--	--	10		
Total BTEX	2760	U	mg/kg				< 0.010	6	--	--		
Total PCBs (7 Congeners)	2815	U	mg/kg				< 0.10	1	--	--		
TPH Total WAC (Mineral Oil)	2670	U	mg/kg				11	500	--	--		
Total (Of 17) PAH's	2700	N	mg/kg				26	100	--	--		
pH	2010	U					8.6	--	>6	--		
Acid Neutralisation Capacity	2015	N	mol/kg				0.045	--	To evaluate	To evaluate		
Eluate Analysis			2:1 mg/l				8:1 mg/l	2:1 mg/kg	Cumulative mg/kg 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg		
Arsenic	1450	U	< 0.0010				0.0050	< 0.050	< 0.050	0.5	2	25
Barium	1450	U	0.0096	0.015	< 0.50	< 0.50	20	100	300			
Cadmium	1450	U	< 0.00010	< 0.00010	< 0.010	< 0.010	0.04	1	5			
Chromium	1450	U	< 0.0010	0.0065	< 0.050	0.055	0.5	10	70			
Copper	1450	U	0.0021	0.0061	< 0.050	< 0.050	2	50	100			
Mercury	1450	U	< 0.00050	< 0.00050	< 0.0010	< 0.0050	0.01	0.2	2			
Molybdenum	1450	U	0.0018	0.011	< 0.050	0.096	0.5	10	30			
Nickel	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.4	10	40			
Lead	1450	U	< 0.0010	< 0.0010	< 0.010	< 0.010	0.5	10	50			
Antimony	1450	U	< 0.0010	< 0.0010	< 0.010	< 0.010	0.06	0.7	5			
Selenium	1450	U	< 0.0010	0.016	< 0.010	0.14	0.1	0.5	7			
Zinc	1450	U	< 0.0010	0.0081	< 0.50	< 0.50	4	50	200			
Chloride	1220	U	2000	430	4000	6600	800	15000	25000			
Fluoride	1220	U	0.28	0.45	< 1.0	4.2	10	150	500			
Sulphate	1220	U	280	100	550	1300	1000	20000	50000			
Total Dissolved Solids	1020	N	3800	1000	7400	14000	4000	60000	100000			
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-			
Dissolved Organic Carbon	1610	U	13	12	< 50	120	500	800	1000			

Soild Information

Dry mass of test portion/kg	0.175
Moisture (%)	21

Leachate Test Information

Leachant volume 1st extract/l	0.304
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.247

Results - 2 Stage WAC

Project: C6023 Bantry Inner Harbour Development

Chemtest Job No: 16-30333							Landfill Waste Acceptance Criteria Limits			
Chemtest Sample ID: 389345							Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill	
Sample Ref: D7										
Sample ID: REF NO 1-3										
Top Depth(m):										
Bottom Depth(m):										
Sampling Date: 08-Dec-2016										
Determinand	SOP	Accred.	Units							
Total Organic Carbon	2625	U	%				2.2	3	5	6
Loss On Ignition	2610	U	%				4.3	--	--	10
Total BTEX	2760	U	mg/kg				< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg				< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg				< 10	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg				11	100	--	--
pH	2010	U					8.5	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg				0.040	--	To evaluate	To evaluate
Eluate Analysis				2:1 mg/l	8:1 mg/l	2:1 mg/kg	Cumulative mg/kg 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg		
Arsenic	1450	U	0.0092	0.0038	< 0.050	< 0.050	0.5	2	25	
Barium	1450	U	0.026	0.011	< 0.50	< 0.50	20	100	300	
Cadmium	1450	U	0.00020	< 0.00010	< 0.010	< 0.010	0.04	1	5	
Chromium	1450	U	0.034	0.031	0.066	0.31	0.5	10	70	
Copper	1450	U	0.017	0.0031	< 0.050	< 0.050	2	50	100	
Mercury	1450	U	0.00089	< 0.00050	0.0017	< 0.0050	0.01	0.2	2	
Molybdenum	1450	U	0.11	0.034	0.21	0.42	0.5	10	30	
Nickel	1450	U	0.0014	< 0.0010	< 0.050	< 0.050	0.4	10	40	
Lead	1450	U	< 0.0010	< 0.0010	< 0.010	< 0.010	0.5	10	50	
Antimony	1450	U	0.0019	0.0012	< 0.010	0.013	0.06	0.7	5	
Selenium	1450	U	0.018	0.0032	0.035	0.049	0.1	0.5	7	
Zinc	1450	U	0.017	0.0054	< 0.50	< 0.50	4	50	200	
Chloride	1220	U	2700	380	5200	6400	800	15000	25000	
Fluoride	1220	U	0.91	0.51	1.8	5.5	10	150	500	
Sulphate	1220	U	500	81	970	1300	1000	20000	50000	
Total Dissolved Solids	1020	N	5500	730	11000	13000	4000	60000	100000	
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-	
Dissolved Organic Carbon	1610	U	8.2	5.9	< 50	61	500	800	1000	

Soild Information	
Dry mass of test portion/kg	0.175
Moisture (%)	23

Leachate Test Information	
Leachant volume 1st extract/l	0.299
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.199

Results - 2 Stage WAC

Project: C6023 0032 - Bantry Inner Harbour Development

Chemtest Job No: 16-30655							Landfill Waste Acceptance Criteria Limits			
Chemtest Sample ID: 390083							Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill	
Sample Ref: D16										
Sample ID: Ref. No. 1-3										
Top Depth(m):										
Bottom Depth(m):										
Sampling Date: 07-Dec-2016										
Determinand	SOP	Accred.	Units							
Total Organic Carbon	2625	U	%				2.9	3	5	
Loss On Ignition	2610	U	%				3.9	--	10	
Total BTEX	2760	U	mg/kg				< 0.010	6	--	
Total PCBs (7 Congeners)	2815	U	mg/kg				< 0.10	1	--	
TPH Total WAC (Mineral Oil)	2670	U	mg/kg				< 10	500	--	
Total (Of 17) PAH's	2700	N	mg/kg				7.3	100	--	
pH	2010	U					8.3	--	>6	
Acid Neutralisation Capacity	2015	N	mol/kg				0.043	--	To evaluate	
Eluate Analysis				2:1 mg/l	8:1 mg/l	2:1 mg/kg	Cumulative mg/kg 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg		
Arsenic	1450	U	0.0053	0.0018	< 0.050	< 0.050	0.5	2	25	
Barium	1450	U	0.020	0.014	< 0.50	< 0.50	20	100	300	
Cadmium	1450	U	< 0.00010	< 0.00010	< 0.010	< 0.010	0.04	1	5	
Chromium	1450	U	0.0076	< 0.0010	< 0.050	< 0.050	0.5	10	70	
Copper	1450	U	0.020	0.0041	< 0.050	< 0.050	2	50	100	
Mercury	1450	U	< 0.00050	< 0.00050	< 0.0010	< 0.0050	0.01	0.2	2	
Molybdenum	1450	U	0.032	0.014	0.061	0.16	0.5	10	30	
Nickel	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.4	10	40	
Lead	1450	U	< 0.0010	< 0.0010	< 0.010	< 0.010	0.5	10	50	
Antimony	1450	U	0.0029	0.0027	< 0.010	0.027	0.06	0.7	5	
Selenium	1450	U	0.011	0.0011	0.021	0.023	0.1	0.5	7	
Zinc	1450	U	0.013	0.0046	< 0.50	< 0.50	4	50	200	
Chloride	1220	U	1900	200	3600	4100	800	15000	25000	
Fluoride	1220	U	0.89	0.57	1.7	6.1	10	150	500	
Sulphate	1220	U	420	56	800	1000	1000	20000	50000	
Total Dissolved Solids	1020	N	3800	440	7200	8600	4000	60000	100000	
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-	
Dissolved Organic Carbon	1610	U	7.2	5.8	< 50	59	500	800	1000	

