Annual Environmental Report 2016

Agglomeration Name:	**Ringsend**
Licence Register No.	**D0034-01**

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1. Executive Summary and Introduction to the 2016 AER

1.1. Summary Report on 2016

This Annual Environmental Report has been prepared for D0034-01, Ringsend, in County Dublin in accordance with the requirements of the wastewater discharge licence for the agglomeration.

Specified reports are included as an appendix to the AER as follows:

- Storm water overflow assessment (**Appendix 7.4**)
- Priority substances assessment (**Appendix 7.6**)
- Toxicity / Leachate Management Report (**Appendix 7.7**)
- Final effluent toxicity assessment (**Appendix 7.8**)

The Greater Dublin Area Agglomeration comprises the geographical area of Dublin City Council and sections of the functional areas of:

- Fingal County Council
- South Dublin County Council
- Dun Laoghaire Rathdown County Council
- Meath County Council

The agglomeration is served by a wastewater treatment plant with a Plant Capacity PE of 1.64 million. The treatment process includes the following:

- Preliminary treatment (including screening / grit removal)
- Primary treatment
- Secondary treatment - SBR and Nereda Pilot Plant
- Sludge treatment
- Tertiary treatment – UV treatment (during the bathing season)

The final effluent from the Primary Discharge Point was non-compliant with the following Emission Limit Values in 2016 for the following parameters:

- cBOD
- COD
- Suspended solids
- Total nitrogen
- Total phosphorus

The effluent parameters pH and Toxicity complied with the ELVs during 2016.
The parameter E.Coli complied with the ELV during the 2016 Bathing Season.

15,031,000 kgs (at 92% dry solids) of Biofert Solids were removed from the wastewater treatment plant in 2016. 2,644,000 kgs (at 26% dry solids) of Class A sludge cake were removed from the wastewater treatment plant in 2016. Sludge was transferred to Quinn's of Baltinglass, Co.Wicklow.

The following improvement works were undertaken during 2016:

Dublin City Council Functional Area

There were no major capital or operational changes undertaken in 2016 in the Dublin City Council Functional Area. The following minor improvement works were progressed during 2016 at Ringsend Wastewater Treatment Works:

1. Upgrade to Odour Control Systems
2. Improvements to sludge handling facilities and associated electrical upgrade.

Both of these works are practically complete and expect to be operational in early 2017.

In addition to the above, Process Proving Step 2 (PPS2), the construction of which commenced in 2015, is now practically complete and is currently being tested and commissioned. It is expected that this will go into operation in early 2017. PPS2 involves the retro-fitting of one of the existing SBR reactors with the new technology required for the aerobic granular sludge (AGS) treatment process and also to test the new process over a period of 10 months or longer.

PPS2 also includes for testing the performance of a '*Hybrid*' cell. This involves introducing AGS sludge from the PPS2 cell to a conventional SBR reactor and is expected to improve the performance of this cell.

South Dublin County Council Functional Area

There were no major capital projects undertaken in 2016.

Fingal County Council Functional Area

In 2016, the outfall (Discharge S4Fingal) pipeline was repaired.

Dún Laoghaire Rathdown County Council Functional Area

There were no major capital projects undertaken in 2016.

Meath County Council Functional Area

In 2016, improvement works to the SCADA system serving the Kilbride pumping station were carried out.

Annual Statement of Measures for each functional area are included in **Appendix 7.1**.

2. Monitoring Reports Summary 2016

2.1. Summary report on influent monitoring

Table 2.1 - Influent Monitoring Summary

	cBOD (mg/l)	COD (mg/l)	SS (mg/l)	TP (mg/l)	TN (mg/l)	Hydraulic Loading (m^3/d)	Organic Loading (PE/day)
Number of Samples	142	245	245	100	101		
Annual Max.	397	943	596	9.15	50.9	1,329,108	3,817,071
Annual Mean	278	549	262	5.95	37.9	410,874	1,808,046*
UWW Max							2,636,909
UWW Mean							1,822,567

*Calculated using IW Methodology for **average** organic loading.

Other inputs in the form of sludge/leachates/tankered wastes are detailed in **Section 3.6**.

Significance of results

The annual mean hydraulic loading is less than the peak Treatment Plant Capacity as detailed further in **Section 3.2**.

The annual maximum hydraulic loading is less than the peak Treatment Plant Capacity as detailed further in **Section 3.2**.

The annual mean organic loading of **1,808,046 PE /day** (*flow weighted) is greater than the Treatment Plant Capacity as detailed further in **Section 3.2**.

The annual maximum organic loading of **3,817,071 PE/day** on 14/12/2016 is greater than the Treatment Plant Capacity as detailed further in **Section 3.2**.

2.2. Discharges from the agglomeration

Table 2.2 - Effluent Monitoring Summary

	BOD (mg/l)[2]	COD (mg/l)[2]	TSS(mg /l)[2]	Total P (mg/l)	Total N (mg/l)	pH	Toxicity (TU)	Comment
WWDL ELV (*Schedule A*)	25	125	35	1	10	6-9	5	
ELV with Condition 2 Interpretation included	50	250	87.5	1.2	12.0	-	-	
Number of sample results	143	246	246	101	101	246	1	24-hour Composite samples for Chemistry
Number of sample results above WWDL ELV	52	29	129	101	100	0	0	
Number of sample results above ELV with Condition 2 Interpretation included	13	14	27	101	94	0	N/A	
Annual Mean (for parameters where a mean ELV applies)	28	106	52	4.11	25.04	-	-	
Overall Compliance (Pass/Fail)	Fail	Fail	Fail	Fail	Fail	Pass	Pass	

Notes:

2. Licence Schedule*: Interpretation of Discharge Monitoring Results* generally only applies to BOD5, COD & SS, but *also* applies to % reductions.

Table 2.2 *continued* - Effluent Monitoring Summary

	DIN (mg/l N)	Ammonia (mg/l N)	Ortho-Phosphate (mg/l P)	OFG (mg/l)	E.coli (MPN/100ml)	Enterococci (CFU/100 ml)	Colour (Hazen)	Comment
WWDL ELV (*Schedule A*)	-	-	-	-	100,000	-	-	
ELV with Condition 2 Interpretation included	-	-	-	-	150,000	-	-	
Number of sample results	246	246	246	102	55	40	246	24-hour composite samples taken for chemistry
Number of sample results above WWDL ELV/not achieving min % reduction					2	-	-	
Number of sample results above ELV with Condition 2 Interpretation included					1	-	-	
Annual Mean (for parameters where a mean ELV applies)	22.50	19.56	2.52	<10	N/A	N/A	52	
Overall Compliance (Pass/Fail)	-	-	-	-	Pass	-	-	

Significance of results

The WWTP was non-compliant with the ELV's set in the wastewater discharge licence for cBOD, COD, TSS, TP and TN during 2016. The WWTP was compliant with the ELV's set for pH and Toxicity. There were 52 samples non-compliant with the ELV in relation to cBOD, 13 of which were above the Condition 2 ELV. There were 29 samples non-compliant with the ELV in relation to COD, 14 of which were above the Condition 2 ELV. There were 129 samples non-compliant with the ELV in relation to TSS, 27 of which were above the Condition 2 ELV. There were 101 samples non-compliant with the ELV in relation to Total P, all of which were above the Condition 2 ELV. There were 100 samples non-compliant with the ELV's in relation to TN, 94 of which of which were above the Condition 2 ELV. The WWTP was compliant with the ELV for E.Coli set in the wastewater discharge licence. The impact on receiving bathing waters is assessed further in **Section 2.3**.

Further details on Significance of results

The WWTP was non-compliant with ELV's set in the wastewater discharge licence issued in 2010 and technically amended on 16/12/2016.

Non-compliance with cBOD, COD and TSS was poor due to a number of reasons:

1. Plant Overloading
2. PPS2 Works.

To implement Stage 2 of the Nereda Process Proving (PPS2) it was necessary to remove an SBR cell from service. This cell (3B) was out of service for all of 2016. In so doing it necessitated putting the remaining 3 no. cells in block no. 3. (3A, 3C and 3D) into a 3-phase mode of operation. This system is not as originally designed and it resulted in a considerable reduction in effluent quality from these cells. In addition to Cell 3B there were also a number of other cells out of service, 3D and 6B for works associated with PPS2, and other cells for unplanned maintenance. The following table summarises the cells which were out of service and the durations:

SBR Cell	From	To	No. of Days O/S
3B	1 January	31 December	366
3D	1 January	23 May	145
6B	20 April	9 May	21
5C	26 July	31 July	6
5A	5 October	5 November	32
2B	16 November	20 November	5
1C	2 December	7 December	6

It is significant that practically for the first five months of the year 2 no. SBR cells were continually out of service and for three weeks during this period a third cell was removed from operation. Two of these cells were put back into service prior to the bathing season.

The plant also underwent a number of prolonged shut-downs to facilitate works associated with PPS2 during the months of November and December- a total of 13 no. these varied in duration from 4 to 16 hours. As a result, the biomass in the secondary treatment process experienced an increase in the diffuse and poor settling floc, assessed as being due to endogenous respiration caused by the interruptions to supply in the food chain.

As a consequence, effluent quality deteriorated during these two months.

3. Details on extreme weather events in 2016:

Based on Met Eireann alerts for 2016 there were no Extreme events that would meet EPA definitions such as freezing, snow or heavy rainfall. There were some lower tier failures on 06/06/16 and 07/06/16 (City Analysts) which coincided with a thunderstorm event.

4. Non-compliance with TP and TN was due to the fact that the Treatment Plant was not originally designed for nutrient removal.

Improvement works are on-going to expand the plant capacity and to provide nutrient removal. (see **Section 4.2**)

The impact on the receiving waters is assessed further in **Section 2.3**.

2.3. Ambient Monitoring Summary

Table 2.3 Ambient Monitoring Summary

Ambient Monitoring Point from WWDL (or as agreed with EPA)	***Irish Grid Reference***	**EPA Feature Coding Tool code**	**Receiving Waters Designation (Yes)**				**WFD Status**	**Does assessment of the ambient monitoring results indicate that the discharge is impacting on water quality?**
			Bathing Water	**Drinking Water**	**FWPM**	**Shellfish**		
Upstream monitoring point	Liffey U/S Islandbridge	Unknown	No	No	No	No	Moderate	n/a The River Liffey U/S Islandbridge is freshwater and cannot be impacted by estuarine receiving waters.
Downstream monitoring point	Liffey Estuary Upper	Unknown	No	No	No	No	Moderate	Yes Impacts in the near field and the plume of the sewage discharge – see "*Significance of Results*" section below. Liffey Estuary tidal
Downstream monitoring point	Liffey Estuary Lower	Unknown	**Yes**	No	No	No	Moderate	Yes Impacts in the near field and the plume of the sewage discharge – see "*Significance of Results*" section below. Liffey Estuary tidal
Downstream monitoring point	Tolka Estuary	Unknown	No	No	No	No	Moderate	Yes Impacts of the sewage discharge plume and the Tolka River inflow – see "*Significance of Results*" section below. Tolka Estuary tidal
Downstream monitoring point	Dublin Bay	Unknown	No	No	No	No	Good	Yes 2 median Chlorophyll concentrations in the Good-Moderate band status due to combined riverine and sewage impacts. See "*Significance of Results*" section below.
Downstream monitoring point	Bathing Waters Dollymount Bathing Zone Sandymount Merrion	Unknown	**Yes**	No	No	No	(2013-2016) Good Sufficient Poor	 - - Investigations Ongoing

The results for the upstream and downstream monitoring are included as in **Appendix 7.2** (2,3,4 and 5).

Significance of results

- The WWTP was non-compliant with the ELV's set in the wastewater discharge licence as detailed in **Section 2.2.**
- The discharge from the wastewater treatment plant does have an observable negative impact on the water quality in the near field of the discharge and in the Liffey and Tolka Estuaries.
- The discharge from the wastewater treatment plant does have an observable negative impact on the Water Framework Directive status.
- Other potential causes of deterioration in water quality relevant to this area are upstream riverine pollutants, combined sewer overflows, exfiltration from sewers, urban runoff and misconnections to surface water sewers in the agglomeration.

Licence D0034-01 requires monitoring and assessment of the impacts of the Ringsend effluent discharge on receiving water quality at agreed sampling locations as follows:

- 9 Ambient Surface Waters (ASW2 – ASW10) covering sampling points in the lower Liffey Estuary in the near field of the discharge (ASW2 to ASW5), and points on the River Liffey and River Tolka (ASW6 to ASW10)
- 11 additional monitoring points on the Liffey and Tolka Estuaries (Surface and Depth)
- 9 monitoring locations in Dublin Bay (Surface and Depth)
- 8 shoreline locations, 3 of which are EC designated bathing waters (Dollymount Bathing Zone, Sandymount and Merrion Strands).

See map of monitoring locations agreed with the EPA in **Appendix 7.2.1**.

See all monitoring data for 2016 in **Appendix 7.2.**

The Liffey Estuary from Islandbridge Weir to the Poolbeg Lighthouse including the River Tolka Basin and the South Bull Lagoon is designated as a "*sensitive area*" by Part 2 of Schedule 3 of the Urban Wastewater Regulations, SI 254 of 2001. The European Communities Environmental Objectives (Surface Waters) Regulations 2009 (SI 272 of 2009), set physico-chemical standards for High and Good status in transitional and coastal water bodies to be complied with outside the allocated mixing zone of a licensed discharge.

The Rivers Liffey and Tolka and their estuaries are classified under the Water Framework Directive as Transitional Water Bodies. The outer estuary / Dublin Bay is classified as a Coastal Water Body.

The parameter suite set in the marine monitoring section of the licence was tested in all samples (Temperature / Dissolved Oxygen / BOD / Salinity / Dissolved Inorganic Nitrogen / Total Oxidised Nitrogen / Molybdate Reactive Phosphate / Ammonia / Silica / Chlorophyll).

Tidal Conditions during the 6 monthly estuarine surveys are tabulated below:

Survey No. and Month 2016	Date	High Tide Time	Height (m OD)	Low Tide Time	Height (m OD)	Tidal Status during Survey
1. April	20/04/16	11.52	3.81	05.10	0.93	Flow to High
2. May	04/05/16	10.11	3.94	03.37	0.81	High to Mid-Ebb
3. June	16/06/16	09.54	3.56	15.41	1.14	High to Mid-Ebb
4. July	14/07/16	08.16	3.39	13.57	1.36	High to Mid-Ebb
5. August	17/08/16	11.49	3.82	17.18	0.81	Flow to Mid-Ebb
	18/08/16	12.24	3.94	17.54	0.63	Flow to Mid-Ebb
6. September	14/09/16	10.47	3.70	16.17	1.01	High to Mid-Ebb
	15/09/16	11.25	3.89	16.55	0.74	High to Mid-Ebb

2.3.1. Marine Monitoring Summary – ASW2 to ASW10

A total of 6 surveys were carried out in the Liffey and Tolka Estuaries during 2016 at the designated locations in the licence, tabulated below:

EPA Map Code	Licence Code	Sampling Point
		Liffey Estuary Lower
	ASW2	25 metres North of Poolbeg Wall
	ASW3	50 metres North of Poolbeg Wall
	ASW4	75 metres North of Poolbeg Wall
	ASW5	100 metres North of Poolbeg Wall
		Liffey
DB000	**ASW6**	Liffey City, Downstream Islandbridge Weir
DB010	**ASW7**	Liffey City, Heuston Station, Upstream of Camac Outfall
	ASW8	Liffey City, Winetavern Street Bridge
		Liffey Estuary Lower
DB210	**ASW9**	Liffey (Surface), Downstream of East Link Toll Bridge
		Tolka
DB310	**ASW10**	Tolka, Downstream of Annesley Bridge

A summary of transitional water quality compliance with SI 272 of 2009 for the above locations is presented below and complete water quality data is presented in **Appendix 7.2.2.**

This shows compliance with temperature, dissolved oxygen (lower) and dissolved oxygen (upper) at all locations on all survey dates except for:

ASW2D where the DO was slightly depleted (75% Sat.) on 16/06/16 at depth. DO values at ASW9S and ASW10S exceeded the upper DO limit at 128% on 17/08/16 and at 144% on 04/05/16 respectively.

All BOD values were compliant except for 4 surface locations:

- ASW 2S – 5 mg/l on 18/08/16
- ASW4S – 6 mg/l on 20/04/16 and 6 mg/l on18/08/16
- ASW8S - 5 mg/l on 17/08/16
- ASW10S - > 8 mg/l on 17/08/16

Five exceedances of Molybdate Reactive Phosphate (MRP) standards occurred in the near field of the Ringsend discharge at ASW2, ASW3 and ASW4, all within the mixing zone. The non-compliant median MRP results were as follows:

Location	MRP 2016 Median Result	SI 272 Standard	Comment
		60 µg/l as P (median) at 0-17% PSU to 40 µg/l as P (median) at 35% PSU	
ASW2 (Surface)	**469.5 µg/l as P**		Close to SW1 Outfall within the Mixing Zone
ASW2 (Depth)	**193.5 µg/l as P**		Close to SW1 Outfall within the Mixing Zone
ASW3 (Surface)	**368 µg/l as P**		Close to SW1 Outfall within the Mixing Zone
ASW3 (Depth)	**44 µg/l as P**		Close to SW1 Outfall within the Mixing Zone
ASW4 (Surface)	**65 µg/l as P**		Close to SW1 Outfall within the Mixing Zone

2.3.2. Marine Monitoring – Transitional Water Monitoring – Points Agreed with EPA

A total of 6 surveys were carried out in the Liffey and Tolka Estuaries during 2016, at 11 locations agreed with the EPA, tabulated below:

EPA Map Code	Sampling Point
	Liffey Estuary Upper
DB 020	Matt Talbot Bridge
	Liffey Estuary Lower
DB 120	Dodder / Grand Canal Basin
DB 210	East Link Toll Bridge
DB 220	RO RO Ramp No.5 (Old Treatment Works Outfall)
DB 410	Ringsend Cascade
DB 420	Poolbeg Lighthouse
	Tolka
DB 300	Upstream of Drumcondra Bridge
	Tolka Estuary
DB 320	East Point Business Park Bridge
DB 330	Castle Avenue
DB 340	Clontarf Boat Club
DB 350	South Lagoon at Bull Wall Wooden Bridge

A summary of transitional water quality compliance with SI 272 of 2009 for the above locations is presented below and complete water quality data is presented in **Appendix 7.2.3.**

This shows full compliance with BOD, Temperature, Dissolved Oxygen (upper and lower) and median Reactive Phosphorus at all locations, on all survey dates except those detailed below.