Soild Information	
Dry mass of test portion/kg	0.175
Moisture (%)	27

Leachate Test Information	
Leachant volume 1st extract/l	0.287
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.222

Project: C6023 - Bantry Inner Harbour Development

Chemtest Job No: 16-30955							Landfill Waste Acceptance Criteria			
Chemtest Sample ID: 392216							Limits			
Sample Ref: D4/D6							Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill	
Sample ID: WAC 1										
Top Depth(m):										
Bottom Depth(m):										
Sampling Date: 12-Dec-2016										
Determinand	SOP	Accred.	Units							
Total Organic Carbon	2625	U	%				1.4	3	5	6
Loss On Ignition	2610	U	%				2.8	--	--	10
Total BTEX	2760	U	mg/kg				< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg				< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg				< 10	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg				3.4	100	--	--
pH	2010	U					8.3	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg				0.054	--	To evaluate	To evaluate
Eluate Analysis			2:1 mg/l	8:1 mg/l	2:1 mg/kg	Cumulative mg/kg 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg			
Arsenic	1450	U	0.011	0.0034	< 0.050	< 0.050	0.5	2	25	
Barium	1450	U	0.030	0.019	< 0.50	< 0.50	20	100	300	
Cadmium	1450	U	0.00043	< 0.00010	< 0.010	< 0.010	0.04	1	5	
Chromium	1450	U	0.036	0.015	0.069	0.17	0.5	10	70	
Copper	1450	U	0.028	0.033	0.054	< 0.050	2	50	100	
Mercury	1450	U	0.00077	< 0.00050	0.0015	< 0.0050	0.01	0.2	2	
Molybdenum	1450	U	0.073	0.027	0.14	0.32	0.5	10	30	
Nickel	1450	U	0.0016	< 0.0010	< 0.050	< 0.050	0.4	10	40	
Lead	1450	U	0.0054	< 0.0010	0.010	< 0.010	0.5	10	50	
Antimony	1450	U	0.0026	0.0013	< 0.010	0.014	0.06	0.7	5	
Selenium	1450	U	0.023	0.0044	0.044	0.065	0.1	0.5	7	
Zinc	1450	U	0.019	0.0088	< 0.50	< 0.50	4	50	200	
Chloride	1220	U	2500	240	4800	5000	800	15000	25000	
Fluoride	1220	U	0.96	0.54	1.8	5.8	10	150	500	
Sulphate	1220	U	440	53	830	960	1000	20000	50000	
Total Dissolved Solids	1020	N	4700	520	9000	9900	4000	60000	100000	
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-	
Dissolved Organic Carbon	1610	U	14	8.7	< 50	92	500	800	1000	

Soild Information

Dry mass of test portion/kg	0.175
Moisture (%)	25

Leachate Test Information

Leachant volume 1st extract/l	0.292
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.199

Project: C6023 - Bantry Inner Harbour Development

Chemtest Job No: 16-30955							Landfill Waste Acceptance Criteria			
Chemtest Sample ID: 392217							Limits			
Sample Ref: D17							Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill	
Sample ID: WAC 1										
Top Depth(m):										
Bottom Depth(m):										
Sampling Date: 14-Dec-2016										
Determinand	SOP	Accred.	Units							
Total Organic Carbon	2625	U	%				1.1	3	5	6
Loss On Ignition	2610	U	%				2.0	--	--	10
Total BTEX	2760	U	mg/kg				< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg				< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg				< 10	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg				28	100	--	--
pH	2010	U					8.4	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg				0.027	--	To evaluate	To evaluate
Eluate Analysis			2:1 mg/l	8:1 mg/l	2:1 mg/kg	Cumulative mg/kg 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg			
Arsenic	1450	U	0.011	0.0050	< 0.050	0.057	0.5	2	25	
Barium	1450	U	0.022	0.011	< 0.50	< 0.50	20	100	300	
Cadmium	1450	U	0.00022	< 0.00010	< 0.010	< 0.010	0.04	1	5	
Chromium	1450	U	0.039	0.013	0.076	0.16	0.5	10	70	
Copper	1450	U	0.12	0.0092	0.24	0.14	2	50	100	
Mercury	1450	U	< 0.00050	< 0.00050	< 0.0010	< 0.0050	0.01	0.2	2	
Molybdenum	1450	U	0.12	0.026	0.24	0.37	0.5	10	30	
Nickel	1450	U	0.0014	< 0.0010	< 0.050	< 0.050	0.4	10	40	
Lead	1450	U	< 0.0010	< 0.0010	< 0.010	< 0.010	0.5	10	50	
Antimony	1450	U	0.0036	0.0019	< 0.010	0.021	0.06	0.7	5	
Selenium	1450	U	0.017	0.0021	0.033	0.038	0.1	0.5	7	
Zinc	1450	U	0.020	0.0070	< 0.50	< 0.50	4	50	200	
Chloride	1220	U	2400	220	4600	4600	800	15000	25000	
Fluoride	1220	U	1.3	0.46	2.5	5.5	10	150	500	
Sulphate	1220	U	420	50	820	920	1000	20000	50000	
Total Dissolved Solids	1020	N	4300	470	8500	9100	4000	60000	100000	
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-	
Dissolved Organic Carbon	1610	U	12	8.6	< 50	90	500	800	1000	

Soild Information

Dry mass of test portion/kg	0.175
Moisture (%)	19

Leachate Test Information

Leachant volume 1st extract/l	0.309
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.200

Project: C6023 - Bantry Inner Harbour Development

Chemtest Job No: 16-30955							Landfill Waste Acceptance Criteria			
Chemtest Sample ID: 392218							Limits			
Sample Ref: D15							Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill	
Sample ID: WAC 1										
Top Depth(m):										
Bottom Depth(m):										
Sampling Date: 15-Dec-2016										
Determinand	SOP	Accred.	Units							
Total Organic Carbon	2625	U	%				0.92	3	5	6
Loss On Ignition	2610	U	%				2.3	--	--	10
Total BTEX	2760	U	mg/kg				< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg				< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg				< 10	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg				< 2.0	100	--	--
pH	2010	U					8.3	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg				0.024	--	To evaluate	To evaluate
Eluate Analysis			2:1 mg/l	8:1 mg/l	2:1 mg/kg	Cumulative mg/kg 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg			
Arsenic	1450	U	0.0081	0.0033	< 0.050	< 0.050	0.5	2	25	
Barium	1450	U	0.023	0.014	< 0.50	< 0.50	20	100	300	
Cadmium	1450	U	0.00014	< 0.00010	< 0.010	< 0.010	0.04	1	5	
Chromium	1450	U	0.029	0.012	0.056	0.14	0.5	10	70	
Copper	1450	U	0.059	0.0070	0.12	0.067	2	50	100	
Mercury	1450	U	< 0.00050	< 0.00050	< 0.0010	< 0.0050	0.01	0.2	2	
Molybdenum	1450	U	0.073	0.023	0.14	0.29	0.5	10	30	
Nickel	1450	U	0.0012	< 0.0010	< 0.050	< 0.050	0.4	10	40	
Lead	1450	U	< 0.0010	< 0.0010	< 0.010	< 0.010	0.5	10	50	
Antimony	1450	U	0.0016	0.0011	< 0.010	0.012	0.06	0.7	5	
Selenium	1450	U	0.014	0.0015	0.027	0.029	0.1	0.5	7	
Zinc	1450	U	0.015	0.0046	< 0.50	< 0.50	4	50	200	
Chloride	1220	U	2000	200	3800	4000	800	15000	25000	
Fluoride	1220	U	0.67	0.40	1.3	4.3	10	150	500	
Sulphate	1220	U	340	44	660	780	1000	20000	50000	
Total Dissolved Solids	1020	N	3800	430	7300	8100	4000	60000	100000	
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-	
Dissolved Organic Carbon	1610	U	10	8.1	< 50	83	500	800	1000	

Soild Information

Dry mass of test portion/kg	0.175
Moisture (%)	21

Leachate Test Information

Leachant volume 1st extract/l	0.303
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.200

Results - 2 Stage WAC

Project: C6023 - Bantry Inner Harbour Development

Chemtest Job No: 16-31409							Landfill Waste Acceptance Criteria Limits			
Chemtest Sample ID: 394655							Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill	
Sample Ref: D18										
Sample ID: WAC1										
Top Depth(m):										
Bottom Depth(m):										
Sampling Date: 16-Dec-2016										
Determinand	SOP	Accred.	Units							
Total Organic Carbon	2625	U	%				0.53	3	5	6
Loss On Ignition	2610	U	%				2.7	--	--	10
Total BTEX	2760	U	mg/kg				< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg				< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg				14	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg				< 2.0	100	--	--
pH	2010	U					8.4	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg				0.019	--	To evaluate	To evaluate
Eluate Analysis				2:1 mg/l	8:1 mg/l	2:1 mg/kg	Cumulative mg/kg 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg		
Arsenic	1450	U	0.012	0.012	< 0.050	0.12	0.5	2	25	
Barium	1450	U	0.026	0.0040	< 0.50	< 0.50	20	100	300	
Cadmium	1450	U	0.00020	< 0.00010	< 0.010	< 0.010	0.04	1	5	
Chromium	1450	U	0.030	0.0096	0.058	0.12	0.5	10	70	
Copper	1450	U	0.013	0.0040	< 0.050	< 0.050	2	50	100	
Mercury	1450	U	0.0019	< 0.00050	0.0037	< 0.0050	0.01	0.2	2	
Molybdenum	1450	U	0.12	0.025	0.23	0.35	0.5	10	30	
Nickel	1450	U	0.0040	< 0.0010	< 0.050	< 0.050	0.4	10	40	
Lead	1450	U	< 0.0010	< 0.0010	< 0.010	< 0.010	0.5	10	50	
Antimony	1450	U	0.0011	0.0017	< 0.010	0.016	0.06	0.7	5	
Selenium	1450	U	0.019	0.0030	0.037	0.047	0.1	0.5	7	
Zinc	1450	U	0.0099	0.0064	< 0.50	< 0.50	4	50	200	
Chloride	1220	U	1300	100	2500	2300	800	15000	25000	
Fluoride	1220	U	0.97	0.34	1.9	4.0	10	150	500	
Sulphate	1220	U	310	45	600	730	1000	20000	50000	
Total Dissolved Solids	1020	N	2400	350	4600	5700	4000	60000	100000	
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-	
Dissolved Organic Carbon	1610	U	29	13	56	150	500	800	1000	

Soild Information	
Dry mass of test portion/kg	0.175
Moisture (%)	24

Leachate Test Information	
Leachant volume 1st extract/l	0.296
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.187

Results - 2 Stage WAC

Project: C6023 - Bantry Inner Harbour Development

Chemtest Job No: 16-31409 Chemtest Sample ID: 394656 Sample Ref: D23 Sample ID: WAC1 Top Depth(m): Bottom Depth(m): Sampling Date: 16-Dec-2016							Landfill Waste Acceptance Criteria Limits			
							Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill	
Determinand	SOP	Accred.	Units							
Total Organic Carbon	2625	U	%				0.60	3	5	6
Loss On Ignition	2610	U	%				2.5	--	--	10
Total BTEX	2760	U	mg/kg				< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg				< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg				13	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg				< 2.0	100	--	--
pH	2010	U					8.4	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg				0.038	--	To evaluate	To evaluate
Eluate Analysis				2:1 mg/l	8:1 mg/l	2:1 mg/kg	Cumulative mg/kg 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg		
Arsenic	1450	U	0.012	0.0045	< 0.050	0.053	0.5	2	25	
Barium	1450	U	0.051	0.014	< 0.50	< 0.50	20	100	300	
Cadmium	1450	U	0.0016	< 0.00010	< 0.010	< 0.010	0.04	1	5	
Chromium	1450	U	0.032	0.0096	0.062	0.12	0.5	10	70	
Copper	1450	U	0.0094	0.0012	< 0.050	< 0.050	2	50	100	
Mercury	1450	U	0.0037	0.00064	0.0072	0.0098	0.01	0.2	2	
Molybdenum	1450	U	0.075	0.019	0.15	0.25	0.5	10	30	
Nickel	1450	U	0.0028	< 0.0010	< 0.050	< 0.050	0.4	10	40	
Lead	1450	U	0.0022	< 0.0010	< 0.010	< 0.010	0.5	10	50	
Antimony	1450	U	0.0030	0.0010	< 0.010	0.012	0.06	0.7	5	
Selenium	1450	U	0.025	0.0030	0.049	0.055	0.1	0.5	7	
Zinc	1450	U	0.012	0.0034	< 0.50	< 0.50	4	50	200	
Chloride	1220	U	1500	150	2900	3100	800	15000	25000	
Fluoride	1220	U	0.62	0.32	1.2	3.5	10	150	500	
Sulphate	1220	U	290	39	570	670	1000	20000	50000	
Total Dissolved Solids	1020	N	3000	400	5800	6900	4000	60000	100000	
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-	
Dissolved Organic Carbon	1610	U	13	10	< 50	100	500	800	1000	

Soild Information	
Dry mass of test portion/kg	0.175
Moisture (%)	21

Leachate Test Information	
Leachant volume 1st extract/l	0.302
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.197

Appendix 5-A
Inner Buoy Monitoring SW-A02

DATE	TIME	SIDE-SCATTER-TOTAL-SU	Turbidity NTU
22/11/2016	00:00:52	94.62866	6.656029503
22/11/2016	00:15:52	131.57336	9.524406832
22/11/2016	00:30:52	120.08225	8.632239907
22/11/2016	00:45:52	67.01714	4.51227795
22/11/2016	01:00:52	35.4037	2.057818323
22/11/2016	01:15:52	89.13306	6.229352484
22/11/2016	01:30:52	81.35954	5.625818323
22/11/2016	01:45:52	70.86671	4.811157609
22/11/2016	02:00:52	22.05506	1.02143323
22/11/2016	02:15:52	39.06767	2.342288043
22/11/2016	02:30:52	16.84171	0.616670031
22/11/2016	02:45:52	9.51664	0.047953416
22/11/2016	03:00:52	9.51664	0.047953416
22/11/2016	03:15:52	1223.99852	94.34002484
22/11/2016	03:30:52	193.17989	14.30752252
22/11/2016	03:45:52	22.05506	1.02143323
22/11/2016	04:00:52	8.899	0
22/11/2016	04:15:52	8.899	0
22/11/2016	04:30:52	8.899	0
22/11/2016	04:45:52	8.899	0
22/11/2016	05:00:52	8.899	0
22/11/2016	05:15:52	8.899	0
22/11/2016	05:30:52	49.55432	3.156468944
22/11/2016	05:45:52	8.899	0
22/11/2016	06:00:52	8.899	0
22/11/2016	06:15:52	8.899	0
22/11/2016	06:30:52	8.899	0
22/11/2016	06:45:52	8.899	0
22/11/2016	07:00:52	11.67208	0.215301242
22/11/2016	07:15:52	8.899	0
22/11/2016	07:30:52	8.899	0
22/11/2016	07:45:52	8.899	0
22/11/2016	08:00:52	8.899	0
22/11/2016	08:15:52	8.899	0
22/11/2016	08:30:52	8.899	0
22/11/2016	08:45:52	8.899	0
22/11/2016	09:00:52	8.899	0
22/11/2016	09:15:52	8.899	0
22/11/2016	09:30:52	8.899	0
22/11/2016	09:45:52	8.899	0
22/11/2016	10:00:52	8.899	0
22/11/2016	10:15:52	8.899	0
22/11/2016	10:30:52	8.899	0
22/11/2016	10:45:52	8.899	0
22/11/2016	11:00:52	8.899	0