A BOD Saline result exceeded the limit of 4 mg/l O_2 at **DB320 (Depth)** on 16/06/16 (**6 mg/l O_2**).

6 dissolved oxygen (lower limit) exceedances occurred as follows:

- **DB020D** - 16/06/16 (70% Saturation), 14/07/16 (74% Saturation), 18/08/16 (66% Saturation) and 14/09/16 (72% Saturation)
- **DB120D -** 16/06/16 (65% Saturation)
- **DB330D -** 18/08/16 (74% Saturation)

3 dissolved oxygen (upper limit) exceedances occurred as follows:

- **DB300S** – 04/05/16 (137% Saturation)
- **DB320S -** 04/05/16 (152% Saturation)
- **DB320D** - 04/05/16 (156% Saturation)

8 Molybdate Reactive Phosphate (MRP) exceedances occurred at 4 locations as follows:

Location	MRP 2016 Median Result	SI 272 Standard	Comment
	Liffey Estuary		
DB410 (Surface)	**450.5 µg/l P**	< 40 µg/l P	SW1 Discharge Impact, in mixing zone
DB410 (Depth)	**73.5 µg/l P**		SW1 Discharge Impact, in mixing zone
	Tolka Estuary		
DB 330 (Surface)	**128 µg/l P**	< 40 µg/l P	SW1 Discharge and riverine impacts
DB 330 (Depth)	**88 µg/l P**		SW1 Discharge and riverine impacts
DB 340 (Composite)	**47µg/l P**		SW1 Discharge and riverine impacts
DB 350 (Surface)	**74 µg/l P**		SW1 Discharge and riverine impacts
DB 350 (Depth)	**69 µg/l P**		SW1 Discharge and riverine impacts
Db 350 (Composite)	**49 µg/l P**		SW1 Discharge and riverine impacts

2.3.3. Marine Monitoring Summary – Coastal Water Monitoring – Dublin Bay 2016 – Points agreed with EPA

A total of 4 surveys were carried out at 9 locations in Dublin Bay during 2016. These locations – 6 coastal waters and 3 Irish Sea locations (*), agreed with the EPA, are tabulated below:

See map in **Appendix 7.2.1**. All monitoring data is included in **Appendix 7.2.4**.

EPA Map Code	Coastal Water Sampling Points
	Dublin Bay
DB 610	Off Bailey Lighthouse, Howth
DB 430	1 km. NE Poolbeg Lighthouse
DB 450	South Bull Buoy, 1 km. SE Poolbeg Lighthouse
DB 510*	2.5 km. ENE Poolbeg Lighthouse
DB 540*	2.5 km. SSE Poolbeg Lighthouse
DB 550	No.4 Buoy, 2.5 km. E of S Poolbeg Lighthouse
DB 560	Drumleck Point, Howth, 5 km. ENE Poolbeg Lighthouse
DB 570*	5 km. ESE Poolbeg Lighthouse
DB 580	Dun Laoghaire, 5 km. E of S Poolbeg Lighthouse

These locations were sampled at surface (S) and depth (D) only when the Salinity varied on the recommendation of the EPA. Composite samples were taken at all other times.

A summary of coastal water quality compliance with SI 272 of 2009 for the above locations is presented below and complete water quality data is presented in **Appendix 7.2.4**.

Monitoring data for 2016 shows full compliance with temperature, dissolved oxygen (lower) and dissolved oxygen (upper).

The Dissolved Inorganic Nitrogen (DIN) standards for coastal waters (High Status) were complied with at 6 of the 9 sampling locations on all survey dates. The standards for Good Status were complied with at 1 sampling point. Exceedances of the limits for Good Status occurred at 2 sampling points as follows:

- **DB450S –** 15/06/16 (473 µg/l N) - South Bull Buoy, 1 km SE Poolbeg Lighthouse
- **DB540S** – 15/06/16 (376 µg/l N) – 2.5 km SSE Poolbeg Lighthouse

The median chlorophyll High to Good limit (cold acetone extraction = < 2.5 µg/l) was complied with at 6 locations on all survey dates.

The other 3 locations met the Good to Moderate limit of 5 µg/l as follows:

- **DB610SDC –** 3.2 µg/l - Off Bailey Lighthouse, Howth
- **DB450SDC –** 3.9 µg/l - South Bull Buoy, 1 km SE Poolbeg Lighthouse
- **DB540SDC –** 2.9 µg/l - 2.5 km SSE Poolbeg Lighthouse

There were **no other impacts** on coastal and Irish Sea water quality during surveys carried out in 2016.

Shoreline Monitoring – 2016 Bathing Season

Bathing Water is currently regulated by the Bathing Water Quality Regulations, 2008 (SI No.79 of 2008) and Bathing Water Quality (Amendment) Regulations 2011 (SI No. 351 of 2011).

Shoreline sampling was carried out at 8 locations during the 2016 bathing season:

- ASW 11 - Dollymount North,
- **ASW 12 - Dollymount Bathing Zone***
- ASW 13 - Dollymount South
- ASW 14 - Bull Wall Wood Causeway
- ASW 15 - Poolbeg Outfall (Main)
- ASW 16 - Half Moon Club Southside
- **ASW 17 – Sandymount Strand***
- **ASW 18 – Merrion Strand***

A summary of bathing water quality compliance with SI No. 79 of 2008 for the above locations, three of which are **designated*** is presented below and complete water quality data is presented in **Appendix 7.2.5**.

In summary:

Bathing water status has been determined by the EPA for the year 2016 following review of the 4-year period 2013 to 2016. The Status of the different designated location is also available on the EPA Splash website.

Designated bathing waters at Dollymount (Bathing Zone) and Sandymount Strand were allocated **GOOD** and **SATISFACTORY** status respectively for the period 2013 -2016.

Merrion Strand continues to be classified as **POOR** status. Investigative monitoring is ongoing.

Designated Bathing Water Status 2016

Site Location	**ASW 12**	**ASW 17**	**ASW 18**
No. of samples (non-investigative)	20	20	20
2016 Annual Status	**Good**	**Sufficient**	**Poor**

The remaining 5 locations are not designated bathing waters.

Monitoring between 30/05/16 and 12/09/16 showed microbiological results (**Appendix 7.2.5**) that indicate a 2016 annual status summarised below:

Non-Designated Bathing Waters: Single Sample Status Assessment (Criteria)

Parameter	**Excellent**	**Good**	**Sufficient**	**Poor**
IE (Intestinal Enterococci) cfu/100ml	≤100	101-200	201-250	>250
EC (E.coli) cfu (mpn)/100ml	≤250	251-500	501-1000	>1000

Non-Designated Bathing Waters: Single Sample Status Assessment

Location	Number of samples	Parameter	%			
			Excellent	Good	Sufficient	Poor
ASW11	21	IE	90	10	-	-
		EC	100	-	-	-
ASW13	21	IE	71	14	5	10
		EC	76	10	-	14
ASW14	21	IE	71	24	-	5
		EC	66	5	19	10
ASW15*	20	IE	NA	NA	NA	NA
		EC	NA	NA	NA	NA
ASW16	20	IE	90	10	-	-
		EC	90	5	5	-

*Poolbeg Outfall is not a bathing area and is monitored to check the impact of the Ringsend discharge plume.

2.4. Data Collection and Reporting Requirements under the Urban Waste Water Treatment Directive

The reporting requirement under the Urban Wastewater Directive was completed by electronic submission of data on: 12/01/2017.

2.5. Pollutant Release and Transfer Register (PRTR) – report for previous year

The PRTR summary sheets are included in **Appendix 7.3**.

3. Operational Reports Summary

3.1. Treatment Efficiency Report

A summary presentation of the efficiency of the treatment process including information for all the parameters specified in the licence is included below:-

Table 3.1 - Treatment Efficiency Report Summary

	cBOD (t/yr)*	COD (t/yr)*	SS (t/yr)*	Total P (t/yr)*	Total N (t/yr)*
Influent mass loading (t/year)	39,704.8	78,211.64	37,769.98	844.325	5,296.36
Effluent mass emission (t/year)	4,372.14	15,918.69	8,008.89	589.99	3,624.05
% Efficiency (% reduction of influent load)	88.99%	79.65%	78.80%	30.12%	31.57%

* IW guidance note used for calculating all loads above

3.2. Treatment Capacity Report

Table 3.2 - Treatment Capacity Report Summary

Hydraulic Capacity – Design / As Constructed (m^3/day) PEAK	959,040
Hydraulic Capacity – Design / As Constructed (m^3/day) DWF	397,440
Hydraulic Capacity – Current loading (m^3/day) 2016 MEAN	410,874
Hydraulic Capacity – Remaining (m^3/day)	548,166[1]
Organic Capacity - Design / As Constructed (PE)	1,640,000
Organic Capacity - Current loading (PE)* (average organic loading – IW guidance)	1,808,046*
Organic Capacity – Remaining (PE)	None – Plant Over Capacity
Will the capacity be exceeded in the next three years?	Yes

Note 1 This figure indicates the remaining hydraulic capacity available at peak periods only and would not be sustainable on a continuous basis.

3.3. Extent of the Agglomeration Summary Report

In this section Irish Water is required to report on the amount of urban waste water generated within the agglomeration. It does not include any waste water collected and treated in a private system and discharged to water under a Section 4 Licence issued under the Water Pollution Acts 1977 (as amended):

Dublin City Council Functional Area

Table 3.3a - Extent of Agglomeration Summary Report

	% of P.E. load generated in the agglomeration
Load generated in the agglomeration that is collected in the sewer network	100%
Load collected in the agglomeration that enters treatment plant	Unknown
Load collected in the sewer network but discharged without treatment	Unknown

South Dublin County Council Functional Area

Table 3.3b- Extent of Agglomeration Summary Report

	% of P.E. load generated in the agglomeration
Load generated in the agglomeration that is collected in the sewer network	100%
Load collected in the agglomeration that enters treatment plant	Unknown
Load collected in the sewer network but discharged without treatment	Unknown

Fingal County Council Functional Area

Table 3.3c - Extent of Agglomeration Summary Report

	% of P.E. load generated in the agglomeration
Load generated in the agglomeration that is collected in the sewer network	100%
Load collected in the agglomeration that enters treatment plant	Unknown
Load collected in the sewer network but discharged without treatment	Unknown

Dún Laoghaire Rathdown County Council Functional Area

Table 3.3d - Extent of Agglomeration Summary Report

	% of total load generated in the agglomeration
Load generated in the agglomeration that is collected in the sewer network	100%
Load collected in the agglomerations that enters treatment plant	98.3
Load collected in the sewer network but discharges without treatment	1.7

See below

	Load generated in the agglomeration (m^3)	Estimated/ Measured Data
A. Volume generated in the agglomeration that is collected in the sewer network	12,892,412	Measured + Estimated
B. Volume collected in the agglomeration that enters treatment plant	12,670,062	Measured
C. Volume collected in the sewer network but discharged without treatment (includes SWO, EO and any discharges that are not treated)	222,350	EO 200,000m^3 estimate CSO 22,350m^3 estimate
D. % of volume generated in the agglomeration that is discharged without treatment. D=(C/A*100)	1.7%	

Meath County Council Functional Area

Table 3.3e - Extent of Agglomeration Summary Report

	% of total load generated in the agglomeration
Load generated in the agglomeration that is collected in the sewer network	100%
Load collected in the agglomerations that enters treatment plant	Unknown
Load collected in the sewer network but discharges without treatment	Unknown

3.4. Complaints Summary

A summary of complaints of an environmental nature is included below.

Dublin City Council Functional Area

Table 3.4a - Complaints Summary Table

Number of Complaints	Nature of Complaint	Number Open Complaints	Number Closed Complaints
23	Sewer Flooding	0	23

South Dublin County Council Functional Area

Table 3.4b - Complaints Summary Table

Number of Complaints	Nature of Complaint	Number Open Complaints	Number Closed Complaints
222	Sewage flooding	0	222
3	Pollution	0	3

Fingal County Council Functional Area

Table 3.4c - Complaints Summary Table

Number of Complaints	Nature of Complaint	Number Open Complaints	Number Closed Complaints
67	Investigation Sewage Flooding - Below Ground Waste Water.	0	67

Dún Laoghaire Rathdown County Council Functional Area

Table 3.4d - Complaints Summary Table

Number of Complaints	Nature of Complaint	Number Open Complaints	Number Closed Complaints
6	Overflow operation due to sewer blockage or heavy rain.	0	6

Meath County Council Functional Area

Table 3.4e - Complaints Summary Table

Number of Complaints	Nature of Complaint	Number Open Complaints	Number Closed Complaints
18	Sewage debris causing blocked sewer.	0	18

3.5. Reported Incidents Summary

A summary of reported incidents from 2016 is included in **Tables 3.5a-e.**

Dublin City Council Functional Area

Table 3.5a. Summary of Overall Incidents

Table 3.5.1a - Summary of Incidents

Incident Type (e.g. Non-compliance, Emission, spillage, Emergency Overflow Activation)	**Incident Description**	**Cause**	**No. of Incidents**	**Recurring Incident (Yes/No)**	**Corrective Action**	**Authorities Contacted** [Note 1]	**Reported to EPA (Yes/No)**	**Closed (Y/N)**
Uncontrolled Release	Uncontrolled Release at Chapelizod on 07/01/2016.	Blocked Sewer	1	No	Blockage Cleared	IFI	Y	Y
Non-compliance	Breaches of ELVs including BOD, TN, TP & TSS at the treatment plant.	Plant Overload	1	Yes	Extension to the Ringsend Wastewater Treatment Works is planned. This will increase the capacity of the works and reduce the frequency of ELV breaches.	IFI, BIM, FSAI, SFPA, Dept of Agri, Marine institute	Y	N
Uncontrolled Release	Uncontrolled Release to River Tolka at Scribblestown	Blocked Sewer	1	No	Blockage Cleared	IFI	Y	Y
Uncontrolled Release	Uncontrolled Release to Lower Liffey Estuary at treatment plant due to an	Rainfall & blocked screens at RWWTP	1	No	Screens cleared	IFI, BIM, FSAI, SFPA, Dept of Agri, Marine	Y	N

	increase in inlet flows from the Dodder line.					institute		
Uncontrolled Release	Uncontrolled Release at Ailsbury PS, Sandymount and Merrion Strand beach closures.	Rainfall	1	Yes	Beach inspection clean up and sampling	IFI, BIM, FSAI, SFPA, Dept of Agri, Marine institute	Y	N
Uncontrolled Release	Uncontrolled Release to River Dodder at Beech Hill Road.	Blocked Sewer	1	No	Blockage Cleared	IFI	Y	Y
Overflow from TW	Screened and settled wastewater was discharged from the storm tanks at the treatment plant.	Technical issues experienced during upgrade works to RWWTP.	1	No	Complete upgrade works.	IFI, BIM, FSAI, SFPA, Dept of Agri, Marine institute	Y	Y
Blockage	Sewer blockage at Barrow Street.	Accidental concrete infiltration by third party.	1	No	Vacuumed line and over pumping until impacted section replaced.	IFI	Y	Y
Uncontrolled Release	Uncontrolled Release to Lower Liffey Estuary at the treatment plant.	Rainfall & blocked screens at RWWTP	1	Yes	Screens cleared. Improved flow management in the network to prevent overloading of the Works.	IFI, BIM, FSAI, SFPA, Dept of Agri, Marine institute	Y	Y
Uncontrolled Release	Uncontrolled Release at Elm Park Stream.	Rainfall	1	N	Not Applicable	IFI, BIM, FSAI, SFPA, Dept of Agri, Marine institute	Y	N

Note 1: For shellfish waters notify the Marine Institute (MI) Sea Fisheries Protection Authority (SFPA) Food Safety Authority (FSAI) and An Bord Iascaigh Mhara (BIM). This should also include any other authorities that should be contacted arising from the findings of any Licence Specific Reports also e.g. Drinking Water Abstraction Impact Risk Assessment, Fresh Water Pearl Mussel Impact Assessments etc.