22/11/2016	11:15:52	40.1631	2.427336957
22/11/2016	11:30:52	438.54499	33.35760792
22/11/2016	11:45:52	235.05303	17.5585427
22/11/2016	12:00:52	308.10167	23.23002096
22/11/2016	12:15:52	260.12704	19.50528261
22/11/2016	12:30:52	467.9179	35.63811335
22/11/2016	12:45:52	341.53738	25.82596118
22/11/2016	13:00:52	252.98046	18.95042391
22/11/2016	13:15:52	334.34726	25.26772205
22/11/2016	13:30:52	250.73905	18.7764014
22/11/2016	13:45:52	264.45041	19.84094798
22/11/2016	14:00:52	282.0221	21.20520963
22/11/2016	14:15:52	236.50746	17.67146429
22/11/2016	14:30:52	320.62792	24.2025559
22/11/2016	14:45:52	319.08114	24.08246429
22/11/2016	15:00:52	255.25859	19.12729736
22/11/2016	15:15:52	231.14247	17.2549278
22/11/2016	15:30:52	273.06984	20.51015839
22/11/2016	15:45:52	75.19655	5.147325311
22/11/2016	16:00:52	55.96554	3.654234472
22/11/2016	16:15:52	31.32112	1.740847826
22/11/2016	16:30:52	63.51485	4.240361025
22/11/2016	16:45:52	35.74791	2.084542702
22/11/2016	17:00:52	9.82033	0.071531832
22/11/2016	17:15:52	139.86822	10.1684177
22/11/2016	17:30:52	73.62145	5.025034938
22/11/2016	17:45:52	60.31924	3.992254658
22/11/2016	18:00:52	15.13832	0.484419255
22/11/2016	18:15:52	16.53806	0.59309472
22/11/2016	18:30:52	8.899	0
22/11/2016	18:45:52	8.899	0
22/11/2016	19:00:52	51.55956	3.31215528
22/11/2016	19:15:52	38.62356	2.307807453
22/11/2016	19:30:52	22.03285	1.019708851
22/11/2016	19:45:52	12.80531	0.303284938
22/11/2016	20:00:52	8.899	0
22/11/2016	20:15:52	22.81776	1.080649068
22/11/2016	20:30:52	59.47222	3.926492236
22/11/2016	20:45:52	34.60425	1.995749224
22/11/2016	21:00:52	14.1644	0.408804348
22/11/2016	21:15:52	67.76785	4.570562888
22/11/2016	21:30:52	69.02887	4.668468168
22/11/2016	21:45:52	62.42379	4.155651398
22/11/2016	22:00:52	55.7399	3.636715839
22/11/2016	22:15:52	66.93578	4.50596118
22/11/2016	22:30:52	70.07168	4.749431677
22/11/2016	22:45:52	55.37737	3.608569099
22/11/2016	23:00:52	65.37883	4.385079969
22/11/2016	23:15:52	54.04191	3.504884317
22/11/2016	23:30:52	16.06779	0.556583075

22/11/2016	23:45:52	25.96092	1.32468323
23/11/2016	00:00:52	11.13509	0.173609472
23/11/2016	00:15:52	8.899	0
23/11/2016	00:30:52	8.899	0
23/11/2016	00:45:52	8.899	0
23/11/2016	01:00:52	8.899	0
23/11/2016	01:15:52	13.67188	0.370565217
23/11/2016	01:30:52	8.899	0
23/11/2016	01:45:52	8.899	0
23/11/2016	02:00:52	11.54987	0.205812888
23/11/2016	02:15:52	12.0202	0.242329193
23/11/2016	02:30:52	28.04882	1.486787267
23/11/2016	02:45:52	31.88374	1.784529503
23/11/2016	03:00:52	44.36686	2.753715839
23/11/2016	03:15:52	31.96518	1.790852484
23/11/2016	03:30:52	8.899	0
23/11/2016	03:45:52	8.899	0
23/11/2016	04:00:52	22.13281	1.02746972
23/11/2016	04:15:52	11.37581	0.192298913
23/11/2016	04:30:52	29.43328	1.594276398
23/11/2016	04:45:52	8.899	0
23/11/2016	05:00:52	8.899	0
23/11/2016	05:15:52	11.34618	0.189998447
23/11/2016	05:30:52	10.71289	0.140829969
23/11/2016	05:45:52	11.60913	0.21041382
23/11/2016	06:00:52	17.63412	0.678192547
23/11/2016	06:15:52	20.65552	0.912773292
23/11/2016	06:30:52	14.13848	0.406791925
23/11/2016	06:45:52	10.52771	0.12645264
23/11/2016	07:00:52	14.11626	0.40506677
23/11/2016	07:15:52	9.53515	0.049390528
23/11/2016	07:30:52	8.899	0
23/11/2016	07:45:52	8.899	0
23/11/2016	08:00:52	8.899	0
23/11/2016	08:15:52	8.899	0
23/11/2016	08:30:52	8.899	0
23/11/2016	08:45:52	8.899	0
23/11/2016	09:00:52	8.899	0
23/11/2016	09:15:52	10.21661	0.102298913
23/11/2016	09:30:52	8.899	0
23/11/2016	09:45:52	8.899	0
23/11/2016	10:00:52	8.899	0
23/11/2016	10:15:52	8.899	0
23/11/2016	10:30:52	8.899	0
23/11/2016	10:45:52	8.899	0
23/11/2016	11:00:52	8.899	0
23/11/2016	11:15:52	8.899	0
23/11/2016	11:30:52	8.899	0
23/11/2016	11:45:52	8.899	0
23/11/2016	12:00:52	8.899	0

23/11/2016	12:15:52	217.26457	16.17745109
23/11/2016	12:30:52	550.28794	42.0333028
23/11/2016	12:45:52	209.90367	15.60595264
23/11/2016	13:00:52	241.82737	18.08450078
23/11/2016	13:15:52	38.64207	2.309244565
23/11/2016	13:30:52	125.68422	9.067175466
23/11/2016	13:45:52	101.07306	7.156371118
23/11/2016	14:00:52	85.46273	5.944388975
23/11/2016	14:15:52	115.90516	8.307931677
23/11/2016	14:30:52	29.15196	1.572434783
23/11/2016	14:45:52	255.05237	19.11128649
23/11/2016	15:00:52	127.78523	9.23029736
23/11/2016	15:15:52	18.90788	0.777086957
23/11/2016	15:30:52	10.86843	0.152906056
23/11/2016	15:45:52	108.53602	7.735793478
23/11/2016	16:00:52	225.48214	16.81546118
23/11/2016	16:15:52	23.57303	1.139288043
23/11/2016	16:30:52	8.899	0
23/11/2016	16:45:52	8.899	0
23/11/2016	17:00:52	9.03146	0.010284161
23/11/2016	17:15:52	8.899	0
23/11/2016	17:30:52	11.98687	0.23974146
23/11/2016	17:45:52	8.899	0
23/11/2016	18:00:52	8.899	0
23/11/2016	18:15:52	8.899	0
23/11/2016	18:30:52	8.899	0
23/11/2016	18:45:52	8.899	0
23/11/2016	19:00:52	8.899	0
23/11/2016	19:15:52	8.899	0
23/11/2016	19:30:52	11.08694	0.169871118
23/11/2016	19:45:52	9.19812	0.023223602
23/11/2016	20:00:52	13.23119	0.336350155
23/11/2016	20:15:52	33.92692	1.943161491
23/11/2016	20:30:52	8.899	0
23/11/2016	20:45:52	8.899	0
23/11/2016	21:00:52	9.88329	0.076420031
23/11/2016	21:15:52	12.41646	0.27309472
23/11/2016	21:30:52	8.899	0
23/11/2016	21:45:52	8.899	0
23/11/2016	22:00:52	12.69051	0.294371894
23/11/2016	22:15:52	12.2387	0.259293478
23/11/2016	22:30:52	14.80504	0.458543478
23/11/2016	22:45:52	19.27445	0.80554736
23/11/2016	23:00:52	48.88094	3.104187888
23/11/2016	23:15:52	25.73139	1.306862578
23/11/2016	23:30:52	134.59328	9.758872671
23/11/2016	23:45:52	37.77606	2.242007764
24/11/2016	00:00:52	64.99791	4.355505435
24/11/2016	00:15:52	19.67063	0.836306677
24/11/2016	00:30:52	8.899	0