Table 3.5.2a - Summary of Overall Incidents

Number of Incidents in 2016	10
Number of Incidents reported to the EPA via EDEN in 2016	10
Explanation of any discrepancies between the two numbers above	N/A

South Dublin County Council Functional Area

Table 3.5.1b - Summary of Incidents

Incident Type (e.g. Non-compliance, Emission, spillage, Emergency Overflow Activation)	Incident Description	Cause	No. of Incidents	Recurring Incident (Yes/No)	Corrective Action	Authorities Contacted Note	Reported to EPA (Yes/No)	Closed (Y/N)
Spillage	Manhole surcharge	Blocked sewer	1	No	Sewer unblocked.	No	Yes	Yes
Spillage	Manhole surcharge	Blocked sewer	1	No	Sewer unblocked.	No	Yes	Yes

Table 3.5.2b - Summary of Overall Incidents

Number of Incidents in 2016	2
Number of Incidents reported to the EPA via EDEN in 2016	2
Explanation of any discrepancies between the two numbers above	N/A

Fingal County Council Functional Area

Table 3.5.1c - Summary of Incidents

Incident Type (e.g. Non-compliance, Emission, spillage, Emergency Overflow Activation)	Incident Description	Cause	No. of Incidents	Recurring Incident (Yes/No)	Corrective Action	Authorities Contacted	Reported to EPA (Yes/No)	Closed (Y/N)
Emergency Overflow	Multiple instances of overflow from Portmarnock Strand Pumping Station.	Emergency overflow caused by power failure.	1	Yes	Pump Station monitored to ensure pumps re-started when power was restored.	MI, SFPA, FSAI, BIM, Dept. of Agri, IFI	Yes	Yes
Emergency Overflow	Uncontrolled release - Two overflows from Turnapin Lane Pumping Station. The first occurred on 02/04/16 from 21:15 to 23:45, the second on 03/04/16 from 07:00 to 12:15.	Emergency overflow caused by pump failure.	1	No	Inspector called to PS on Saturday 2nd April to re-set pumps. Pumps tripped again during the night. Fitters called to site on Sunday 3rd April to lift and un-choke the pumps.	Minister for Agriculture, Food and the Marine	Yes	Yes
Emergency Overflow	Emergency overflows from Sutton Strand PS -22nd May from 00:30-09:45 and 23rd May from 01:30-09:15.	Emergency overflow caused by pump failure due to ragging/blocking.	1	No	Pumps re-set Sunday 22nd, but tripped again Monday morning 23rd. Pumps lifted,	MI, SFPA, FSAI, BIM, Dept. of Agri,	Yes	Yes

Incident Type (e.g. Non-compliance, Emission, spillage, Emergency Overflow Activation)	Incident Description	Cause	No. of Incidents	Recurring Incident (Yes/No)	Corrective Action	Authorities Contacted	Reported to EPA (Yes/No)	Closed (Y/N)
					de-ragged and re-set Monday 23rd.	IFI		
Uncontrolled release	Overflows at Portmarnock Strand Pumping Station.	Adverse weather	1	Yes	None possible, overflow ceased when the assist pump caught up with the flows.	MI, SFPA, FSAI, BIM, Dept. of Agri, IFI	Yes	Yes
Emergency overflow	Overflows at Portmarnock Bridge Pumping Station.	Emergency overflow due to heavy rainfall causing ragging or blocking/ inadequate infrastructure.	1	Yes	Blockage cleared in duty pump. Pumps reset. Monitoring of the pump station.	MI, SFPA, FSAI, BIM, Dept. of Agri, IFI	Yes	No
Uncontrolled release	Storm water overflows from Santry Pump station on the 28th and 29th of June due to heavy rainfall.	Storm water overflow due to heavy rainfall.	1	Yes	None.	IFI	Yes	Yes
Emergency Overflow	Uncontrolled releases at Portmarnock Strand PS.	Emergency overflow caused by pump failure.	1	Yes	Pump reset.	MI, SFPA, FSAI, BIM, Dept. of Agri, IFI	Yes	Yes

Incident Type (e.g. Non-compliance, Emission, spillage, Emergency Overflow Activation)	Incident Description	Cause	No. of Incidents	Recurring Incident (Yes/No)	Corrective Action	Authorities Contacted	Reported to EPA (Yes/No)	Closed (Y/N)
Uncontrolled release	Emergency overflow from Burrow Road PS, 01/10/2016 from 10.20-10.55.	SWO exceptional rainfall and overflow expected.	1	No	None possible.	MI, SFPA, FSAI, BIM, Dept. of Agri, IFI	Yes	Yes
Emergency Overflow	Emergency overflow from Portmarnock Strand PS, 20/10/2016 16:15 to 20/10/2016 20:30.	Emergency overflow caused by power failure.	1	No	Monitoring of station while the power was off. The pump station returned to working order when the power returned.	MI, SFPA, FSAI, BIM, Dept. of Agri, IFI	Yes	Yes
Emergency Overflow	Emergency overflow from Portmarnock Bridge Pumping Station, 20.00-20.45 on 21/12/2016.	Emergency overflow caused by pump failure.	1	No	Examining of pumps by mechanical section.	MI, SFPA, FSAI, BIM, Dept. of Agri, IFI	Yes	Yes

Table 3.5.2c- Summary of Overall Incidents

Number of Incidents in 2016	10
Number of Incidents reported to the EPA via EDEN in 2016	10
Explanation of any discrepancies between the two numbers above	N/A

Dún Laoghaire Rathdown County Council Functional Area

Table 3.5.1d - Summary of Incidents

Incident Type (e.g. Non-compliance, Emission, spillage, Emergency Overflow Activation)	Incident Description	Cause	No. of Incidents	Recurring Incident (Yes/No)	Corrective Action	Authorities Contacted	Reported to EPA (Yes/No)	Closed (Y/N)
Emergency Overflow Activation	Operation of Pump Station	Pump Failure	1	Yes	Pump fixed	None	Yes	Yes
Spillage	Overflow from Pump Station	Heavy Rain	1	Yes	None	None	Yes	Yes
Spillage	CSO operation	Heavy Rain	1	Yes	None	None	Yes	Yes

Table 3.5.2d - Summary of Overall Incidents

Number of Incidents in 2016	3
Number of Incidents reported to the EPA via EDEN in 2016	3
Explanation of any discrepancies between the two numbers above	N/A

Meath County Council Functional Area

Table 3.5.1e - Summary of Incidents

Incident Type (e.g. Non-compliance, Emission, spillage, pollution incident)	Incident Description	Cause	No. of Incidents	Recurring Incident (Yes/No)	Corrective Action	Authorities Contacted.	Reported to EPA (Yes/No)	Closed (Yes/No)
Overflow	Overflows due to heavy rainfall at Deerpark P.S (Ashbourne), Ratoath P.S & Milltown P.S.	Heavy rainfall	1	Yes	Rainfall passed.	No	Yes	Yes
Emergency overflow	Overflow from Kilbride PS - power failure and UPS card failure.	UPS failure	1	No	UPS repaired	No	Yes	Yes
Emergency overflow	Emergency overflow from the Kilbride pumping station, Kilbride County Meath. This overflow was caused by rags, fats oils and greases weighting down on float switches and giving false sump levels. There is no metering so the volumes are not quantifiable. The effluent would have been screened ex-Ashbourne and Ratoath.	Equipment failure	1	No	Rags and debris where removed from pumps.	No	Yes	Yes
Emergency overflow	Emergency overflow from the Kilbride pumping station, 10th January at	Equipment failure	1	No	Rags and debris where removed	No	Yes	Yes

Incident Type (e.g. Non-compliance, Emission, spillage, pollution incident)	Incident Description	Cause	No. of Incidents	Recurring Incident (Yes/No)	Corrective Action	Authorities Contacted.	Reported to EPA (Yes/No)	Closed (Yes/No)
	15:45 to 9:30 on 11th January 2016 also 11th January 2016 10:20 to 10:40. This overflow was caused by rags, fats oils and greases weighting down on float switches and giving false sump levels. There is no metering so the volumes are not quantifiable. The effluent would have been screened ex-Ashbourne and Ratoath.				from pumps.			
Emergency overflow	Emergency overflow from the Milltown PS due to a power failure.	Power failure	1	No	Power returned.	No	Yes	Yes
Emergency overflow	Uncontrolled Release - overflow - Dunboyne network at a field adjacent to Fair Green Housing Estate Dunboyne Co Meath.	Blocked sewer	1	No	Sewer unblocked.	No	Yes	Yes
Emergency overflow	SWO - Ratoath - Adverse Weather	Heavy rainfall	1	Yes	Rainfall passed.	No	Yes	Yes
Emergency overflow	UCR - Castle Street, Ashbourne, Co. Meath.	Blocked sewer	1	No	Sewer	No	Yes	Yes

Incident Type (e.g. Non-compliance, Emission, spillage, pollution incident)	Incident Description	Cause	No. of Incidents	Recurring Incident (Yes/No)	Corrective Action	Authorities Contacted.	Reported to EPA (Yes/No)	Closed (Yes/No)
	This report relates to the uncontrolled release of sewage effluent to waters at Castle Street, Ashbourne, Co Meath on the 31st of August 2016. Caused sewage effluent to escape from the sewer network via an existing manhole and into a surface water drain which discharges directly into the River Broadmeadow.				unblocked.			
Emergency overflow	Overflow in Ashbourne - Castlestreet. Blockage caused an overflow from a manhole to ground to a surface water drain leading to the River Broadmeadow.	Blocked sewer	1	No	Sewer unblocked.	No	Yes	Yes
Emergency overflow	UCR - Bourne View Ashbourne - Due to blockage in the network - Blockage cleared.	Blocked sewer	1	No	Sewer unblocked.	No	Yes	Yes
Emergency overflow	Overflow from a sewer manhole due to a blockage at Deerpark	Blocked sewer	1	No	Sewer unblocked.	No	Yes	Yes

Incident Type (e.g. Non-compliance, Emission, spillage, pollution incident)	Incident Description	Cause	No. of Incidents	Recurring Incident (Yes/No)	Corrective Action	Authorities Contacted.	Reported to EPA (Yes/No)	Closed (Yes/No)
	Ashbourne.							
Emergency overflow	Overflow from Kilbride PS due to a failure in the UPS (Uninterruptable power supply) which drives the Scada unit.	Equipment failure	1	No	Power returned.	No	Yes	Yes

Table 3.5.2e - Summary of Overall Incidents

Number of Incidents in 2016	12
Number of Incidents reported to the EPA via EDEN in 2016	12
Explanation of any discrepancies between the two numbers above	N/A

3.6. Sludge/Other inputs to the WWTP

'Other inputs' to the Ringsend waste water treatment plant are summarised in **Table 3.6** below.

Table 3.6 - Other Inputs[1,2]

Input type	m^3/year	PE	% of load to WWTP Per Day	Included in Influent Monitoring (Y/N)?[3]	Is there a leachate/sludge acceptance procedure for the WWTP? (Y/N)	Is there a dedicated leachate/sludge acceptance facility for the WWTP?[2] (Y/N)
Domestic /Septic Tank Sludge*	631	7.68 PE/day from Volume	0.00042% (PE)	Yes	Yes	Yes
Industrial / Commercial Sludge	54,884	668	0.037% (PE)	Yes	Yes	Yes
Landfill Leachate (delivered by tanker) – Ballynagran Landfill – Wicklow County Council	24,025	292 PE/day from Volume	0.0162% (PE)	Yes	Yes - Tanker Waste Consignment Note System	Yes
Landfill Leachate (delivered by tanker) – Kerdiffstown Landfill – Kildare County Council	14,196	173 PE/day from Volume	0.001 % (PE)	Yes	Yes - Tanker Waste Consignment Note System	Yes
Landfill Leachate (delivered by tanker) – Knockharley Landfill – Meath County Council	337	4.1 PE/day From Volume	0.0002% (PE)	Yes	Yes - Tanker Waste Consignment Note System	Yes
Landfill Leachate (delivered by sewer network) Dunsink Civic Amenity – Fingal County Council	157,235	1,909 PE / day from Volume	0.106 % (PE)	Yes	Licence consent	Yes
Other (specify) Value Engineering	N/A					

*Domestic Tankers include only loads from residential/domestic sources and excludes loads from construction sites/offices/nursing homes/army barracks.

Notes:

1. Other Inputs include; septic tank sludge, industrial /commercial sludge, landfill leachate and any other sludge that is collected and added to the treatment plant.
2. Sludge that is added to a dedicated sludge reception facility at a waste water treatment plant **not** included in Table 3.6. Only include sludge which is added to the waste water treatment process stream. Enter zero where there are no inputs.
3. If any inputs were introduced **prior** to Influent monitoring point and are therefore already reported in S.2.1 *Influent Monitoring Summary*, then a "Yes" here will clarify this, to avoid duplication and over-reporting of PE.

4. Infrastructural Assessment and Programme of Improvements

4.1. Storm Water Overflow Identification and Inspection Report

Dublin City Council Functional Area

The Storm Water Overflow Summary Report, **Tables 4.1.1a** and **4.1.2a** are shown overleaf. **Table 4.1.1a** has been updated in 2016 to include new information available from the City Centre Sewerage Scheme. The 86 CSOs highlighted in blue are those that relate to the city centre catchment, the 21 CSOs highlighted in red have been identified as 'not a CSO', and the 122 CSOs highlighted in grey fall outside the city centre catchment. Refer to **Appendix 7.4** for Storm Water Overflows which occurred from SW2 in the Ringsend WWTP in 2016.

Table 4.1.1a- SWO Identification and Inspection Summary Report

SWO Code	Grid Reference		Included in S.4 of WWDL	DECLG Assessment Criteria				No. of Times Activated in 2016	Total Volume Discharged in 2016 (m^3)	Total Volume Discharged in 2016 (PE)	Measured/ Estimated	
PT_CD	EASTING	NORTHING		Q1	Q2	Q3	Q4		Volume Emitted			STC25 Ref
CSO36DCC	317234	234294	Y	Yes*	Yes*	Yes*	No	79	27902	71596	E	SO17342203
CSO49DCC	313699	234415	Y	Yes*	Yes*	Yes*	No	82	84669	217261	E	SO13346404
CSO84DCC	315139	234124	Y	Yes*	Yes*	Yes*	No	62	301175	772814	E	SO15341109
CSO47DCC	315278	234216	Y	Yes*	Yes*	Yes*	No	90	64315	165032	E	SO15342204
CSO51DCC	315102	233451	Y	Yes*	Yes*	Yes*	No	0	0	0	E	SO15331433
CSO69DCC	310913	233836	Y	Yes*	Yes*	Yes*	No	3	32	83	E	SO10339801
CSO34DCC	316933	235409	Y	Yes*	Yes*	Yes*	No	66	54083	138778	E	SO16359411
CSO1DCC	314772	234232	Y	Yes*	Yes*	Yes*	No	84	132480	339944	E	SO14347206
CSO48DCC	315133	234184	Y	Yes*	Yes*	Yes*	No	82	71396	183202	E	SO15341117
CSO33DCC	317191	234633	Y	Yes*	Yes*	Yes*	No	20	3494	8966	E	SO17341601
CSO72DCC	312286	233530	Y	Yes*	Yes*	Yes*	No	2	49	127	E	SO12332506
CSO89DCC	317775	234427	Y	Yes*	Yes*	Yes*	No	0	0	0	E	SO17347411
CSO14DCC	316849	234337	Y	Yes*	Yes*	Yes*	No	62	22262	57125	E	SO16348302
CSO80DCC	314205	234270	Y	Yes*	Yes*	Yes*	No	62	65725	168651	E	SO14342204
CSO5DCC	317054	235998	Y	Yes*	Yes*	Yes*	No	92	61539	157908	E	SO17360001
CSO11DCC	316107	234398	Y	Yes*	Yes*	Yes*	No	5	1660	4261	E	SO16341310
CSO73DCC	317455	235389	Y	Yes*	Yes*	Yes*	No	0	0	0	E	SO17354303
CSO2DCC	314663	234263	Y	Yes*	Yes*	Yes*	No	71	70877	181870	E	SO14346214
CSO66DCC	313731	234212	Y	Yes*	Yes*	Yes*	No	59	35603	91357	E	SO13347206
CSO83DCC	313953	234344	Y	Yes*	Yes*	Yes*	No	89	123260	316285	E	SO13349307
CSO62DCC	317394	234266	Y	Yes*	Yes*	Yes*	No	64	23352	59921	E	SO17343203
CSO7DCC	314962	233226	Y	Yes*	Yes*	Yes*	No	77	17842	45781	E	SO14339210
CSO15DCC	312958	234298	Y	Yes*	Yes*	Yes*	No	57	70788	181642	E	SO12349204
CSO65DCC	313820	234224	Y	Yes*	Yes*	Yes*	No	53	45307	116259	E	SO13348206
CSO60DCC	315398	233788	Y	Yes*	Yes*	Yes*	No	11	747	1916	E	SO15333701

SWO Code	Grid Reference		Included in S.4 of WW DL	DECLG Assessment Criteria				No. of Times Activated in 2016	Total Volume Discharged in 2016 (m^3)	Total Volume Discharged in 2016 (PE)	Measured/ Estimated	
PT_CD	EASTING	NORTHING		Q1	Q2	Q3	Q4		Volume Emitted			STC25 Ref
CSO87DCC	316865	234654	Y	Yes*	Yes*	Yes*	No	43	7347	18851	E	SO16348605
CSO35DCC	316885	233670	Y	Yes*	Yes*	Yes*	No	68	47739	122499	E	SO16338601
CSO10DCC	313533	233809	Y	Yes*	Yes*	Yes*	No	35	22279	57169	E	SO13335803
CSO71DCC	310510	234079	Y	Yes*	Yes*	Yes*	No	40	16059	41207	E	SO10345001
CSO26DCC	312632	233616	Y	Yes*	Yes*	Yes*	No	14	1481	3801	E	SO12336604
CSO46DCC	315717	234317	Y	Yes*	Yes*	Yes*	No	44	11724	30083	E	SO15347306
CSO29DCC	315417	234244	Y	Yes*	Yes*	Yes*	No	40	5134	13173	E	SO15344205
CSO23DCC	316108	234474	Y	Yes*	Yes*	Yes*	No	37	5467	14029	E	SO16341406
CSO76DCC	311757	233212	Y	Yes*	Yes*	Yes*	No	32	2283	5858	E	SO11337206
CSO45DCC	315551	234270	Y	Yes*	Yes*	Yes*	No	18	5967	15313	E	SO15345206
CSO19DCC	316857	236017	Y	Yes*	Yes*	Yes*	No	28	4117	10565	E	SO16368009
CSO25DCC	314580	234294	Y	Yes*	Yes*	Yes*	No	50	32943	84531	E	SO14345210
CSO28DCC	313210	233631	Y	Yes*	Yes*	Yes*	No	14	2144	5500	E	SO13332616
CSO50DCC	315113	233446	Y	Yes*	Yes*	Yes*	No	40	10132	25999	E	SO15331414
CSO27DCC	315533	234142	Y	Yes*	Yes*	Yes*	No	2	3	6	E	SO15345113
CSO21DCC	315487	234037	Y	Yes*	Yes*	Yes*	No	0	0	0	E	SO15344011
CSO82DCC	317299	235411	Y	Yes*	Yes*	Yes*	No	28	11575	29701	E	SO17353415
CSO18DCC	316852	236022	Y	Yes*	Yes*	Yes*	No	5	505	1297	E	SO16368001
CSO8DCC	316161	236672	Y	Yes*	Yes*	Yes*	No	2	62	159	E	SO16361609
CSO74DCC	312533	233579	Y	Yes*	Yes*	Yes*	No	37	4371	11215	E	SO12335507
CSO70DCC	310244	234243	Y	Yes*	Yes*	Yes*	No	0	0	0	E	SO10342201
CSO68DCC	310355	234122	Y	Yes*	Yes*	Yes*	No	1	3	7	E	SO10343105
CSO78DCC	314686	234201	Y	Yes*	Yes*	Yes*	No	41	8044	20640	E	SO14346205
CSO24DCC	314430	234315	Y	Yes*	Yes*	Yes*	No	41	7919	20321	E	SO14344316
CSO43DCC	313387	233674	Y	Yes*	Yes*	Yes*	No	16	1320	3387	E	SO13333602
CSO6DCC	314959	233223	Y	Yes*	Yes*	Yes*	No	77	17842	45781	E	SO14339210
CSO61DCC	315322	233808	Y	Yes*	Yes*	Yes*	No	6	194	499	E	SO15333801
CSO20DCC	313539	233798	Y	Yes*	Yes*	Yes*	No	2	12	31	E	SO13335709