24/11/2016	00:45:52	20.55926	0.905299689
24/11/2016	01:00:52	29.69981	1.61496972
24/11/2016	01:15:52	34.51172	1.988565217
24/11/2016	01:30:52	23.19909	1.110255435
24/11/2016	01:45:52	37.05438	2.185976708
24/11/2016	02:00:52	35.27416	2.04776087
24/11/2016	02:15:52	42.62397	2.618398292
24/11/2016	02:30:52	14.03479	0.39874146
24/11/2016	02:45:52	48.52576	3.076611801
24/11/2016	03:00:52	89.88704	6.287891304
24/11/2016	03:15:52	44.54446	2.767504658
24/11/2016	03:30:52	34.64866	1.999197205
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22/12/2016	05:45:52	8.899	0
22/12/2016	06:00:52	10.47586	0.122427019
22/12/2016	06:15:52	12.89789	0.310472826
22/12/2016	06:30:52	8.93146	0.002520186
22/12/2016	06:45:52	12.33499	0.26676941
22/12/2016	07:00:52	12.77198	0.300697205
22/12/2016	07:15:52	12.31647	0.265331522
22/12/2016	07:30:52	11.84614	0.228815217
22/12/2016	07:45:52	9.34627	0.034725932
22/12/2016	08:00:52	8.899	0
22/12/2016	08:15:52	10.34624	0.112363354
22/12/2016	08:30:52	12.77198	0.300697205
22/12/2016	08:45:52	8.899	0
22/12/2016	09:00:52	8.899	0
22/12/2016	09:15:52	8.899	0
22/12/2016	09:30:52	9.94996	0.081596273
22/12/2016	09:45:52	9.8907	0.076995342
22/12/2016	10:00:52	8.899	0
22/12/2016	10:15:52	8.899	0

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8.899

Appendix 5-B
Outer Buoy Monitoring SW-A01

OSIL06A (Outer Buoy)

m c
11.08 12.599

DATE	TIME	SIDE-SCATT	Side Scatter	Turbidity
09/12/2016	00:00:52	12.5993	0	
09/12/2016	00:15:52	12.5993	0	
09/12/2016	00:30:52	12.5993	0	
09/12/2016	00:45:52	12.5993	0	
09/12/2016	01:00:52	12.5993	0	
09/12/2016	01:15:52	12.5993	0	
09/12/2016	01:30:52	12.5993	0	
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09/12/2016	04:45:52	12.5993	0	
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09/12/2016	05:30:52	12.5993	0	
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09/12/2016	23:30:52	30.90844	1.652
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10/12/2016	01:15:52	12.7813	0.016
10/12/2016	01:30:52	16.74128	0.374
10/12/2016	01:45:52	20.90332	0.749
10/12/2016	02:00:52	15.27863	0.242
10/12/2016	02:15:52	12.5993	0
10/12/2016	02:30:52	17.78939	0.468
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10/12/2016	21:15:52	17.02437	0.399
10/12/2016	21:30:52	20.83255	0.743
10/12/2016	21:45:52	20.50566	0.714
10/12/2016	22:00:52	25.17642	1.135
10/12/2016	22:15:52	22.467	0.891
10/12/2016	22:30:52	23.27579	0.964
10/12/2016	22:45:52	20.80896	0.741
10/12/2016	23:00:52	23.02978	0.941
10/12/2016	23:15:52	26.18063	1.226
10/12/2016	23:30:52	23.53527	0.987
10/12/2016	23:45:52	29.26064	1.504
11/12/2016	00:00:52	19.51487	0.624
11/12/2016	00:15:52	20.89658	0.749
11/12/2016	00:30:52	23.00619	0.939
11/12/2016	00:45:52	27.7038	1.363

11/12/2016	01:00:52	22.31872	0.877
11/12/2016	01:15:52	41.44841	2.604
11/12/2016	01:30:52	22.40634	0.885
11/12/2016	01:45:52	19.7474	0.645
11/12/2016	02:00:52	21.50318	0.804
11/12/2016	02:15:52	17.75569	0.465
11/12/2016	02:30:52	17.18277	0.414
11/12/2016	02:45:52	12.5993	0
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11/12/2016	04:15:52	12.5993	0
11/12/2016	04:30:52	12.5993	0
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11/12/2016	10:15:52	12.79141	0.017
11/12/2016	10:30:52	13.99458	0.126
11/12/2016	10:45:52	12.80152	0.018
11/12/2016	11:00:52	15.30559	0.244
11/12/2016	11:15:52	13.52612	0.084
11/12/2016	11:30:52	18.12303	0.499
11/12/2016	11:45:52	18.42971	0.526
11/12/2016	12:00:52	15.04272	0.221
11/12/2016	12:15:52	21.05835	0.763
11/12/2016	12:30:52	26.21096	1.229
11/12/2016	12:45:52	19.33963	0.608
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11/12/2016	13:15:52	16.48515	0.351

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11/12/2016	22:45:52	39.54131	2.432
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11/12/2016	23:15:52	40.55215	2.523
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11/12/2016	23:45:52	39.07969	2.39
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12/12/2016	00:15:52	12.5993	0
12/12/2016	00:30:52	12.5993	0
12/12/2016	00:45:52	12.5993	0
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12/12/2016	13:30:52	12.5993	0
12/12/2016	13:45:52	12.5993	0
12/12/2016	14:00:52	12.5993	0
12/12/2016	14:15:52	12.5993	0

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12/12/2016	15:30:52	12.5993	0
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12/12/2016	21:30:52	12.5993	0
12/12/2016	21:45:52	12.5993	0
12/12/2016	22:00:52	12.5993	0
12/12/2016	22:15:52	12.5993	0
12/12/2016	22:30:52	12.5993	0
12/12/2016	22:45:52	12.5993	0
12/12/2016	23:00:52	12.5993	0
12/12/2016	23:15:52	12.5993	0
12/12/2016	23:30:52	12.5993	0
12/12/2016	23:45:52	12.5993	0
13/12/2016	00:00:52	12.5993	0
13/12/2016	00:15:52	12.5993	0
13/12/2016	00:30:52	12.5993	0
13/12/2016	00:45:52	12.5993	0
13/12/2016	01:00:52	12.5993	0
13/12/2016	01:15:52	12.5993	0
13/12/2016	01:30:52	12.5993	0
13/12/2016	01:45:52	12.5993	0
13/12/2016	02:00:52	12.5993	0
13/12/2016	02:15:52	12.5993	0
13/12/2016	02:30:52	12.5993	0
13/12/2016	02:45:52	12.5993	0