SWO Code	Grid Reference		Included in S.4 of WW DL	DECLG Assessment Criteria				No. of Times Activated in 2016	Total Volume Discharged in 2016 (m^3)	Total Volume Discharged in 2016 (PE)	Measured/ Estimated	
PT_CD	EASTING	NORTHING		Q1	Q2	Q3	Q4		Volume Emitted			STC25 Ref
CSO38DCC	312690	234346	Y	Yes*	Yes*	Yes*	No	0	0	0	E	SO12346304
CSO13DCC	314893	234204	Y	Yes*	Yes*	Yes*	No	35	7457	19134	E	SO14348209
CSO9DCC	316043	236686	Y	Yes*	Yes*	Yes*	No	15	350	898	E	SO16360601
CSO12DCC	316024	234360	Y	No**	No**	No**	No	0	0	0	E	SO16340308
CSO17DCC	312966	234298	Y	No**	No**	No**	No	0	0	0	E	SO12349202
CSO37DCC	312015	233665	Y	No**	No**	No**	No	3	19	49	E	SO12330604
CSO3DCC	315862	234379	Y	No**	No**	No**	No	0	0	0	E	SO15348308
CSO40DCC	309728	234678	Y	No**	No**	No**	No	0	0	0	E	SO09347603
CSO41DCC	314987	234131	Y	No**	No**	No**	No	5	782	2007	E	SO14349101
CSO44DCC	316904	236073	Y	No**	No**	No**	No	0	0	0	E	SO16369001
CSO52DCC	317843	233804	Y	No**	No**	No**	No	0	0	0	E	SO17338807
CSO53DCC	309604	234376	Y	No**	No**	No**	No	5	1011	2594	E	SO09346312
CSO55DCC	312990	233670	Y	No**	No**	No**	No	0	0	0	E	SO12339609
CSO57DCC	313022	233676	Y	No**	No**	No**	No	0	0	0	E	SO13330605
CSO58DCC	313064	233680	Y	No**	No**	No**	No	0	0	0	E	SO13330604
CSO59DCC	314244	234324	Y	No**	No**	No**	No	20	2485	6376	E	SO14342308
CSO67DCC	310350	234128	Y	No**	No**	No**	No	7	3373	8655	E	SO10343107
CSO77DCC	314492	234246	Y	No**	No**	No**	No	1	195	501	E	SO14344202
CSO79DCC	314322	234267	Y	No**	No**	No**	No	1	45	116	E	SO14343207
CSO85DCC	315136	234112	Y	No**	No**	No**	No	0	0	0	E	SO15341103
Not Applicable	317371	235907	Y	Unknown	Unknown	Unknown	Unknown	0	0	0	E	SO17353903
Not Applicable	313217	233706	Y	Unknown	Unknown	Unknown	Unknown	42	1510	3875	E	SO13332705
Not Applicable	310278	234430	Y	Unknown	Unknown	Unknown	Unknown	2	38	98	E	SO10342403
Not Applicable	317235	235455	Y	Unknown	Unknown	Unknown	Unknown	13	5562	14271	E	SO17352412
New CSO	313375	233124	Y	Unknown	Unknown	Unknown	Unknown	14	3742	9603	E	SO13333107
New CSO	317667	234933	Y	Unknown	Unknown	Unknown	Unknown	0	0	0	E	SO17346901
New CSO	317628	234924	Y	Unknown	Unknown	Unknown	Unknown	1	1015	2605	E	SO17346909
New CSO	317494	234699	Y	Unknown	Unknown	Unknown	Unknown	1	2351	6033	E	SO17344601

SWO Code	Grid Reference		Included in S.4 of WW DL	DECLG Assessment Criteria				No. of Times Activated in 2016	Total Volume Discharged in 2016 (m^3)	Total Volume Discharged in 2016 (PE)	Measured/ Estimated	
PT_CD	EASTING	NORTHING		Q1	Q2	Q3	Q4		Volume Emitted			STC25 Ref
New CSO	312970	234365	Y	Unknown	Unknown	Unknown	Unknown	0	0	0	E	SO12349301
New CSO	310814	233884	Y	Unknown	Unknown	Unknown	Unknown	1	4	11	E	SO10338801
New CSO	308816	234950	Y	Unknown	Unknown	Unknown	Unknown	24	1654	4244	E	SO08348915
New CSO	313272	233611	Y	Unknown	Unknown	Unknown	Unknown	0	0	0	E	SO13332604
New CSO	314162	233929	Y	Unknown	Unknown	Unknown	Unknown	0	0	0	E	SO14331902
CSO88DCC	317683	234884	Y	Yes*	Yes*	Yes*	No	53	394401	1012296	E	SO17346807
CSO81DCC	317303	235416	Y	Yes*	Yes*	Yes*	No	52	15783	40510	E	SO17353415
CSO32DCC	317182	234623	Y	Yes*	Yes*	Yes*	No	12	5313	13637	E	SO17341607
CSO30DCC	312010	233527	Y	Yes*	Yes*	Yes*	No	1	2863	7348	E	SO12330604
CSO22DCC	311516	232830	Y	Yes*	Yes*	Yes*	No	N/A	1972	5061	E	SO11325805
CSO4DCC	317065	235991	Y	Yes*	Yes*	Yes*	No	24	1052	2700	E	SO17350906
CSO75DCC	312545	233667	Y	Yes*	Yes*	Yes*	No	12	865	2220	E	SO12335605
CSO63DCC	314704	234412	Y	Yes*	Yes*	Yes*	No	4	848	2177	E	SO14347406
CSO105DCC	317843	233804	Y	No**	No**	No**	No	1	0	0	E	SO17338807
CSO16DCC	312966	234298	Y	No**	No**	No**	No	0	0	0	E	SO12349202
CSO54DCC	312990	233670	Y	No**	No**	No**	No	1	0	0	E	SO12339609
CSO56DCC	313022	233676	Y	No**	No**	No**	No	1	0	0	E	SO13330605
CSO64DCC	314700	234516	Y	No**	No**	No**	No	Unknown	0	0	E	SO14347510
Not Applicable	311915	236281	Y	Unknown	Unknown	Unknown	Unknown	4	Unknown	Unknown	E	SO11369201
Not Applicable	313857	233351	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO13338304
Not Applicable	313909	233340	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO13339307
Not Applicable	312628	235825	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO12356809
Not Applicable	312810	235654	Y	Unknown	Unknown	Unknown	Unknown	52	Unknown	Unknown	E	SO12358608
Not Applicable	312536	235894	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO12355807
Not Applicable	317075	235588	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO17350508
Not Applicable	311497	233703	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO11334707
CSO186DCC	317881	232507	Y	Yes*	Yes*	Yes*	No	53	521299	1338001	E	SO17328507
CSO180DCC	318107	232850	Y	Yes*	Yes*	Yes*	No	53	325145	834539	E	SO18321802

SWO Code	Grid Reference		Included in S.4 of WW DL	DECLG Assessment Criteria				No. of Times Activated in 2016	Total Volume Discharged in 2016 (m^3)	Total Volume Discharged in 2016 (PE)	Measured/ Estimated	
PT_CD	EASTING	NORTHING		Q1	Q2	Q3	Q4		Volume Emitted			STC25 Ref
CSO171DCC	317550	232447	Y	Yes*	Yes*	Yes*	No	53	284186	729411	E	SO17325401
CSO176DCC	317639	232519	Y	Yes*	Yes*	Yes*	No	53	196982	505587	E	SO17326503
CSO168DCC	318139	233413	Y	Yes*	Yes*	Yes*	No	53	194860	500141	E	SO18331407
CSO156DCC	322127	237601	Y	Yes*	Yes*	Yes*	No	53	163715	420202	E	SO22371604
CSO184DCC	317824	232486	Y	Yes*	Yes*	Yes*	No	52	96123	246716	E	SO17328405
CSO118DCC	316968	236195	Y	Yes*	Yes*	Yes*	No	Unknown	76157	195470	E	SO16369104
CSO103DCC	310784	232218	Y	Yes*	Yes*	Yes*	No	53	53954	138482	E	SO10327207
CSO128DCC	321116	237636	Y	Yes*	Yes*	Yes*	No	53	52398	134488	E	SO21371602
CSO188DCC	314451	230170	Y	Yes*	Yes*	Yes*	No	53	51707	132715	E	SO14304105
CSO102DCC	310741	232270	Y	Yes*	Yes*	Yes*	No	N/A	47762	122589	E	SO10327205
CSO153DCC	313415	238521	Y	Yes*	Yes*	Yes*	No	Unknown	34201	87783	E	SO13383501
CSO164DCC	323611	238744	Y	Yes*	Yes*	Yes*	No	Unknown	30268	77688	E	SO23386705
CSO173DCC	317827	231358	Y	Yes*	Yes*	Yes*	No	0	23522	60373	E	SO17318310
CSO181DCC	315892	232164	Y	Yes*	Yes*	Yes*	No	Unknown	18722	48053	E	SO15328193
CSO152DCC	321004	236217	Y	Yes*	Yes*	Yes*	No	Unknown	18664	47904	E	SO2130202
CSO169DCC	317909	232497	Y	Yes*	Yes*	Yes*	No	Unknown	17822	45743	E	SO17329403
CSO112DCC	315347	237184	Y	Yes*	Yes*	Yes*	No	Unknown	17082	43844	E	SO15373102
CSO134DCC	318903	237248	Y	Yes*	Yes*	Yes*	No	Unknown	16565	42517	E	SO18378205
CSO142DCC	323129	238499	Y	Yes*	Yes*	Yes*	No	53	14623	37532	E	SO23381414
CSO177DCC	314416	231521	Y	Yes*	Yes*	Yes*	No	52	13220	33931	E	SO14314503
CSO93DCC	319319	231456	Y	Yes*	Yes*	Yes*	No	24	13075	33559	E	SO19313502
CSO94DCC	310380	232486	Y	Yes*	Yes*	Yes*	No	Unknown	12894	33095	E	SO10323401
CSO125DCC	318032	236337	Y	Yes*	Yes*	Yes*	No	Unknown	8827	22656	E	SO18360302
CSO147DCC	322791	238174	Y	Yes*	Yes*	Yes*	No	52	8765	22497	E	SO22387104
CSO190DCC	317176	230639	Y	Yes*	Yes*	Yes*	No	Unknown	8315	21342	E	SO17301604
CSO119DCC	317476	236267	Y	Yes*	Yes*	Yes*	No	Unknown	7618	19553	E	SO17364203
CSO182DCC	314820	232377	Y	Yes*	Yes*	Yes*	No	12	5838	14984	E	SO14328311
CSO140DCC	322306	241250	Y	Yes*	Yes*	Yes*	No	Unknown	5047	12954	E	SO22413204

SWO Code	Grid Reference		Included in S.4 of WW DL	DECLG Assessment Criteria				No. of Times Activated in 2016	Total Volume Discharged in 2016 (m^3)	Total Volume Discharged in 2016 (PE)	Measured/ Estimated	
PT_CD	EASTING	NORTHING		Q1	Q2	Q3	Q4		Volume Emitted			STC25 Ref
CSO107DCC	318741	232076	Y	Yes*	Yes*	Yes*	No	52	4946	12695	E	SO18327003
CSO141DCC	321150	238284	Y	Yes*	Yes*	Yes*	No	24	3345	8586	E	SO21381202
CSO146DCC	315371	237860	Y	Yes*	Yes*	Yes*	No	6	3287	8437	E	SO15373801
CSO161DCC	315285	239290	Y	Yes*	Yes*	Yes*	No	Unknown	3182	8167	E	SO15394203
CSO97DCC	319373	230608	Y	Yes*	Yes*	Yes*	No	12	2566	6586	E	SO19303601
CSO178DCC	314413	231521	Y	Yes*	Yes*	Yes*	No	12	2447	6281	E	SO14314501
CSO167DCC	317890	231357	Y	Yes*	Yes*	Yes*	No	6	1990	5108	E	SO17318301
CSO124DCC	317564	236640	Y	Yes*	Yes*	Yes*	No	Unknown	1486	3814	E	SO17365601
CSO187DCC	316306	230383	Y	Yes*	Yes*	Yes*	No	6	1415	3632	E	SO16303302
CSO150DCC	321216	238352	Y	Yes*	Yes*	Yes*	No	24	1185	3042	E	SO21382304
CSO136DCC	318559	237699	Y	Yes*	Yes*	Yes*	No	Unknown	1145	2939	E	SO18375603
CSO170DCC	317699	231474	Y	Yes*	Yes*	Yes*	No	12	1092	2803	E	SO17316403
CSO114DCC	315933	237459	Y	Yes*	Yes*	Yes*	No	Unknown	1007	2585	E	SO15379403
CSO120DCC	317288	237032	Y	Yes*	Yes*	Yes*	No	Unknown	966	2479	E	SO17372001
CSO189DCC	316956	230477	Y	Yes*	Yes*	Yes*	No	N/A	898	2305	E	
CSO131DCC	320166	237863	Y	Yes*	Yes*	Yes*	No	52	889	2282	E	SO20371802
CSO175DCC	317743	231303	Y	Yes*	Yes*	Yes*	No	6	697	1789	E	SO17317302
CSO151DCC	313201	236289	Y	Yes*	Yes*	Yes*	No	NA	549	1409	E	SO13362202
CSO139DCC	313685	238438	Y	Yes*	Yes*	Yes*	No	53	427	1096	E	SO13386401
CSO101DCC	319921	230594	Y	Yes*	Yes*	Yes*	No	6	369	947	E	SO19309504
CSO90DCC	311589	231731	Y	Yes*	Yes*	Yes*	No	Unknown	247	634	E	SO11315707
CSO98DCC	319373	230608	Y	Yes*	Yes*	Yes*	No	Unknown	236	606	E	SO19303603
CSO126DCC	319927	235869	Y	Yes*	Yes*	Yes*	No	Unknown	223	572	E	SO19359806
CSO197DCC	316297	237050	Y	Yes*	Yes*	Yes*	No	Unknown	120	308	E	SO16372001
CSO130DCC	316652	238118	Y	Yes*	Yes*	Yes*	No	Unknown	72	185	E	SO16383101
CSO31DCC	315899	236809	Y	Yes*	Yes*	Yes*	No	Unknown	64	164	E	SO15368802
CSO135DCC	313840	237484	Y	Yes*	Yes*	Yes*	No	4	47	121	E	SO13378401
CSO129DCC	314692	238454	Y	Yes*	Yes*	Yes*	No	52	37	95	E	SO14386402

SWO Code	Grid Reference		Included in S.4 of WW DL	DECLG Assessment Criteria				No. of Times Activated in 2016	Total Volume Discharged in 2016 (m^3)	Total Volume Discharged in 2016 (PE)	Measured/ Estimated	
PT_CD	EASTING	NORTHING		Q1	Q2	Q3	Q4		Volume Emitted			STC25 Ref
CSO157DCC	313270	238784	Y	Yes*	Yes*	Yes*	No	24	5	13	E	SO13382701
CSO100DCC	313421	232721	Y	No**	No**	No**	No	Unknown	0	0	E	SO13324701
CSO104DCC	313403	232803	Y	No**	No**	No**	No	1	0	0	E	SO13324801
CSO106DCC	319384	231534	Y	No**	No**	No**	No	24	0	0	E	SO19313502
CSO109DCC	317414	238590	Y	No**	No**	No**	No	Unknown	0	0	E	SO17384504
CSO122DCC	319420	239940	Y	No**	No**	No**	No	Unknown	0	0	E	SO19394906
CSO132DCC	312746	239249	Y	No**	No**	No**	No	Unknown	0	0	E	?
CSO133DCC	313170	238854	Y	No**	No**	No**	No	4	0	0	E	SO13381805
CSO143DCC	314316	238253	Y	No**	No**	No**	No	1	0	0	E	SO14383203
CSO144DCC	320761	238396	Y	No**	No**	No**	No	6	0	0	E	SO20387301
CSO149DCC	313240	238954	Y	No**	No**	No**	No	4	0	0	E	SO13381805
CSO154DCC	322130	239548	Y	No**	No**	No**	No	1	0	0	E	SO22391501
CSO155DCC	321529	237974	Y	No**	No**	No**	No	1	0	0	E	SO21375901
CSO158DCC	323132	241110	Y	No**	No**	No**	No	Unknown	0	0	E	?
CSO160DCC	313721	237669	Y	No**	No**	No**	No	Unknown	0	0	E	SO13377607
CSO162DCC	321555	235735	Y	No**	No**	No**	No	Unknown	0	0	E	SO21355703
CSO163DCC	314106	237565	Y	No**	No**	No**	No	Unknown	0	0	E	SO14371501
CSO165DCC	320130	235782	Y	No**	No**	No**	No	Unknown	0	0	E	SO20351704
CSO166DCC	317562	230767	Y	No**	No**	No**	No	Unknown	0	0	E	SO17305702
CSO174DCC	317852	231363	Y	No**	No**	No**	No	0	0	0	E	SO17318310
CSO179DCC	318132	233429	Y	No**	No**	No**	No	Unknown	0	0	E	SO18331410
CSO183DCC	316790	230086	Y	No**	No**	No**	No	N/A	0	0	E	Located in South Dublin County Council
CSO185DCC	316609	232018	Y	No**	No**	No**	No	Unknown	0	0	E	SO16325007
CSO195DCC	314828	229637	Y	No**	No**	No**	No	N/A	0	0	E	Located in South Dublin County Council
CSO196DCC	314817	229635	Y	No**	No**	No**	No	N/A	0	0	E	Located in South Dublin County Council
CSO42DCC	315978	236912	Y	No**	No**	No**	No	Unknown	0	0	E	SO15369902