13/12/2016	03:00:52	12.89589	0
13/12/2016	03:15:52	21.14933	0
13/12/2016	03:30:52	31.77108	0
13/12/2016	03:45:52	40.19161	0
13/12/2016	04:00:52	21.88062	0
13/12/2016	04:15:52	27.87566	0
13/12/2016	04:30:52	24.16544	0
13/12/2016	04:45:52	24.83943	0
13/12/2016	05:00:52	25.72571	0
13/12/2016	05:15:52	12.5993	0
13/12/2016	05:30:52	13.76541	0
13/12/2016	05:45:52	12.80826	0
13/12/2016	06:00:52	12.5993	0
13/12/2016	06:15:52	12.5993	0
13/12/2016	06:30:52	12.5993	0
13/12/2016	06:45:52	12.5993	0
13/12/2016	07:00:52	12.5993	0
13/12/2016	07:15:52	12.5993	0
13/12/2016	07:30:52	12.5993	0
13/12/2016	07:45:52	12.5993	0
13/12/2016	08:00:52	12.5993	0
13/12/2016	08:15:52	12.5993	0
13/12/2016	08:30:52	12.5993	0
13/12/2016	08:45:52	12.5993	0
13/12/2016	09:00:52	12.5993	0
13/12/2016	09:15:52	12.5993	0
13/12/2016	09:30:52	12.5993	0
13/12/2016	09:45:52	12.5993	0
13/12/2016	10:00:52	12.5993	0
13/12/2016	10:15:52	15.67968	0
13/12/2016	10:30:52	12.5993	0
13/12/2016	10:45:52	16.95697	0
13/12/2016	11:00:52	12.5993	0
13/12/2016	11:15:52	12.5993	0
13/12/2016	11:30:52	12.5993	0
13/12/2016	11:45:52	12.5993	0
13/12/2016	12:00:52	12.5993	0
13/12/2016	12:15:52	12.5993	0
13/12/2016	12:30:52	12.5993	0
13/12/2016	12:45:52	12.5993	0
13/12/2016	13:00:52	12.5993	0
13/12/2016	13:15:52	12.5993	0
13/12/2016	13:30:52	12.5993	0
13/12/2016	13:45:52	12.5993	0
13/12/2016	14:00:52	12.5993	0
13/12/2016	14:15:52	12.5993	0
13/12/2016	14:30:52	12.5993	0
13/12/2016	14:45:52	12.5993	0
13/12/2016	15:00:52	12.5993	0
13/12/2016	15:15:52	12.5993	0

13/12/2016	15:30:52	12.5993	0
13/12/2016	15:45:52	12.5993	0
13/12/2016	16:00:52	12.5993	0
13/12/2016	16:15:52	12.5993	0
13/12/2016	16:30:52	12.5993	0
13/12/2016	16:45:52	12.5993	0
13/12/2016	17:00:52	12.5993	0
13/12/2016	17:15:52	12.5993	0
13/12/2016	17:30:52	12.5993	0
13/12/2016	17:45:52	12.5993	0
13/12/2016	18:00:52	12.5993	0
13/12/2016	18:15:52	12.5993	0
13/12/2016	18:30:52	12.5993	0
13/12/2016	18:45:52	12.5993	0
13/12/2016	19:00:52	12.5993	0
13/12/2016	19:15:52	12.5993	0
13/12/2016	19:30:52	12.5993	0.162
13/12/2016	19:45:52	12.5993	0.035
13/12/2016	20:00:52	12.5993	0
13/12/2016	20:15:52	12.5993	0
13/12/2016	20:30:52	12.5993	0
13/12/2016	20:45:52	12.5993	0
13/12/2016	21:00:52	12.5993	0
13/12/2016	21:15:52	12.5993	0
13/12/2016	21:30:52	12.5993	0
13/12/2016	21:45:52	12.5993	0
13/12/2016	22:00:52	12.5993	0
13/12/2016	22:15:52	12.5993	0
13/12/2016	22:30:52	12.5993	0
13/12/2016	22:45:52	12.5993	0
13/12/2016	23:00:52	12.5993	0
13/12/2016	23:15:52	12.5993	0
13/12/2016	23:30:52	12.5993	0
13/12/2016	23:45:52	12.5993	0

Appendix 6

Manual Marine Monitoring SW-M01 - 2016

Project: C6023 - Bantry Inner Harbour Development

Client: BAM Contractors		Chemtest Job No.:		16-28400	16-28400	16-28400	
Quotation No.: Q16-07624	Chemtest Sample ID.:		380924	380925	380926		
Order No.: C6023 - 0032	Client Sample Ref.:		SW-MO1	SW-MO1	SW-MO1		
	Client Sample ID.:		1	1	2		
	Sample Type:		WATER	WATER	WATER		
	Top Depth (m):		3.00	3.00	3.00		
	Date Sampled:		11-Nov-2016	16-Nov-2016	16-Nov-2016		
Determinand	Accred.	SOP	Units	LOD			
Suspended Solids At 105C	U	1030	mg/l	5.0	39	24	30
Turbidity	N	1060	NTU	1.0	< 1.0	1.6	1.2
Arsenic (Dissolved)	U	1450	µg/l	1.0	1.9	1.5	1.4
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080	< 0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	27	36	36
Copper (Dissolved)	U	1450	µg/l	1.0	17	24	19
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50	< 0.50	< 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	20	20	25
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0
Zinc (Dissolved)	U	1450	µg/l	1.0	100	87	81
Total TPH >C6-C40	U	1670	µg/l	10	< 10	< 10	< 10
Naphthalene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	1700	µg/l	2.0	< 2.0	< 2.0	< 2.0
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050	< 0.050
PCB 28	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010
PCB 52	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010
PCB 90+101	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010
PCB 118	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010
PCB 153	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010
PCB 138	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010
PCB 180	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010
Total PCBs (7 congeners)	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010

Project: C6023 - Bantry Inner Harbour Development

Client: BAM Contractors	Chemtest Job No.:					16-29379	16-29379	16-29379	16-29379	16-29379
Quotation No.: Q16-07624	Chemtest Sample ID.:					384991	384992	384993	384994	384995
	Client Sample ID.:					SW-M01 (1-3)	SW-M01 (1-3)	SW-M01 (1-3)	SW-M01 (1-3)	SW-M01 (1-3)
	Sample Type:					WATER	WATER	WATER	WATER	WATER
	Top Depth (m):					3.0	3.0	3.0	3.0	3.0
	Date Sampled:					17-Nov-2016	18-Nov-2016	21-Nov-2016	22-Nov-2016	23-Nov-2016
Determinand	Accred.	SOP	Units	LOD						
Suspended Solids At 105C	U	1030	mg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	
Turbidity	N	1060	NTU	1.0	4.7	6.2	11	4.1	5.4	
Arsenic (Dissolved)	U	1450	µg/l	1.0	2.1	2.5	1.5	2.1	1.0	
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	
Chromium (Dissolved)	U	1450	µg/l	1.0	28	34	32	38	37	
Copper (Dissolved)	U	1450	µg/l	1.0	17	22	25	26	24	
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50	< 0.50	< 0.50	2.5	< 0.50	
Nickel (Dissolved)	U	1450	µg/l	1.0	6.7	7.0	5.6	8.3	9.0	
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Selenium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Zinc (Dissolved)	U	1450	µg/l	1.0	96	120	92	130	150	
Total TPH >C6-C40	U	1670	µg/l	10	< 10	< 10	< 10	< 10	< 10	
Naphthalene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Acenaphthylene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Acenaphthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Fluorene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Phenanthrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Benzo[a]anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Chrysene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Benzo[b]fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Benzo[k]fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Benzo[a]pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Indeno(1,2,3-c,d)Pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Dibenz(a,h)Anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Benzo[g,h,i]perylene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Total Of 16 PAH's	U	1700	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	
PCB 28	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	
PCB 52	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	
PCB 90+101	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	
PCB 118	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	
PCB 153	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	
PCB 138	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	
PCB 180	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	
Total PCBs (7 congeners)	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	