SWO Code	Grid Reference		Included in S.4 of WW DL	DECLG Assessment Criteria				No. of Times Activated in 2016	Total Volume Discharged in 2016 (m^3)	Total Volume Discharged in 2016 (PE)	Measured/ Estimated	
PT_CD	EASTING	NORTHING		Q1	Q2	Q3	Q4		Volume Emitted			STC25 Ref
CSO91DCC	311398	230549	Y	No**	No**	No**	No	Unknown	0	0	E	??
CSO92DCC	313440	232441	Y	No**	No**	No**	No	Unknown	0	0	E	SO13324405
CSO95DCC	318880	233947	Y	No**	No**	No**	No	Unknown	0	0	E	SO18338911
CSO96DCC	313725	232628	Y	No**	No**	No**	No	1	0	0	E	SO13327607
CSO99DCC	313291	229848	Y	No**	No**	No**	No	Unknown	0	0	E	SO13292801
Not Applicable	318105	232849	Y	Unknown	Unknown	Unknown	Unknown	52	Unknown	Unknown	E	SO18321802
Not Applicable	317326	233389	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO17333303
Not Applicable	318249	230834	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO18302806
Not Applicable	317785	231204	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO17317203
Not Applicable	315273	237272	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO15372202
Not Applicable	318892	237254	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO18378205
Not Applicable	319051	237218	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO19370201
Not Applicable	319029	237382	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO19370306
Not Applicable	321437	236402	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO21364410
Not Applicable	319242	235931	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO19352902
Not Applicable	321196	236118	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO21361101
Not Applicable	319348	237237	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO19373202
Not Applicable	316237	236869	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO16362801
Not Applicable	317482	236223	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO17364201
Not Applicable	317527	236397	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO17365302
Not Applicable	317858	236891	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO17368804
Not Applicable	315674	237839	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO15376802
Not Applicable	320457	237749	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO20374701
Not Applicable	322654	239351	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO22396301
Not Applicable	323087	239136	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO23390101
Not Applicable	313840	237484	Y	Unknown	Unknown	Unknown	Unknown	4	Unknown	Unknown	E	SO13378401
Not Applicable	319444	237359	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO19374302
Not Applicable	314609	237773	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO14376708

SWO Code	Grid Reference		Included in S.4 of WW DL	DECLG Assessment Criteria				No. of Times Activated in 2016	Total Volume Discharged in 2016 (m^3)	Total Volume Discharged in 2016 (PE)	Measured/ Estimated	
PT_CD	EASTING	NORTHING		Q1	Q2	Q3	Q4		Volume Emitted			STC25 Ref
Not Applicable	312837	239706	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO12398709
Not Applicable	317275	236972	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO17362907
Not Applicable	319687	233798	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO19336701
Not Applicable	317083	240679	Y	Unknown	Unknown	Unknown	Unknown	N/A	Unknown	Unknown	E	In Fingal Co
Not Applicable	320743	236300	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO20367301
Not Applicable	317339	236668	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO17363605
Not Applicable	317840	236426	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO17368401
Not Applicable	320292	236509	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO20362507
SW1Dublin	321073	233814	Y	Yes*	Yes*	Yes*	No	N/A	N/A	N/A	N/A	
SW2Dublin	320332	233800	Y	Yes*	Yes*	Yes*	No	15	892730	2291340	E	
				*These effects are of a temporary nature and only occur when the CSO spills during a large or prolonged enough rainfall event. On the occasions these CSOs spill, then the answer to these questions is 'yes'.				This value is an estimate for the for the annual number of spills taken from the GDSDS	This value is an estimate for the Annual Spill Volume taken from the GDSDS Predicted CSO Spill Performance	This data is highly unreliable as the GDSDS was a strategic level study NOT carried out at sufficient detail for these results to be accurate. A detailed study, including flow monitors and sampling equipment is required in order to obtain accurate data.		
								More detailed studies required for accurate results.	More detailed studies required to verify what is essentially results from a very strategic level model			

SWO Code	Grid Reference		Included in S.4 of WW DL	DECLG Assessment Criteria				No. of Times Activated in 2016	Total Volume Discharged in 2016 (m^3)	Total Volume Discharged in 2016 (PE)	Measured/ Estimated	
PT_CD	EASTING	NORTHING		Q1	Q2	Q3	Q4		Volume Emitted			STC25 Ref
				**'No' on the basis of the modelled results. Confirmation of results required by more detailed study.								

Table 4.1.2a - SWO Identification and Inspection Summary Report

How much sewage was discharged via SWOs in the agglomeration in the year (m^3/yr)?	Data not available
How much sewage was discharged via SWOs in the agglomeration in the year (P.E.)?	Data not available
What % of the total volume of sewage generated in the agglomeration was discharged via SWOs in the agglomeration in 2016?	Data not available
Is each SWO identified as non-compliant with DoEHLG Guidance included in the Programme of Improvements?	Yes
The SWO assessment includes the requirements of Schedule A3 & C3	Yes, where applicable
Have the EPA been advised of any additional SWOs / changes to Schedule C3 and A4 under Condition 1.7?	No

South Dublin County Council Functional Area

Table 4.1.1b- SWO Identification and Inspection Summary Report

WWDL Name / Code for Storm Water Overflow	Irish Grid Ref.	Included in Schedule A4 of the WWDL	Significance of the overflow (High / Medium / Low)	Compliance with DoEHLG Criteria	No. of times activated in 2016 (No. of events)	Total volume discharged in 2016 (m^3)	Total volume discharged in 2016 (P.E.)	Estimated /Measured data
SDCCPS01	702432X,735066Y	Lucan Spa PS	Low	Compliant	<5	Unknown	Unknown	E
SDCCPS01	702432X,735066Y	Lucan Spa PS	Low	Compliant	<5	Unknown	Unknown	E
SDCCPS02	703221X,735072Y	Lucan Low Level PS	Low	Compliant	0	Unknown	Unknown	E
SDCCPS03	703964X,734515Y	Esker Lane PS	Low	Compliant	0	Unknown	Unknown	E
SDCCPS04	707012X,735193	Quarryvale PS	Low	Compliant	0	Unknown	Unknown	E
SDCCPS05	708588X,734325Y	Johnstown PS	Low	Compliant	0	Unknown	Unknown	E
SDCCPS06	703073X,732117Y	Grange Castle PS	Low	Compliant	0	Unknown	Unknown	E
SDCCPS07	706856X, 732230Y	Ballymanagin PS	Low	Compliant	0	Unknown	Unknown	E
SDCCPS08	700098X,728983Y	Peamount PS	Low	Compliant	0	Unknown	Unknown	E
SDCCPS09	701184X,728875Y	Newcastle PS	Low	Compliant	0	Unknown	Unknown	E
SDCCPS10	701532X,727416Y	Tay Lane PS	Low	Compliant	<5	Unknown	Unknown	E
SDCCPS11	712281X,729622Y	Whitehall PS	Low	Compliant	0	Unknown	Unknown	E
SDCCPS12	711483X,728060Y	Spawell PS	Low	Compliant	0	Unknown	Unknown	E
SDCCPS13	707631X,735459Y	King's Hospital PS	Low	Compliant	0	Unknown	Unknown	E
SDCCPS14	704673X,732849Y	Lynches Lane PS	Low	Compliant	0	Unknown	Unknown	E
SDCCPS15	704314X,732587	Kishogue PS	Low	Compliant	0	Unknown	Unknown	E
SDCCPS16	708002X,730773Y	St Brigids PS	Low	Compliant	0	Unknown	Unknown	E
SDCCPS17	707770X, 729780Y	Belgard PS	Low	Compliant	0	Unknown	Unknown	E
SDCCPS18	705601X,727665Y	Ard Mor PS	Low	Compliant	0	Unknown	Unknown	E
SDCCPS19		College Drive	Low	Compliant	0	Unknown	Unknown	E
SDCCPS21	701651X,734384Y	Tobermaclugg PS	Low	Compliant	0	Unknown	Unknown	E

WWDL Name / Code for Storm Water Overflow	Irish Grid Ref.	Included in Schedule A4 of the WWDL	Significance of the overflow (High / Medium / Low)	Compliance with DoEHLG Criteria	No. of times activated in 2016 (No. of events)	Total volume discharged in 2016 (m^3)	Total volume discharged in 2016 (P.E.)	Estimated /Measured data
SDCCPS22		Adamstown PS	Low	Compliant	0	Unknown	Unknown	E
SDCCSN01		Lucan Siphon (Liffey) - St Eds Muncher	Low	Compliant	0	Unknown	Unknown	E
SDCCSN02		Templeogue Siphon (Dodder)	Low	Compliant	Unknown	Unknown	Unknown	N/A
SDCCSN03		Owendoher Siphon	Low	Compliant	Unknown	Unknown	Unknown	N/A
SDCCSN04		UCD (Belfield) Siphon	Low	Compliant	Unknown	Unknown	Unknown	N/A
SDCCSN05		Ringsend Siphon	Low	Compliant	Unknown	Unknown	Unknown	N/A
SDCCSN06		Kilvere	Low	Compliant	Unknown	Unknown	Unknown	N/A
SDCCSW015		Milltown Overflow	Low	Compliant	Unknown	Unknown	Unknown	N/A
SDCCSWO01		Perrystown Tank	Low	Compliant	<5	Unknown	Unknown	N/A
SDCCSWO02		Treepark Road	Low	Compliant	Unknown	Unknown	Unknown	N/A
SDCCSWO03		Airton Road	Low	Compliant	Unknown	Unknown	Unknown	N/A
SDCCSWO04		Avonmore Road	Low	Compliant	Unknown	Unknown	Unknown	N/A
SDCCSWO05		Brookfield Cottage	Low	Compliant	Unknown	Unknown	Unknown	N/A
SDCCSWO06		Harris Trucks	Low	Compliant	Unknown	Unknown	Unknown	N/A
SDCCSWO07		St Peter's Road	Low	Compliant	Unknown	Unknown	Unknown	N/A
SDCCSWO08		Castle View Road	Low	Compliant	Unknown	Unknown	Unknown	N/A
SDCCSWO09		Aylmer Road	Low	Compliant	Unknown	Unknown	Unknown	N/A
SDCCSWO10		Kimmage Road West	Low	Compliant	Unknown	Unknown	Unknown	N/A
SDCCSWO11		Springfield Avenue	Low	Compliant	Unknown	Unknown	Unknown	N/A
SDCCSWO12		Loreto Terrace	Low	Compliant	Unknown	Unknown	Unknown	N/A
SDCCSWO13		Oldcourt Manor	Low	Compliant	Unknown	Unknown	Unknown	N/A

WWDL Name / Code for Storm Water Overflow	Irish Grid Ref.	Included in Schedule A4 of the WWDL	Significance of the overflow (High / Medium / Low)	Compliance with DoEHLG Criteria	No. of times activated in 2016 (No. of events)	Total volume discharged in 2016 (m^3)	Total volume discharged in 2016 (P.E.)	Estimated /Measured data
SDCCSWO14		Stewarts Hospital	Low	Compliant	Unknown	Unknown	Unknown	N/A
SDCCSW016		Glenvara	Low	Compliant	Unknown	Unknown	Unknown	N/A
SDCCSW017		Mount Carmel	Low	Compliant	Unknown	Unknown	Unknown	N/A
SDCCSW018	310207.37X, 27496.47Y	Glendown	Low	To be Assessed	0	Unknown	Unknown	E

Table 4.1.2b - SWO Identification and Inspection Summary Report

How much sewage was discharged via SWOs in the agglomeration in the year (m^3/yr)?	Unknown
How much sewage was discharged via SWOs in the agglomeration in the year (P.E.)?	Unknown
What % of the total volume of sewage generated in the agglomeration was discharged via SWOs in the agglomeration in 2016?	Unknown
Is each SWO identified as non-compliant with DoEHLG Guidance included in the Programme of Improvements?	SDCCSW018 to be assessed.
The SWO assessment includes the requirements of Schedule A3 & C3	Yes
Have the EPA been advised of any additional SWOs / changes to Schedule C3 and A4 under Condition 1.7?	N/A

Fingal County Council Functional Area

Table 4.1.1c - SWO Identification and Inspection Summary Report

A Storm Water Overflow Identification & Inspection report is not required.

WWDL Name / Code for Storm Water Overflow	Irish Grid Ref.	Included in Schedule A4 of the WWDL	Significance of the overflow (High / Medium / Low)	Compliance with DoEHLG Criteria	No. of times activated in 2016 (No. of events)	Total volume discharged in 2016 (m^3)	Total volume discharged in 2016 (P.E.)	Estimated /Measured data
Fingal- SW21	317088E, 240688N	Yes	Not assessed	Not assessed	Unknown	Unknown	Unknown	E
Fingal- SW22	318083E, 241519N	Yes	Not assessed	Not assessed	Unknown	Unknown	Unknown	E
Fingal-SW23	331227E, 241541N	Yes	Not assessed	Not assessed	Unknown	Unknown	Unknown	E
Fingal-SW26	324686E, 240383N	Yes	Not assessed	Not assessed	Unknown	Unknown	Unknown	E
Fingal-SW27	324837E, 239149N	Yes	Not assessed	Not assessed	Unknown	Unknown	Unknown	E
Fingal-SW32	324858E, 244368N	A3	Not assessed	Not assessed	Unknown	Unknown	Unknown	E
Fingal SW33	323560E, 242484N	Yes	Not assessed	Not assessed	Unknown	Unknown	Unknown	E
Fingal-SW34	323855E,	Yes	Not assessed	Not assessed	Unknown	Unknown	Unknown	E

WWDL Name / Code for Storm Water Overflow	Irish Grid Ref.	Included in Schedule A4 of the WWDL	Significance of the overflow (High / Medium / Low)	Compliance with DoEHLG Criteria	No. of times activated in 2016 (No. of events)	Total volume discharged in 2016 (m^3)	Total volume discharged in 2016 (P.E.)	Estimated /Measured data
	243158N							
Fingal- SW35	323969E, 241503N	Yes	Not assessed	Not assessed	Unknown	Unknown	Unknown	E
Fingal-SW37	324179E, 240115N	Yes	Not assessed	Not assessed	Unknown	Unknown	Unknown	E
Fingal- SW38	324387E, 239355N	Yes	Not assessed	Not assessed	Unknown	Unknown	Unknown	N/A
Fingal- SW39	323228E. 239139N	Yes	Not assessed	Not assessed	Unknown	Unknown	Unknown	N/A
Fingal-SW40	323086E, 239133N	Yes	Not assessed	Not assessed	Unknown	Unknown	Unknown	N/A
Fingal-SW41	323299E, 238441N	Yes	Not assessed	Not assessed	Unknown	Unknown	Unknown	N/A
Fingal-SW42	326312E, 238143N	Yes	Not assessed	Not assessed	Unknown	Unknown	Unknown	N/A
Fingal- SW43	325886E, 239468N	Yes	Not assessed	Not assessed	Unknown	Unknown	Unknown	N/A
Fingal- SW44	326155E, 239701N	Yes	Not assessed	Not assessed	Unknown	Unknown	Unknown	N/A

WWDL Name / Code for Storm Water Overflow	Irish Grid Ref.	Included in Schedule A4 of the WWDL	Significance of the overflow (High / Medium / Low)	Compliance with DoEHLG Criteria	No. of times activated in 2016 (No. of events)	Total volume discharged in 2016 (m^3)	Total volume discharged in 2016 (P.E.)	Estimated /Measured data
Fingal- SW45	327347E, 239672N	Yes	Not assessed	Not assessed	Unknown	Unknown	Unknown	N/A
Fingal-SW46	327789E, 239464N	Yes	Not assessed	Not assessed	Unknown	Unknown	Unknown	N/A
Fingal- SW47	328391E, 239452N	Yes	Not assessed	Not assessed	Unknown	Unknown	Unknown	N/A
Fingal- SW48	328800E, 239337N	Yes	Not assessed	Not assessed	Unknown	Unknown	Unknown	N/A
Fingal- SW49	328711E, 239308N	Yes	Not assessed	Not assessed	Unknown	Unknown	Unknown	N/A
Fingal- SW50	306076E, 243269N	Yes	Not assessed	Not assessed	Unknown	Unknown	Unknown	N/A
Fingal- SW51	308577E, 238545N	Yes	Not assessed	Not assessed	Unknown	Unknown	Unknown	N/A
Fingal- SW52	308318E, 238766N	Yes	Not assessed	Not assessed	Unknown	Unknown	Unknown	N/A
Fingal- SW53	309614E, 238262N	Yes	Not assessed	Not assessed	Unknown	Unknown	Unknown	N/A
Fingal- SW54	308007E,	Yes	Not assessed	Not assessed	Unknown	Unknown	Unknown	N/A

WWDL Name / Code for Storm Water Overflow	Irish Grid Ref.	Included in Schedule A4 of the WWDL	Significance of the overflow (High / Medium / Low)	Compliance with DoEHLG Criteria	No. of times activated in 2016 (No. of events)	Total volume discharged in 2016 (m^3)	Total volume discharged in 2016 (P.E.)	Estimated /Measured data
	238729N							
Fingal- SW55	308950E, 237336N	Yes	Not assessed	Not assessed	Unknown	Unknown	Unknown	N/A
Fingal- SW56	306505E, 237441N	Yes	Not assessed	Not assessed	Unknown	Unknown	Unknown	N/A

Table 4.1.2c - SWO Identification and Inspection Summary Report

How much sewage was discharged via SWOs in the agglomeration in the year (m^3/yr)?	Unknown
How much sewage was discharged via SWOs in the agglomeration in the year (P.E.)?	Unknown
What % of the total volume of sewage generated in the agglomeration was discharged via SWOs in the agglomeration in 2016?	Unknown
Is each SWO identified as non-compliant with DoEHLG Guidance included in the Programme of Improvements?	Not assessed
The SWO assessment includes the requirements of Schedule A3 & C3	Not assessed
Have the EPA been advised of any additional SWOs / changes to Schedule C3 and A4 under Condition 1.7?	N/A

Dún Laoghaire Rathdown County Council Functional Area

A summary of the significance and operation for 2016 is included below.

Table 4.1.1d- SWO Identification and Inspection Summary Report

WWDL Name/Code for the Storm Water Overflow	X co-ord	Y co-ord	Compliance with DoEHLG Criteria	Significance of the overflow (High / Medium / Low)	Included in Schedule A4 of the WWDL	No Times activated in 2016	Total Volume discharged in 2016(m^3)	Total Volume discharged in 2016 (PE)*	Estimated/ Measured Data
	Irish Grid Reference	Irish Grid Reference							
DLRCC/B5/R/001	317559	230769	See Table below	Low	Yes	0	0	0	Estimated
DLRCC/B5/R/002	316935	230487	See Table below	Low	Yes	0	0	0	Estimated
DLRCC/B5/R/003	319999	230505	See Table below	Low	Yes	0	0	0	Estimated+ Measured
DLRCC/B5/R/004	319406	229488	See Table below	Low	Yes	4	400	4.8	Estimated+ Measured
DLRCC/B5/R/005	316783	230085	SDCC	Low	SDCC	SDCC	SDCC	SDCC	SDCC
DLRCC/B5/R/006	316689	230050	SDCC	Low	SDCC	SDCC	SDCC	SDCC	SDCC
DLRCC/B5/R/007	315556	229632	See Table below	Low	Yes	1	1,500	18	Estimated
DLRCC/B5/R/008	315434	229529	See Table below	Low	Yes	1	0	0	Estimated
DLRCC/B5/R/009	315522	229162	See Table below	Medium	Yes	1	50	0.6	Estimated
DLRCC/B5/R/010	316969	229568	See Table below	Low	Yes	0	0	0	Estimated
DLRCC/B5/R/011	316987	229386	See Table below	Low	Yes	0	0	0	Estimated
DLRCC/B5/R/012	316984	229359	See Table below	Low	Yes	0	0	0	Estimated
DLRCC/B5/R/013	316940	229706	See Table below	Low	Yes	1	150	1.8	Estimated
DLRCC/B5/R/014	319938	230443	See Table below	Low	Yes	1	50	0.6	Estimated
DLRCC/B5/R/015	320280	230216	See Table below	Low	Yes	2	400	4.8	Estimated
DLRCC/B5/R/016	320631	230024	See Table below	Low	Yes	2	400	4.8	Estimated
DLRCC/B5/R/017	320837	229937	See Table below	Medium	Yes	12	2,700	32.8	Estimated
DLRCC/B5/R/018	321247	229477	See Table below	Low	Yes	0	0	0	Estimated

WWDL Name/Code for the Storm Water Overflow	X co-ord Irish Grid Reference	Y co-ord Irish Grid Reference	Compliance with DoEHLG Criteria	Significance of the overflow (High / Medium / Low)	Included in Schedule A4 of the WWDL	No Times activated in 2016	Total Volume discharged in 2016(m^3)	Total Volume discharged in 2016 (PE)*	Estimated/ Measured Data
DLRCC/B5/R/019	321124	229395	See Table below	Low	Yes	0	0	0	Estimated
DLRCC/B5/R/020	321567	229551	See Table below	Low	Yes	0	0	0	Estimated
DLRCC/B5/R/021	319142	227929	See Table below	Low	Yes	3	300	3.6	Estimated
DLRCC/B5/R/022	320736	228221	See Table below	Low	Yes	0	0	0	Estimated
DLRCC/B5/R/023	321681	229019	See Table below	Low	Yes	1	100	0.6	Estimated
DLRCC/B5/R/024	321681	229019	See Table below	Low	Yes	1	100	0.6	Estimated
DLRCC/B5/R/025	321806	229409	See Table below	Low	Yes	0	0	0	Estimated
DLRCC/B5/R/026	322033	228395	See Table below	Low	Yes	2	200	2.4	Estimated
DLRCC/B5/R/027	322573	228364	See Table below	Low	Yes	2	300	1.8	Estimated
DLRCC/B5/R/028	324953	228312	See Table below	Low	No	10	40,000	487.1	Estimated

*PE = volume/0.225*365

SWO Identification and Inspection Summary Table B

Code	Criteria Q1	Criteria Q2	Criteria Q3	Criteria Q4	Formula A Compliance
DLRCC/B5/R/001	No	No	No	No	Pre 1990
DLRCC/B5/R/002	No	No	No	No	Pre 1990
DLRCC/B5/R/003	No	No	No	No	Pre 1990
DLRCC/B5/R/004	No	No	No	No	Pre 1990
DLRCC/B5/R/005	No	No	No	No	Pre 1990
DLRCC/B5/R/006	SDCC	SDCC	SDCC	SDCC	Pre 1990
DLRCC/B5/R/007	SDCC	SDCC	SDCC	SDCC	Pre 1990
DLRCC/B5/R/008	No	No	No	No	Pre 1990
DLRCC/B5/R/009	Yes	Yes	No	No	Pre 1990
DLRCC/B5/R/010	No	No	No	No	Pre 1990
DLRCC/B5/R/011	No	No	No	No	Pre 1990
DLRCC/B5/R/012	No	No	No	No	Pre 1990
DLRCC/B5/R/013	No	No	No	No	Pre 1990
DLRCC/B5/R/014	No	No	No	No	Pre 1990
DLRCC/B5/R/015	No	No	No	No	Pre 1990
DLRCC/B5/R/016	No	No	No	No	Pre 1990
DLRCC/B5/R/017	No	Yes	No	No	Pre 1990
DLRCC/B5/R/018	No	No	No	No	Pre 1990
DLRCC/B5/R/019	No	No	No	No	Pre 1990
DLRCC/B5/R/020	No	No	No	No	Pre 1990
DLRCC/B5/R/021	No	No	No	No	Pre 1990
DLRCC/B5/R/022	No	No	No	No	Pre 1990
DLRCC/B5/R/023	No	No	No	No	Pre 1990
DLRCC/B5/R/024	No	No	No	No	Pre 1990
DLRCC/B5/R/025	No	No	No	No	Pre 1990
DLRCC/B5/R/026	No	No	No	No	Pre 1990
DLRCC/B5/R/027	No	No	No	No	Pre 1990
DLRCC/B5/R/028	No	No	No	No	Unassessed

The information above is based on a mixture of monitoring and experience operations staff and as such is a best estimate of current conditions.

Table 4.1.2d - SWO Identification and Inspection Summary Report

How much sewage was discharged via SWOs in the agglomeration in the year (m^3/yr)?	46,650
How much sewage was discharged via SWOs in the agglomeration in the year (P.E.)?	568
What % of the total volume of sewage generated in the agglomeration was discharged via SWOs in the agglomeration in 2016?	Approx. 1.7%
Is each SWO identified as non-compliant with DoEHLG Guidance included in the Programme of Improvements?	No
The SWO assessment includes the requirements of Schedule A3 & C3	No discharges to be discontinued under A3.
Have the EPA been advised of any additional SWOs / changes to Schedule C3 and A4 under Condition 1.7?	No

Meath County Council Functional Area

In 2014, Meath County Council completed the Contract 5 Ashbourne/Ratoath and Kilbride sewer rehabilitation project. A SWO identification and inspection report has been prepared as part of this 2016 AER for the Deerpark Pumping Station (S.W 1 Meath), Millennium Park Pumping Station (S.W. 3 Meath) and the Ratoath Pumping Station (S.W 5 Meath).

Table 4.1.1e - SWO Identification and Inspection Summary Report

WWDL Name / Code for Storm Water Overflow	Irish Grid Ref.	Included in Schedule A4 of the WWDL	Significance of the overflow (High/Med/ Low)	Compliance with DoEHLG criteria	No. of times activated in 2016 (No. of events)	Total volume discharged in 2016 (m^3)	Total volume discharged in 2016 (P.E.)	Estimated / Measured data
S.W 1 Meath	307000 251960	Yes	High	Compliant	Unknown	Unknown	Unknown	Unknown
S.W 2 Meath	307220 251800	Yes	High	Unknown	Unknown	Unknown	Unknown	Unknown
S.W 3 Meath	306100 252760	Yes	High	Compliant	Unknown	Unknown	Unknown	Unknown
S.W 4 Meath	305890 252230	Yes	High	Compliant	Unknown	Unknown	Unknown	Unknown
S.W 5 Meath	302640 251610	Yes	High	Compliant	Unknown	Unknown	Unknown	Unknown
S.W 6 Meath	303240 251560	Yes	High	Unknown	Unknown	Unknown	Unknown	Unknown
S.W 7 Meath	306676 245818	Yes	High	Compliant	Unknown	Unknown	Unknown	Unknown
S.W 8 Meath	306330 246270	Yes	Low	Unknown	Unknown	Unknown	Unknown	Unknown

Table 4.1.2e - SWO Identification and Inspection Summary Report

How much sewage was discharged via SWOs in the agglomeration in the year (m^3/yr)?	Unknown
How much sewage was discharged via SWOs in the agglomeration in the year (P.E.)?	Unknown
What % of the total volume of sewage generated in the agglomeration was discharged via SWOs in the agglomeration in 2016?	Unknown
Is each SWO identified as non-compliant with DoEHLG Guidance included in the Programme of Improvements?	Unknown
The SWO assessment includes the requirements of relevant WWDL Schedules (Yes/No)	N/A
Have the EPA been advised of any additional SWOs / changes to Schedules A/C under Condition 1.7?	N/A

4.2. Report on progress made and proposals being developed to meet the improvement programme requirements

Condition 5 of the licence requires the licensee to prepare and implement an improvement programme to maximise the effectiveness and efficiency of the work as specified in Condition 5.1.

Dublin City Council Functional Area

Table 4.2.1a Specified Improvement Programme Summary

Specified Improvement Programmes	Licence Schedule (A or C)	Licence Completion Date	Date Expired?	Status of Works	Comments	Licensee Timeframe for Completing Works
Improvement Programme for Primary Discharge						
Upgrade waste water treatment plant and ancillary works in accordance with Condition 5.5	C.1	22nd December 2015	Yes	Part-commenced	The Project consists of three main elements as follows: **'Surgical Insertion' Works** The Surgical Works include upgrades to the sludge handling facilities, odour control capacity & site electrical upgrades. These works are to be completed in early 2017. **Capacity Upgrade** The Capacity Upgrade Project went out to Tender in 2016 and Tenders are currently being assessed. Construction to commence in late 2017. The Capacity Upgrade is to be completed & commissioned by end 2019. **SBR Retrofit** Retrofitting AGS technology to the existing treatment tanks is to commence in late 2018 (subject to ABP consent). The new SID application to omit the LSOT is to be submitted to ABP in early 2018.	Element 2 Capacity Upgrade Project – to complete end 2019. Element 3 SBR Retrofit Works to commence in late 2018 (subject to ABP consent). Plant capacity expected to meet demand and License requirements in 2020.

Specified Improvement Programmes	Licence Schedule (A or C)	Licence Completion Date	Date Expired?	Status of Works	Comments	Licensee Timeframe for Completing Works
Upgrade storm water storage tank at WWTP as necessary	C.1	Not applicable	Not applicable	Not applicable	There are no current plans to upgrade the storm water storage tanks at the Works. This position being reviewed as part of WwTW Detailed Design	Not applicable
City Centre Sewerage Scheme (CCSS)	C.3	None specified	Not applicable	In progress	N/A	Hydraulic model construction and verification complete.
North Docklands Sewerage Scheme	C.4	None specified	Not applicable	Work on Site	75%	See **Section 4.2.3**.
Rathmines and Pembroke (R&P) Scheme now renamed as *'Rathmines – Pembroke and Grand Canal Tunnel Drainage Area Study'*	C.3	None specified	Not applicable		N/A	

A summary of the status of any improvements identified by under Condition 5.2 is included below.

Table 4.2.2a Improvement Programme Summary

Improvement Identifier	Improvement Description	Improvement Source	Progress (% completed)	Expected Completion Date	Comments
WWTP Upgrade	WWTP Upgrade	WWTP (Condition 5.2)	At development / tender stage	2020 to meet demand and License requirements - subject to IW approval and funding	WWTP (Condition 5.2)

4.2.3 Upgrades to Ringsend Wastewater Treatment Works

Irish Water's Project Strategy is to:

1. Complete on-going Surgical Works. (Included in 2012 Planning Permission).
2. Install Capacity Upgrade - the Capacity Upgrade (400,000PE) will be designed and constructed for nutrient removal using Aerobic Granular Sludge (AGS) technology to increase capacity and to produce a higher quality effluent. (Included in 2012 Planning Permission).
3. Omit Long Sea Outfall Tunnel(LSOT) by installing the aerobic granular sludge (AGS) technology in both the Capacity Upgrade and in the existing treatment tanks. (Requires new Planning Permission).

Surgical Works were commenced prior to the transfer of the project to Irish Water. The Surgical Works include upgrades to the sludge handling facilities, odour control capacity & site electrical upgrades. These works are to be completed in early 2017.

Irish Water is demonstrating that the AGS technology will achieve the required compliance and capacity objectives at Ringsend using a two-step process proving strategy. Process Proving Step 1, which comprised a pilot scale unit was complete in June 2016 and demonstrated that the AGS technology achieves the required effluent standards. Process Proving Step 2 comprises the retrofit of the AGS technology to one of the twenty-four existing treatment tanks. Construction is complete and it will be commissioned in early 2017. The testing period will then commence and allow final sign off that the technology meets all effluent requirements.

Tenders for the Capacity Upgrade (400,000PE) contract were in issued to pre-qualified applicants in August 2016. Tenders were received in January 2017. The tender assessment process is ongoing and contract award will be towards the end of 2017. The Capacity Upgrade is to be completed & commissioned in Q3/Q4 2019.

Retrofitting the AGS technology to the existing treatment tanks is to commence in late 2018 (subject to ABP approval) and overall plant capacity is expected to meet projected demand and licence requirements in 2020.

The new SID application to omit the LSOT is to be submitted to ABP in Q1 2018. The application has been delayed from the original submission programme of October 2016 due to the requirement to include a biosolids storage facility. However, this delay will not impact the delivery of the 400,000PE Capacity Upgrade as this can be progressed under the 2012 approval.

4.2.4 North Docklands Sewerage Scheme

The Docklands Drainage Area Plan (DAP) produced in 2006 identified that there was a need to upgrade the existing water and drainage facilities in the North Docklands Area. The Docklands DAP identified that a new pumping station at Spencer Dock with Rising Mains to convey flows across to Ringsend Wastewater Treatment Works was the only viable solution to meet future drainage demand of new development in the north docklands area. The scheme was originally conceived as Serviced Land Initiative Scheme (SLI) rolling over into the WSIP 2007 - 2009. The remaining contracts still outstanding were extended into the DECLG WSIP 2010 – 2013. Following a series of design and scope changes the delivery strategy devised for the North Docklands Sewerage Scheme (NDSS) (previously referred to as the Spencer Dock Sewerage Scheme) was to split the overall scheme into four contracts. The title of each element (listed hereunder) reflects the current position:

Contract 1 - Spencer Dock Pumping Station (SDPS) Remaining works titled NDSS Contract 4C – completed and in operation
Contract 2 - Dublin Docklands Rising Mains Sewerage Scheme - completed
Contract 3 - Liffey Services Installation Contract (LSIC) - completed
Contract 4 - Network Upgrade -Split into two contracts - 4A – completed and in operation
4B: Tender assessment underway
SDZ North Docklands Ancillary Water Services Infrastructure (AWSI) Project: on going

When all Docklands Contracts are completed the necessary drainage infrastructure will be in place to adequately deal with the current and future sustainable development of the North Docklands Area. Furthermore, it will reduce CSO spills and flooding risk in the north docklands. The engineering solution has been designed to complement drainage infrastructural requirements envisaged by the new Dublin City Council Strategic Development Zone (SDZ) Plan and CIE Master Development Plan.

Contract 1 - Spencer Dock Pumping Station (SDPS)

An integral component of the overall Spencer Dock Sewerage Scheme, a main pumping station has been constructed in the North Lotts Area of Spencer Dock, Dublin 1 on behalf of Dublin City Council by means of a development agreement between Dublin City Council and original Developers SDCC (No.9) Ltd. Funding was secured by Irish Water and following tender process, contracts were awarded in Q3 2014 for the completion of the outstanding works to Ward & Burke Construction Ltd and CMP Ltd (SISK).

The overall objective of the pumping station is to transfer existing and future combined flows from within the Spencer Dock catchment to the existing Ringsend Wastewater Treatment Plant for treatment and disposal. The Spencer Dock Pumping Station is located at the junction of Sheriff Street Upper and New Wapping Street. The pumping station has recently been commissioned, is substantially complete and has been operational since November 2015. Flows which were previously discharging to East Road PS are now diverted to the new Spencer Dock PS. Spencer Dock PS is capable of pumping considerably higher foul water volumes than East Road PS. With the new recent network configuration East Road PS should now only be required in the event of extreme storm conditions.