Project: C6023 Bantry Inner Harbour Development

Client: BAM Contractors	Chemtest Job No.:		16-30178	16-30178	16-30178	16-30178	16-30178	16-30178	16-30178	
Quotation No.: Q16-07624	Chemtest Sample ID.:		388687	388688	388689	388690	388691	388692		
Order No.: C6023-0032	Client Sample Ref.:		SW-MO1	SW-MO1	SW-MO1	SW-MO1	SW-MO1	SW-MO1	SW-MO1	
	Client Sample ID.:		1-3	1-3	1-3	1-3	1-3	1-3	1-3	
	Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER	WATER	
	Top Depth (m):		3.00	3.00	3.00	3.00	3.00	3.00	3.00	
	Date Sampled:		25-Nov-2016	28-Nov-2016	29-Nov-2016	30-Nov-2016	01-Dec-2016	02-Dec-2016		
Determinand	Accred.	SOP	Units	LOD						
Suspended Solids At 105C	U	1030	mg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Turbidity	N	1060	NTU	1.0	1.7	1.7	2.6	2.3	2.5	1.8
Arsenic (Dissolved)	N	1450	µg/l	1.0	4.4	4.7	5.8	4.7	6.0	2.7
Cadmium (Dissolved)	U	1450	µg/l	0.080	13	1.1	0.40	0.26	0.22	0.19
Chromium (Dissolved)	N	1450	µg/l	1.0	2.3	19	24	20	24	9.5
Copper (Dissolved)	N	1450	µg/l	1.0	12	16	90	20	24	7.8
Mercury (Dissolved)	U	1450	µg/l	0.50	0.63	3.9	1.5	1.1	0.80	0.84
Nickel (Dissolved)	U	1450	µg/l	1.0	< 1.0	5.1	6.4	6.6	6.6	6.7
Lead (Dissolved)	U	1450	µg/l	1.0	4.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	1.3	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (Dissolved)	U	1450	µg/l	1.0	76	120	88	83	82	82
Total TPH >C6-C40	U	1670	µg/l	10	150	130	420	80	130	140
Naphthalene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	1700	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
PCB 28	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 52	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 90+101	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 118	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 153	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 138	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 180	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total PCBs (7 congeners)	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010

Project: C6023 Bantry Inner Harbour Development

Client: BAM Contractors	Chemtest Job No.:				16-30329	16-30329	16-30329	16-30329
Quotation No.: Q16-07624	Chemtest Sample ID.:				389277	389278	389279	389280
Order No.: C6023-0032	Client Sample Ref.:				SW-MO1	SW-MO1	SW-MO1	SW-MO1
	Client Sample ID.:				REF NO.1 (1-3)	REF NO.1 (1-3)	REF NO 1 (1-3)	REF NO 1 (1-3)
	Sample Type:				WATER	WATER	WATER	WATER
	Top Depth (m):				3.00	3.00	3.00	3.00
	Date Sampled:				05-Dec-2016	06-Dec-2016	07-Dec-2016	08-Dec-2016
Determinand	Accred.	SOP	Units	LOD				
Suspended Solids At 105C	U	1030	mg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0
Turbidity	N	1060	NTU	1.0	< 1.0	2.1	1.2	1.9
Arsenic (Dissolved)	U	1450	µg/l	1.0	< 1.0	1.1	1.3	1.3
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080	< 0.080	< 0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	28	24	29	28
Copper (Dissolved)	U	1450	µg/l	1.0	42	37	31	34
Mercury (Dissolved)	U	1450	µg/l	0.50	0.50	< 0.50	< 0.50	< 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	6.2	5.8	5.6	6.4
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (Dissolved)	U	1450	µg/l	1.0	84	94	79	86
Total TPH >C6-C40	U	1670	µg/l	10	< 10	< 10	< 10	< 10
Naphthalene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	1700	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050	< 0.050	< 0.050
PCB 28	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 52	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 90+101	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 118	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 153	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 138	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 180	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010

Project: C6023 Bantry Inner Harbour Development

Client: BAM Contractors	Chemtest Job No.:				16-30329	16-30329	16-30329	16-30329
Quotation No.: Q16-07624	Chemtest Sample ID.:				389277	389278	389279	389280
Order No.: C6023-0032	Client Sample Ref.:				SW-MO1	SW-MO1	SW-MO1	SW-MO1
	Client Sample ID.:				REF NO.1 (1-3)	REF NO.1 (1-3)	REF NO 1 (1-3)	REF NO 1 (1-3)
	Sample Type:				WATER	WATER	WATER	WATER
	Top Depth (m):				3.00	3.00	3.00	3.00
	Date Sampled:				05-Dec-2016	06-Dec-2016	07-Dec-2016	08-Dec-2016
Determinand	Accred.	SOP	Units	LOD				
Total PCBs (7 congeners)	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010

Project: C6023 - Bantry Inner Harbour Development

Client: BAM Contractors		Chemtest Job No.:		16-30955	16-30955	16-30955	16-30955	16-30955	16-30955	
Quotation No.: Q16-07624		Chemtest Sample ID.:		392219	392220	392221	392222	395440	395441	
Order No.: C6023 - 0032		Client Sample Ref.:		SW-MO1	SW-MO1	SW-MO1	SW-MO1	SW-MO1	SW-MO1	
		Client Sample ID.:		W1	W1	W1	W1	W1	W1	
		Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER	
		Top Depth (m):		3.00	3.00	3.00	3.00	3.00	3.00	
		Date Sampled:		09-Dec-2016	10-Dec-2016	12-Dec-2016	13-Dec-2016	14-Dec-2016	15-Dec-2016	
Determinand	Accred.	SOP	Units	LOD						
Suspended Solids At 105C	U	1030	mg/l	5.0	220	170	370	370	7.0	5.0
Turbidity	N	1060	NTU	1.0	1.1	< 1.0	< 1.0	1.8	3.4	6.3
Arsenic (Dissolved)	U	1450	µg/l	1.0	5.3	4.4	5.0	4.1	4.1	4.0
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	24	26	24	19	20	18
Copper (Dissolved)	U	1450	µg/l	1.0	24	20	23	17	16	19
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	5.5	6.1	5.6	5.5	9.2	10
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (Dissolved)	U	1450	µg/l	1.0	71	82	74	73	96	110
Total TPH >C6-C40	U	1670	µg/l	10	< 10	< 10	< 10	< 10	< 10	< 10
Naphthalene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	1700	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
PCB 28	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 52	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 90+101	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 118	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 153	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 138	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 180	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total PCBs (7 congeners)	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010

Project: C6023 - Bantry Inner Harbour Development

Client: BAM Contractors		Chemtest Job No.:										
Quotation No.: Q16-07624	Chemtest Sample ID.:	16-31406	16-31406	16-31406	16-31406	16-31406	16-31406	16-31406	16-31406	16-31406	16-31406	16-31406
Order No.: C6023 - 0032	Client Sample Ref.:	SW-MO1	SW-MO1	SW-MO1	S02	S02	S02	S02	S02	S02	S02	S02
	Client Sample ID.:	W1	W1	W1	Outer Buoy	Outer Buoy	Outer Buoy	Outer Buoy	Outer Buoy	Outer Buoy	Outer Buoy	Outer Buoy
	Sample Type:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	Top Depth (m):	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
	Date Sampled:	16-Dec-2016	19-Dec-2016	20-Dec-2016	12-Dec-2016	13-Dec-2016	14-Dec-2016	15-Dec-2016	16-Dec-2016	19-Dec-2016		
Determinand	Accred.	SOP	Units	LOD								
Suspended Solids At 105C	U	1030	mg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Turbidity	N	1060	NTU	1.0	2.7	3.2	1.3	1.6	1.6	1.0	1.5	1.6
Arsenic (Dissolved)	U	1450	µg/l	1.0	3.2	4.8	5.1	4.1	4.9	4.0	3.2	4.6
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	0.10	< 0.080	0.091
Chromium (Dissolved)	U	1450	µg/l	1.0	18	26	22	12	19	19	7.5	22
Copper (Dissolved)	U	1450	µg/l	1.0	16	53	47	21	27	21	16	21
Mercury (Dissolved)	U	1450	µg/l	0.50	1.1	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	7.3	7.5	7.5	7.6	7.4	7.5	8.3	8.8
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (Dissolved)	U	1450	µg/l	1.0	34	100	87	100	99	87	95	100
Total TPH >C6-C40	U	1670	µg/l	10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Naphthalene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10
Acenaphthylene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10
Acenaphthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10
Fluorene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10
Phenanthrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10
Anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10
Fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10
Pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10
Benzo[a]anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10
Chrysene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10
Benzo[b]fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10
Benzo[k]fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10
Benzo[a]pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10
Indeno(1,2,3-c,d)Pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10
Dibenz(a,h)Anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10
Benzo[g,h,i]perylene	U	1700	µg/l	0.10	< 0.10	< 0.10	< 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10	[C] < 0.10
Total Of 16 PAH's	U	1700	µg/l	2.0	< 2.0	< 2.0	< 2.0	[C] < 2.0	[C] < 2.0	[C] < 2.0	[C] < 2.0	[C] < 2.0
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
PCB 28	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 52	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 90+101	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 118	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 153	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 138	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 180	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total PCBs (7 congeners)	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010