1. The Sherriff Street 1200 mm diameter Incoming Sewer
Substantially Complete November 2015 and fully in operation.

2. New Wapping Street Twin Rising Mains and Overflow Sewer to connect to contract 2. Substantially Completed November 2015 and fully in operation.

3. Mayor Street Rising Main Rehabilitation works
Mayor Street sewer rehab works undergoing further route selection required – expected completion date October 2017.

4. Final commissioning of Mechanical and Electrical Plant and handover of the pumping station. Substantially Complete November 2015 and fully in operation.

North Docklands Sewerage Scheme – Contract 4A

The works consisted of the upgrade of existing sewerage infrastructure within the Spencer Dock area of the North Docklands, transferring flows from existing sewers on Church Road, East Road and Sherriff Street, via a new 530-metre-long 1200 mm diameter arterial tunnelled sewer network to the new Spencer Dock Pumping Station constructed as contract 1 of the overall scheme. The Contractor, Ward and Burke Construction Ltd. were formally appointed by Dublin City Council in July 2013 to undertake the construction contract. RPS Group consulting engineers were appointed as project supervisor for construction and handover stages. The works were substantially completed in November 2015 and foul flows are now being diverted away from East Road PS and now discharging to the recently commissioned Spencer Dock PS.

North Docklands Sewerage Scheme - Contract 4B

Completion of Contract 4B is the last remaining element providing the necessary drainage infrastructure to facilitate new development and upgrade existing sewerage infrastructure to transfer flows to the pumping station from Sheriff Street Upper and Castleforbes Road. It will involve 740 metres of combined gravity sewer using trenchless construction methods (433 metres of 1,200 mm diameter, and 307 metres of 600 mm diameter using micro tunnelling) including 8 drive and reception pits. Approximately 48 metres of combined gravity sewers and ancillary manholes using open cut methods with connections to existing manholes and extensive accommodation works involving diversion of existing utilities at all shaft and open cut manhole locations is included. The Project transferred to Irish Water in January 2014. The contract was awarded in December 2016 and construction is underway. Contract duration of 18 months.

SDZ North Docklands Ancillary Water Services Infrastructure (AWSI) Project

This Project will see the delivery of the remaining infrastructure requirements to service the SDZ including watermains, remaining subsidiary foul sewers and surface water sewers. Consulting Engineers have been appointed by Irish Water and the recent Preliminary Report is being reviewed.

South Dublin County Council Functional Area

There are no Specified Improvement Programmes for the South Dublin County Council portion of the Ringsend agglomeration as detailed in Schedules A3 and C of the WWDL.

Table 4.2.1b - Specified Improvement Programme Summary

Specified Improvement Programmes (under Schedule A and C of WWDL)	Licence Schedule (A or C)	Licence Completion Date	Date Expired? (N/NA/Y)	Status of Works ((i) Not Started; (ii) At planning stage; (iii) Work ongoing on-site; (iv) Commissioning Phase; (v) Completed; (vi) Delayed)	% Construction Work Completed	Timeframe for Completing the Work	Comments
None							

The SDCC Improvement Programme is included in **Appendix 7.5**.

South Dublin County Council on behalf of Irish Water is implementing misconnection survey work to identify misconnections between surface and foul drainage systems.

Table 4.2.2b - Improvement Programme Summary

Improvement Identifier	Improvement Description	Improvement Source	Progress (% completed)	Expected Completion Date	Comments
None					

Fingal County Council Functional Area

The Improvement Programme is included in **Appendix 7.5**.

Table 4.2.1c - Specified Improvement Programme Summary

Specified Improvement Programmes (under Schedule A and C of WWDL)	Licence Schedule (A or C)	Licence Completion Date	Date Expired? (N/NA/Y)	Status of Works ((i) Not Started; (ii) At planning stage; (iii) Work ongoing on-site; (iv) Commissioning Phase; (v) Completed; (vi) Delayed)	% Construction Work Completed	Timeframe for Completing the Work	Comments
Discharge S4 Fingal to the Irish Sea to be discontinued Doldrum Bay	A	31/12/2011	Y	Proceeding to detailed design once final option selected.	5%	Timeframe not finalised, detailed design commencing in 2017	IW repaired the outfall pipeline in 2016 (5% of construction) which will be used in overall solution either as discharge point or overflow.
Discharge to cease: S5 Fingal to the Irish Sea	A	27/10/2010	Y	Completed	100%		

There are no improvements identified under Condition 5.2.

Table 4.2.2 - Improvement Programme Summary

Improvement Identifier / Name	Improvement Description	Improvement Source	Progress (% complete)	Expected Completion Date	Comments
None					

Dún Laoghaire Rathdown County Council Functional Area

Table 4.2.1d - Specified Improvement Programme Summary

Specified Improvement Programmes (under Schedule A and C of WWDL)	Licence Schedule (A or C)	Licence Completion Date	Date Expired? (N/NA/Y)	Status of Works ((i) Not Started; (ii) At planning stage; (iii) Work ongoing on-site; (iv) Commissioning Phase; (v) Completed; (vi) Delayed)	% Construction Work Completed	Timeframe for Completing the Work	Comments
None							

A summary of the status of any improvements identified by under Condition 5.2 is included below.

Table 4.2.2d - Improvement Programme Summary

Improvement Identifier	Improvement Description	Improvement Source	Progress (% completed)	Expected Completion Date	Comments
Dun Laoghaire Sewerage Scheme Phase 1	Contract 2e - Moreen Environs Foul Sewer Upgrade, Phase 4	Removal of deficiencies in capacity	0	Q4 2017	At design stage.
Dun Laoghaire Sewerage Scheme Phase 1	Contract 2 - Network Upgrade Sandyford/Still organ Improvement-Tunnel	Removal of deficiencies in capacity	0	Q4 2018	Tender stage Q1 2017
Goatstown Rehab Project	Sewer Rehab	Increase in Capacity	0	Q3 2018	Tender stage Q2/Q3 2017
Churchstown landscape Rd	Sewer Rehab	Increase in Capacity	0	Q3 2018	Tender stage Q2/Q3 2017
Condition 5.2	Sewer Integrity Tool Used	Sewer Integrity Tool (Condition 5.2).	100		Completed.
Condition 4 & 5.2	SWO assessment	SWO assessment (Condition 4 & 5.2).	100		Based on estimated spill numbers and local knowledge of Drainage Staff.

Meath County Council Functional Area

There are no specified improvement works listed in schedule A or C of the WWDL and therefore a specified improvement programme summary is not required.

Table 4.2.1e - Specified Improvement Programme Summary

Specified Improvement Programmes (under Schedule A and C of WWDL)	Licence Schedule (A or C)	Licence Completion Date	Date Expired? (N/NA/Y)	Status of Works ((i) Not Started; (ii) At planning stage; (iii) Work ongoing on-site; (iv) Commissioning Phase; (v) Completed; (vi) Delayed)	% Construction Work Completed	Timeframe for Completing the Work	Comments
None							

A summary of the status of any improvements identified by under Condition 5.2 is included below.

Table 4.2.2e - Improvement Programme Summary

Improvement Identifier	Improvement Description	Improvement Source	Progress (% completed)	Expected Completion Date	Comment
Install bigger sump drainage pumps	Install bigger sump drainage pumps a) at Ashbourne PS b) at Kilbride PS	Condition 5.2.	100% 100%		
Raise pumps electrical contractor control boxes out of the wet well sumps	Raise pumps electrical contractor control boxes out of the wet well sumps; a) at Ashbourne PS b) at Kilbride PS	Condition 5.2.	0% 100%	Unknown	The improvement programme will be reviewed by Irish Water to assess the works required to comply with the licence condition on a prioritised basis.
Seal the leaking cable ducts and other points that flood the wet well sumps	Seal the leaking cable ducts and other points that flood the wet well sumps; a) at Ashbourne PS b) at Kilbride PS	Condition 5.2.	0% 0%	Unknown Unknown	The improvement programme will be reviewed by Irish Water to assess the works required to comply with the licence condition on a prioritised basis.

4.3. Sewer Integrity Tool

Dublin City Council Functional Area

As reported last year, as part of the City Centre Sewerage Scheme, a modified Sewer Integrity Tool was developed and piloted. The pilot indicated the extreme complexity in applying the Sewer Integrity Tool to an agglomeration with more than 900 km of foul and combined sewer and that the full application of the Sewer Integrity Tool to each of the catchments within the agglomeration would require considerable time, funding and resources. There has been no further progress on this issue in 2016.

South Dublin County Council Functional Area

The sewer network in South Dublin portion of the Ringsend agglomeration is sub-divided and managed as two catchments within the agglomeration. These catchments are the Dodder Valley Sewer (DVS) and the 9B sewer.

The details of the Sewer Integrity Risk Assessment of the South Dublin Portion was included in **Appendix 7.4b** of **2014 AER** and the following table summarises the outcome of that risk assessment as calculated by the EPA guidance document assessment tool.

Table 4.3b - Sewer Integrity Risk Assessment Tool Summary

The Improvement Programme should include an assessment of the integrity of the existing wastewater works for the following:	**Risk Assessment Rating (High, Medium, Low)**	**Risk Assessment Score**	**Comment**
Hydraulic Risk Assessment Score	Medium	73	
Environmental Risk Assessment Score	Medium	385	
Structural Risk Assessment Score	High	130	
Operation & Maintenance Risk Assessment Score	Low	60	
Overall Risk Score for the agglomeration	High	648	

Fingal County Council Functional Area

Due to the nature of the agglomeration, two different Sewer Integrity Risk Assessment Tools have been completed. See **Appendix 7.6** of the **2015** for Sewer Integrity Tool Output for the North Fringe Sewer Catchment and the 9C Catchment.

4.3(c1) North Fringe Sewer Catchment

The Improvement Programme should include an assessment of the integrity of the existing wastewater works for the following:	**Risk Assessment Rating (High, Medium, Low)**	**Risk Assessment Score**	**Comment**
Hydraulic Risk Assessment Score	High	130	

Environmental Risk Assessment Score	Low	180	
Structural Risk Assessment Score	High	150	
Operation & Maintenance Risk Assessment Score	Medium	112	
Overall Risk Score for the agglomeration	High	572	

4.3(c2) 9C Catchment

The Improvement Programme should include an assessment of the integrity of the existing wastewater works for the following:	**Risk Assessment Rating (High, Medium, Low)**	**Risk Assessment Score**	**Comment**
Hydraulic Risk Assessment Score	Medium	57	
Environmental Risk Assessment Score	Low	50	
Structural Risk Assessment Score	Medium	65.292	
Operation & Maintenance Risk Assessment Score	Medium	88	
Overall Risk Score for the agglomeration	Low	260.292	

Dún Laoghaire Rathdown County Council Functional Area

The details of the Sewer Integrity Risk Assessment of the West Pier East Catchment was included in **Appendix 7.4** of **2014 AER**. The following table summarises the outcome of that risk assessment.

Table 4.3d - Sewer Integrity Risk Assessment Tool Summary

The Improvement Programme should include an assessment of the integrity of the existing wastewater works for the following:	**Risk Assessment Rating (High, Medium, Low)**	**Risk Assessment Score**	**Comment**
Hydraulic Risk Assessment Score	Medium Risk	67	
Environmental Risk Assessment Score	Low Risk	158	
Structural Risk Assessment Score	High Risk	140	High score here because the condition of the network is not known. So high risk assumed.
Operation & Maintenance Risk Assessment Score	Low Risk	74	
Overall Risk Score for the agglomeration	Low Risk	439	

Meath County Council Functional Area

The details of the Sewer Integrity Risk Assessment of the Meath functional area was included in **Appendix 6.2** of **2014 AER**. The following table summarises the outcome of that risk assessment.

Table 4.3e - Sewer Integrity Risk Assessment Tool Summary

The Improvement Programme should include an assessment of the integrity of the existing wastewater works for the following:	**Risk Assessment Rating (High, Medium, Low)**	**Risk Assessment Score**	**Comment**
Hydraulic Risk Assessment Score	High	150	
Environmental Risk Assessment Score	Low	138	
Structural Risk Assessment Score	High	135	
Operation & Maintenance Risk Assessment Score	High	158	
Overall Risk Score for the agglomeration	High	581	

5. Licence Specific Reports

Licence Specific Reports Summary Table

Licence Specific Report	Required in AER or outstanding from previous AER	Report Included in AER	Reference to relevant section of AER (e.g. Appendix 2 Section 4).
Priority Substances Assessment	Yes	Yes	Summary of finding in **Table 5.1**. Full report in **Appendix 7.6**.
Drinking Water Abstraction Point Risk Assessment	No	No	N/A
Habitats Impact Assessment	No	No	N/A
Shellfish Impact Assessment	No	No	N/A
Pearl Mussel Report	No	No	N/A
Toxicity/Leachate Management	Yes	Yes	Summary of findings in **Table 5.2**. Full report in **Appendix 7.7**.
Toxicity of Final Effluent Report	Yes	Yes	Summary of findings in **Table 5.3**. Full report in **Appendix 7.8**
Small Streams Risk Score	No	No	N/A

Licence Specific Reports Summary of Findings

Licence Specific Report	Recommendations in Report	Summary of Recommendations in Report
Priority Substances Assessment	Yes	On-going review of licenced discharges to sewers in the catchment of Ringsend WWTP. Priority substances detected in effluent should have no negative impacts outside the near field of the discharge due to dilution.
Drinking Water Abstraction Point Risk Assessment	N/A	
Habitats Impact Assessment	N/A	
Shellfish Impact Assessment	N/A	
Pearl Mussel Report	N/A	
Toxicity/Leachate Management	No	Annual leachate volume at Ringsend is not significant at 195,793 cubic metres. This constitutes 535 cubic metres per day (0.13% v/v) based on the 2016 mean daily influent volume of 410,874 cubic metres.
Toxicity of Final Effluent Report	No	The toxicity of the Final Effluent complied well with the ELV for all species tested.
Small Streams Risk Score	N/A	Effluent Discharge to Liffey Estuary.

5.1. Priority Substances Assessment

The Priority Substances Assessment report is included in **Appendix 7.6**. A summary of the findings of this report is included below.

Table 5.1 - Priority Substance Assessment Summary

	Licensee self- assessment checks to determine whether all relevant information is included in the Assessment.
Does the assessment use the Desk Top Study Method or Screening Analysis to determine if the discharge contains the parameters in Appendix 1 of the EPA guidance	Desk Top Study *and* Screening Analysis
Does the assessment include a review of Trade inputs to the works?	Yes
Does the assessment include a review of other inputs to the works?	Yes
Does the report include an assessment of the significance of the results where a listed material is present in the discharge? (e.g. impact on the relevant EQS standard for the receiving water)	Yes
Does the assessment identify that priority substances may be impacting the receiving water?	No – only in the near field of the discharge.
Does the Improvement Programme for the agglomeration include the elimination / reduction of all priority substances identified as having an impact on receiving water quality?	Yes – reduction of all priority pollutants in licensed trade effluent discharges in the agglomeration.

5.2. Toxicity/Leachate Management

The Toxicity / Leachate Management Assessment report is included in **Appendix 7.7**. A summary of the findings of this report is included below.

Table 5.2 - Toxicity / Leachate Management Report Summary

Is a Toxicity / Leachate Management Report required in the AER (or outstanding from previous AER)	Yes
What % of the total influent for the year is leachate?	0.013 % of annual load (volume)
Does leachate addition exceed 4% ((volume) of the influent load at any time?	No
Maximum leachate loading rate (based on 100 cubic metres)	0.13% of daily load (volume)
Does the leachate study identify any constituents of the material that present an environmental risk?	No
List leachate constituent identified and impact (*insert a row for each constituent)*	N/A
Has the WWTP suitability to treat the leachate been assessed?	No
What are the results of the assessment	N/A
Has the study identified the max and operational loadings (mass, volume and rate of addition) for leachate to the WWTP?	N/A
Is there a monitoring programme for the priority substances identified above?	Yes
Have trigger and action levels for the concentration of identified leachate constituents been established to prevent impact on the receiving water?	Yes
Does the Improvement Programme for the agglomeration include any procedural and/or infrastructural works to reduce the impacts of leachate acceptance on the operation of the WWTP?	No

5.3. Toxicity of the Final Effluent Assessment Summary

The Toxicity / Leachate Management Assessment report is included in **Appendix 7.8**. A summary of the findings of this report is included below.

Table 5.3 - Toxicity of the Final Effluent Assessment Summary

Is a Toxicity report required? (Condition 4)	Yes
Has the study been carried out against 4 species in 3 trophic levels?	No (2 species) Fish toxicity carried out and reported in 2015.
Does the report identify that the discharge is toxic to any of the species in the study?	No
List species impacted	N/A
Does the Improvement Programme for the agglomeration include any procedural and/or infrastructural works to reduce the toxicity of the final discharge?	No

Toxicity test results show effluent aquatic toxicity complies well with the licence limit of 5 TU.