Project: C6023 - Bantry Inner Harbour Development

Client: BAM Contractors	Chemtest Job No.:				16-31406
Quotation No.: Q16-07624	Chemtest Sample ID.:				394651
Order No.: C6023 - 0032	Client Sample Ref.:				S02
	Client Sample ID.:				Outer Buoy
	Sample Type:				WATER
	Top Depth (m):				3.00
	Date Sampled:				20-Dec-2016
Determinand	Accred.	SOP	Units	LOD	
Suspended Solids At 105C	U	1030	mg/l	5.0	< 5.0
Turbidity	N	1060	NTU	1.0	< 1.0
Arsenic (Dissolved)	U	1450	µg/l	1.0	4.7
Cadmium (Dissolved)	U	1450	µg/l	0.080	< 0.080
Chromium (Dissolved)	U	1450	µg/l	1.0	19
Copper (Dissolved)	U	1450	µg/l	1.0	20
Mercury (Dissolved)	U	1450	µg/l	0.50	< 0.50
Nickel (Dissolved)	U	1450	µg/l	1.0	9.4
Lead (Dissolved)	U	1450	µg/l	1.0	< 1.0
Selenium (Dissolved)	U	1450	µg/l	1.0	< 1.0
Zinc (Dissolved)	U	1450	µg/l	1.0	110
Total TPH >C6-C40	U	1670	µg/l	10	< 10
Naphthalene	U	1700	µg/l	0.10	[C] < 0.10
Acenaphthylene	U	1700	µg/l	0.10	[C] < 0.10
Acenaphthene	U	1700	µg/l	0.10	[C] < 0.10
Fluorene	U	1700	µg/l	0.10	[C] < 0.10
Phenanthrene	U	1700	µg/l	0.10	[C] < 0.10
Anthracene	U	1700	µg/l	0.10	[C] < 0.10
Fluoranthene	U	1700	µg/l	0.10	[C] < 0.10
Pyrene	U	1700	µg/l	0.10	[C] < 0.10
Benzo[a]anthracene	U	1700	µg/l	0.10	[C] < 0.10
Chrysene	U	1700	µg/l	0.10	[C] < 0.10
Benzo[b]fluoranthene	U	1700	µg/l	0.10	[C] < 0.10
Benzo[k]fluoranthene	U	1700	µg/l	0.10	[C] < 0.10
Benzo[a]pyrene	U	1700	µg/l	0.10	[C] < 0.10
Indeno(1,2,3-c,d)Pyrene	U	1700	µg/l	0.10	[C] < 0.10
Dibenz(a,h)Anthracene	U	1700	µg/l	0.10	[C] < 0.10
Benzo[g,h,i]perylene	U	1700	µg/l	0.10	[C] < 0.10
Total Of 16 PAH's	U	1700	µg/l	2.0	[C] < 2.0
Tributyl Tin	N	1730	µg/l	0.0500	< 0.050
PCB 28	N	1815	µg/l	0.010	< 0.010
PCB 52	N	1815	µg/l	0.010	< 0.010
PCB 90+101	N	1815	µg/l	0.010	< 0.010
PCB 118	N	1815	µg/l	0.010	< 0.010
PCB 153	N	1815	µg/l	0.010	< 0.010
PCB 138	N	1815	µg/l	0.010	< 0.010
PCB 180	N	1815	µg/l	0.010	< 0.010
Total PCBs (7 congeners)	N	1815	µg/l	0.010	< 0.010



[Guidance to completing the PRTR workbook](#)

PRTR Returns Workbook

Version 1.1.19

REFERENCE YEAR	2016
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1. FACILITY IDENTIFICATION

Parent Company Name	Port of Cork Company
Facility Name	Port of Cork Company (Bantry)
PRTR Identification Number	W0290
Licence Number	W0290-01

Classes of Activity

No.	class_name
-	Refer to PRTR class activities below

Address 1	Seafield & Reenrour West
Address 2	Bantry
Address 3	
Address 4	Cork
	Cork
Country	Ireland
Coordinates of Location	-9.46032082649996 51.6806015785
River Basin District	IESW
NACE Code	3832
Main Economic Activity	Recovery of sorted materials
AER Returns Contact Name	Tim Murphy
AER Returns Contact Email Address	tmurphy@portofcork.ie
AER Returns Contact Position	Project and Development Engineer
AER Returns Contact Telephone Number	0214273125
AER Returns Contact Mobile Phone Number	
AER Returns Contact Fax Number	0214276484
Production Volume	0.0
Production Volume Units	
Number of Installations	0
Number of Operating Hours in Year	0
Number of Employees	2
User Feedback/Comments	
Web Address	

2. PRTR CLASS ACTIVITIES

Activity Number	Activity Name
50.1	General
50.1	General

3. SOLVENTS REGULATIONS (S.I. No. 543 of 2002)

Is it applicable?	
Have you been granted an exemption ?	
If applicable which activity class applies (as per Schedule 2 of the regulations) ?	
Is the reduction scheme compliance route being used ?	

4. WASTE IMPORTED/ACCEPTED ONTO SITE

[Guidance on waste imported/accepted onto site](#)

Do you import/accept waste onto your site for on-site treatment (either recovery or disposal activities) ?	
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This question is only applicable if you are an IPPC or Quarry site

5. ONSITE TREATMENT & OFFSITE TRANSFERS OF WASTE

| PRTR# : W0290 | Facility Name : Port of Cork Company (Bantry) | Filename : Gap Analysis Tool v4 (Branded).xlsx | Return Year : 2016 |

14/09/2017 15:13

Please enter all quantities on this sheet in Tonnes

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Transfer Destination	European Waste Code	Hazardous	Quantity (Tonnes per Year)	Description of Waste	Waste Treatment Operation	Method Used		Location of Treatment	Haz Waste : Name and Licence/Permit No of Next Destination Facility	Non	Haz Waste : Address of Next Destination Facility	Name and License / Permit No. and Address of Final Recoverer / Disposer (HAZARDOUS WASTE ONLY)	Actual Address of Final Destination i.e. Final Recovery / Disposal Site (HAZARDOUS WASTE ONLY)
						M/C/E	Method Used		Haz Waste : Name and Licence/Permit No of Recover/Disposer	Non Haz Waste: Address of Recover/Disposer			
Within the Country	17 05 04	No	15699.5	Fine grained dredge material	R11a	M	Weighed	Onsite of generati	Port of Cork - Recovered on site at Bantry,W0290-01	,Ireland		
Within the Country	17 05 06	No	9010.0	Granular dredge material	R11a	M	Weighed	Onsite of generati	Port of Cork - Recovered on site in Bantry,W0290-01	,Ireland		
Within the Country	20 03 01	No	1.9	mixed municipal waste	D5	M	Volume Calculation	Offsite in Ireland	Bantry Skip Hire,WCP-CK-09-0613-02	,Ireland		
Within the Country	20 03 01	No	0.2	mixed municipal waste - recyclables	R12	M	Volume Calculation	Offsite in Ireland	Bantry Skip Hire,WCP-CK-09-0613-02	,Ireland		

* Select a row by double-clicking the Description of Waste then click the delete button

[Link to previous years waste data](#)

[Link to previous years waste summary data & percentage change](#)

[Link to Waste Guidance](#)