6. Certification and Sign Off

Table 6.1 - Summary of AER Contents

Does the AER include an executive summary?	Yes
Does the AER include an assessment of the performance of the Waste Water Works (i.e. have the results of assessments been interpreted against WWDL requirements and or Environmental Quality Standards)?	Yes
Is there a need to advise the EPA for consideration of a technical amendment / review of the licence?	Yes
List reason e.g. additional SWO identified *(insert lines as required)* *Irish Water will be seeking a review of the license in relation to the proposed upgrade of treatment works and network*	
Is there a need to request/advise the EPA of any modifications to the existing WWDL? Refer to Condition 1.7 (changes to works/discharges) & Condition 4 (changes to monitoring location, frequency etc.)	Yes
List reason e.g. failure to complete specified works within dates specified in the licence, changes to monitoring requirements *(insert lines as required):* *Upgrade in capacity of waste water treatment works* *Changes to ambient monitoring requirements*	
Have these processes commenced? (i.e. Request for Technical Amendment / Licence Review / Change Request): Letter sent to EPA 8/1/16	Yes
Are all outstanding reports and assessments from previous AERs included as an appendix to this AER?	Yes

Declaration by Irish Water

The AER contains the following;

- Introduction and background to 2016 AER
- Monitoring reports summary.
- Operational reports summary.
- Infrastructural Assessment and Programme of Improvements.
- Licence specific reports.
- Certification and Sign Off
- Appendices

I certify that the information given in this Annual Environmental Report is truthful, accurate and complete:

Signed: _____ Date: 28/02/2017

Elizabeth Arnett
Head of Corporate Affairs and Environmental Regulation

7. Appendices

Appendix 7.1 - Annual Statements of Measures
Appendix 7.2 - Ambient Monitoring Summary
Appendix 7.3 - PRTR Summary Sheets
Appendix 7.4 – Storm Water Overflow Assessment
Appendix 7.5 - Specified Improvement Programme
Appendix 7.6 - Priority Substances Assessment
Appendix 7.7 - Toxicity Leachate Management Report
Appendix 7.8 - Final Effluent Toxicity Assessment

Appendix 7.1

Annual Statement of Measures

Dublin City Council Functional Area

The potential sources of environmental damage are discharges from the surface water overflows and the emergency overflows from the pump stations in the network. Pump stations are visited every day by Drainage Inspectors who are also notified by text message when an emergency overflow is activated and respond as a soon as is practicable to remove the cause of the overflow.

Additional measures have been taken in 2016 in relation to prevention of environmental damage summarized in the table below. The need for measures to prevent environmental damage is reviewed on an annual basis.

Statement of Measures					
Risk Score	**Mitigation measure to be taken**	**Outcome**	**Action**	**Date for completion**	**Owner/Contact Person**
12	Measure the most common contaminant - hydrocarbons on-line	Early warning given of hydrocarbons present in incoming sewage, preventing major contaminant reaching secondary treatment.	Hydrocarbons monitor to be installed in common inlet channel/screen house.	2017	Plant Operator (CAW) Plant OM Manager
12	Upgrade of on site communications network	No communication issues.	Upgrade of on site communications network as a part of the plant extension project.	2019	Irish Water
12	Increased plant capacity and process resilience against severe weather - mainly low temperature and heavy wind conditions	Treatment Process resistant to severe weather impact - low temperature and heavy winds.	Plant's secondary treatment extension, covers or wind deflectors to be installed on current secondary treatment tanks (SBR's).	Increase Plant Capacity to complete by end 2019. Wind deflectors/ covers under review	Irish Water
16	Biological nutrient removal to take place at WwTW.	No eutrophication of sensitive water bodies.	Long Sea Outfall Tunnel to be designed, constructed and commissioned.	Under review - New Capacity Upgrade to include nutrient removal (complete end 2019), also plans to retrofit existing SBR's to remove nutrients and eliminate need for LSOT are being developed – to complete in 2020/ 21	Irish Water
6	Increase sodium hydroxide storage tank capacity to be able to receive full balk load delivery to eliminate chemicals handling in IBCs	No high volume delivery chemicals to be handled in IBCs.	A new sodium hydroxide storage with sufficient capacity to be installed for the Dryer OCU.	Action completed.	Plant Operator (CAW) Plant OM Manager

6	Closed bins to be to be used only for waste handling (screenings), the waste to be disposed through a designated place	No odour emissions from screenings handling.	Closed bins to be purchased, designated point for waste (screenings) disposal to be designed and installed.	Action completed.	Plant Operator (CAW) Plant OM Manager
4	Product not to be transported in trailers even with a minor cover damage.	No spillages on site or during transport.	All trailers in use to be re-checked before filled, staff training.	Training programme in place	Plant Operator (CAW) Plant OM Manager
4	Biocake loading bay to be enclosed, product not to be transported in trailers even with a minor cover damage	No spillages on site or during transport.	Biocake loading bay to be designed and constructed, all trailers in use to be re-checked before filled, staff training.	March 2017	Plant Operator (CAW) Plant OM Manager/Irish water

South Dublin County Council Functional Area

The general nature of measures identified include:

- Preventative maintenance at local pumping stations which support reduced adverse WWTP impact and failure
- Enhanced local pumping station capacity complemented by reduced number of system chokes which will contribute to minimization of effluent spills by a range of measures which include replacement of key pumps by chopper type pumps to cope with the variety of material arriving at pumping station facilities
- Regular inspection of storage tanks will identify potential risk of leakage from same.

Fingal County Council Functional Area

Mitigation measure to be taken	**Date for completion**
Regular sump cleaning.	On going
Routine maintenance, provision and monitoring of telemetry system, ongoing staff training.	On going
Baldoyle PS overflow diverted from going out to sea to overflow back into the foul system.	Completed in 2015
Pump station improvements ongoing - electrical panel reviews, control panel upgrades, chain replacements, alarm review.	Ongoing
Outfall (Discharge S4Fingal) pipeline repaired in 2016 which will be used in overall solution either as discharge point or overflow.	Completed repair work

Dún Laoghaire Rathdown County Council Functional Area

The potential sources of environmental damage are discharges from the surface water overflows and the emergency overflows from the pump stations in the network. Pump stations are visited every day by Drainage inspectors who are also notified by text message when an emergency overflow is activated and respond as a soon as is practicable to remove the cause of the overflow.

Meath County Council Functional Area

No additional measures have been taken in 2016 in relation to prevention of environmental damage. The need for measures to prevent environmental damage is reviewed on an annual basis.

Appendix 7.2

Ambient Monitoring Summary

Figure 7.2.1 Dublin Ambient Sampling Points Map

2016			Appendix 7.2(2) Marine Water Body Monitoring 2016	ASW2 - ASW10													
Report for Samples Taken During the Period: 01/01/2016 - 31/12/2016																	
Customer	Test List	Sampling Point	Sampling Point Description	Sampled Date	Sample												
DCC					Number	Ammonia	B.O.D. Saline	Chlorophyll a	DIN	Dissolved Oxygen	Pheophytin a	Phosphorus (React)	Salinity	Silica	Temperature	TON	
						µg/l as N	mg/l	mg/m3	µg/l	% Sat.	mg/m3	µg/l SRP as P	PSU	µg/l as SiO2	°C	µg/l as N	
			Surface Water Objectives for Transitional Water Bodies - SI 272 of 2009				< 4.0 mg/l			0% PSU		0% - 17% PSU			< 1.5 Deg. C		
			Compliant				95%-ile			70% - 130%		< 60ug/l P (median)			outside mixing		
			Non-Compliant							35% PSU		35% PSU			zone		
										80% - 120%		<40 ug/l P (median)					
EPA Code																	
ASW 2S	123_ESTUAR	130842	(130842) Liffey Estuary Lower, 25m North of Poolbeg Wall - Surface Sample	20/04/2016 11:50	1135273	16763	4	1.7	16959	100	1.4	1105	22.5	3544	11.4	196	
				04/05/2016 11:09	1141003	2080	1	2	2197	99	1.2	180	30.51	382	10.65	117	
				16/06/2016 09:08	1159685	3660	2	3.3	11727	97	2.3	778	17.16	3803	16.24	8067	
				14/07/2016 10:12	1172296	1633	2	2.9	6233	97	0.2	669	24.78	1610	16.7	4600	
				18/08/2016 11:40	1186042	393	5	1.6	653	94	1.2	66	27.31	828	17.64	260	
				14/09/2016 10:06	1197033	947	3	1.5	1367	96	0.8	270	24.24	962	18.65	420	
												469.5					
ASW 2D		130843	(130843) Liffey Estuary Lower, 25m North of Poolbeg Wall - Depth Sample	20/04/2016 11:52	1135274	4774	2	4.9	4953	100	1.5	296	32.5	1086	9.2	179	
				04/05/2016 11:09	1141004	1207	<1	2.2	1297	98	1.7	126	32.85	246	9.64	90	
				16/06/2016 09:14	1159686	1281	2	6.9	3951	75	2	261	32.33	1209	15.29	2670	
				14/07/2016 10:14	1172297	1121	1	2.5	3116	99	0.9	391	32.69	996	15.34	1995	
				18/08/2016 11:40	1186043	50	1	1.5	93	96	1.2	32	33.46	264	15.61	43	
				14/09/2016 10:08	1197034	29	1	2.3	108	94	1.5	7	33.25	295	15.82	79	
												193.5					
ASW 3S		130844	(130844) Liffey Estuary Lower, 50m North of Poolbeg Wall - Surface Sample	20/04/2016 12:03	1135275	19293	3	1	19422	100	1.3	1112	27.6	4274	10.7	129	
				04/05/2016 11:25	1141005	9453	3	1.3	9552	99	1.9	886	24.25	1620	11.33	99	
				16/06/2016 12:19	1159687	126	<1	5.9	428	104	10.7	50	27.68	1089	15.93	302	
				14/07/2016 09:53	1172298	1668	2	1.6	6587	98	1.8	683	23.88	1800	16.96	4919	
				18/08/2016 11:30	1186044	217	3	2	318	94	0.9	53	31.17	449	16.4	101	
				14/09/2016 10:20	1197035	49	<1	2.3	137	96	0.8	<5	30.31	353	16.11	88	
												368					
ASW3D		130845	(130845) Liffey Estuary Lower, 50m North of Poolbeg Wall - Depth Sample	20/04/2016 12:04	1135276	481	<1	5.2	612	101	2	50	32.8	264	8.9	131	
				04/05/2016 11:25	1141006	1746	<1	2.1	1838	98	1.3	176	33.01	326	9.48	92	
				16/06/2016 12:17	1159688	74	2	8	216	107	5.5	38	32.92	244	14.82	142	
				14/07/2016 09:51	1172299	151	1	2.7	524	100	0.3	63	33.46	230	14.66	373	
				18/08/2016 11:30	1186045	59	1	1.7	93	97	0.8	29	33.52	226	15.54	34	
				14/09/2016 10:21	1197036	<5	1	1.9	32	98	1.4	<5	33.64	254	15.63	32	
												44					
ASW4S		130846	(130846) Liffey Estuary Lower, 75m North of Poolbeg Wall - Surface Sample	20/04/2016 12:31	1135277	12913	6	1.2	13062	105	1.2	933	14.5	3309	12.3	149	
				04/05/2016 11:56	1141007	3507	1	1.6	3623	99	1.3	379	30.62	624	10.22	116	
				16/06/2016 11:51	1159689	137	<1	8.9	414	114	9	44	30.78	444	15.21	277	
				14/07/2016 09:08	1172301	41	<1	2.5	209	100	0.5	41	32.62	190	14.94	168	
				18/08/2016 11:01	1186046	597	6	1.7	961	90	1.1	86	24.59	1162	17.26	364	
				14/09/2016 10:33	1197037	<5	<1	2.1	71	97	1.3	5	32.06	306	15.89	71	
												65					
ASW4D		130847	(130847) Liffey Estuary Lower, 75m North of Poolbeg Wall - Depth Sample	20/04/2016 12:29	1135278	4206	2	5.5	4358	102	2.1	269	32.8	928	8.9	152	
				04/05/2016 11:56	1141008	1243	1	1.9	1325	99	1.3	149	32.71	251	9.6	82	
				16/06/2016 12:10	1159690	81	1	8.3	213	115	8.5	35	33.14	210	14.77	132	
				14/07/2016 09:14	1172302	73	1	1.5	222	100	3	40	32.95	155	14.87	149	
				18/08/2016 11:01	1186047	45	2	1.7	91	97	1	29	33.5	271	15.54	46	
				14/09/2016 10:31	1197038	<5	<1	2.3	42	97	1.9	<5	33.63	208	15.6	42	
												37.5					

ASW5S	130848	(130848) Liffey Estuary Lower, 100m North of Poolbeg Wall - Surface Sample	20/04/2016 12:18	1135279	11405	3	1.4	11594	101	1	745	26.2	3111	11.7	189
			04/05/2016 11:43	1141009	149	<1	1.2	276	100	1.1	34	31.81	88	9.89	127
			16/06/2016 11:35	1159691	138	1	5.6	435	112	13.8	52	30.58	508	15.25	297
			14/07/2016 08:46	1172303	174	<1	2.3	394	100	1.1	41	32.56	188	14.93	220
			18/08/2016 10:30	1186048	125	2	2.4	189	94	1.1	40	31.77	317	16.37	64
			14/09/2016 12:08	1197039	25	<1	2.4	75	99	1.1	8	32.32	229	16.13	50
											40.5				
ASW5D	130849	(130849) Liffey Estuary Lower, 100m North of Poolbeg Wall - Depth Sample	20/04/2016 12:18	1135280	4810	2	2.4	5062	105	1.1	305	32.3	1319	9.4	252
			04/05/2016 11:43	1141010	78	<1	1.9	201	99	1.2	25	32.4	69	9.68	123
			16/06/2016 11:42	1159692	122	2	10.4	336	116	5.5	39	32.47	346	15.01	214
			14/07/2016 08:53	1172304	99	<1	3.1	292	99	0.6	39	33.32	151	14.68	193
			18/08/2016 10:30	1186049	84	1	2	139	97	1.2	38	33.14	286	15.78	55
			14/09/2016 12:12	1197040	<5	1	2.4	43	96	0.9	<5	33.58	219	15.59	43
											31.5				
ASW6S	40063	(40063) Liffey City D/S Islandbdg Weir	20/04/2016 08:30	1135025	10	<1	4.1	1871	98	2.1	10	0.1	3467	10.1	1861
			04/05/2016 13:10	1141208	32	1	6.7	1910	116	2.7	10	0	516	13.1	1878
			16/06/2016 13:05	1159755	72	<1	2	1556	95	3.5	49	0	4307	16	1484
			14/07/2016 08:30	1172116	37	<1	1.5	1447	95	1.7	47	0	3342	16.2	1410
			17/08/2016 08:15	1185412	12	1	1.8	12	126	2.6	13	0	2778	18.2	<10
			15/09/2016 08:20	1197295	<5	1	1.6	1710	106	2.4	32	0.1	3545	16.5	1710
											22.5				
ASW7S	40067	(40067) Liffey City Heuston Stn u/s Camac	20/04/2016 08:50	1135026	20	<1	3.6	1932	99	2.8	12	0.1	3505	9.9	1912
			04/05/2016 13:30	1141209	40	1	6.3	1766	117	2.6	14	4.9	356	12.8	1726
			16/06/2016 13:25	1159756	85	<1	1.8	1558	95	3.3	55	1.7	4221	16	1473
			14/07/2016 08:45	1172117	21	<1	1.5	1429	90	1.5	36	0.5	3393	15.9	1408
			17/08/2016 08:40	1185413	10	2	13.6	10	120	4.8	22	0.9	3002	17.9	<10
			15/09/2016 08:40	1197296	5	<1	1.5	1006	102	1.1	20	0.7	5862	16.2	1001
											21				
ASW8S	40072	(40072) Liffey City Winetav St Bridge	20/04/2016 09:20	1135027	8	<1	5.3	1900	98	2.5	10	0.5	3371	10.2	1892
			04/05/2016 13:50	1141210	60	1	6.9	1222	115	3.2	21	14	305	12.1	1162
			16/06/2016 13:40	1159757	117	1	2.7	1318	88	2.5	70	8.8	5509	15.9	1201
			14/07/2016 09:05	1172118	34	<1	4.4	1274	88	4.1	43	5.4	3147	15.2	1240
			17/08/2016 08:55	1185414	139	5	80.4	1149	120	23.3	13	13.9	1852	17.6	1010
			15/09/2016 09:00	1197297	7	<1	1.1	442	100	1.3	18	11.3	3886	16.3	435
											19.5				
ASW9S	40457	(40457) Liffey (S) D/S Toll Bridge	20/04/2016 09:35	1135028	46	<1	1.5	1939	97	1.3	17	6.2	3037	9.8	1893
			04/05/2016 14:00	1141211	68	<1	4.3	1240	106	2	21	15	455	11.6	1172
			16/06/2016 14:00	1159758	111	<1	3	1166	91	2.6	61	10.7	2799	15.8	1055
			14/07/2016 09:20	1172119	67	<1	1.7	537	92	1.7	36	21.2	1754	15.9	470
			17/08/2016 09:15	1185415	18	2	6.9	948	128	2.3	12	19.7	1499	17.4	930
			15/09/2016 09:15	1197298	9	3	1.3	292	100	1.3	13	13.5	2459	16.5	283
											19				
ASW10S	45082	(45082) Tolka River D/S Annesley Bridge	20/04/2016 10:25	1135029	98	1	4.4	2085	115	2.7	33	0.1	3389	9.4	1987
			04/05/2016 14:20	1141212	118	3	73.6	1495	144	71.7	19	0.2	300	12.9	1377
			16/06/2016 14:35	1159759	149	1	2.9	1820	99	8.7	109	0.1	13807	15.3	1671
			14/07/2016 09:55	1172120	62	2	9.3	1164	106	4.1	54	0.1	1912	14.5	1102
			17/08/2016 09:50	1185416	5	>8	115.7	972	107	17.6	129	1.3	4003	17.1	967
			15/09/2016 10:10	1197299	22	1	8.7	957	96	5.4	8	0.4	1507	15.9	935
											43.5				

2016 Appendix 7.2(3) Transitional Water Body Monitoring : Points Agreed by the EPA DB 020 - DB 420

Report for Samples Taken During the Period: 01/01/2016 - 31/12/2016

Customer	Test List	Sampling Point	Sampling Point Description	Sampled Date	Sample Number	Ammonia µg/l as N	B.O.D. Saline mg/l	Bottom Oxygen % Sat.	Bottom Temperature °C	Chlorophyll a mg/m3	DIN ug/l N	Dissolved Oxygen % Sat.	Oxygen at 0 m depth % Sat.	Pheophytin a mg/m3	Phosphorus (React) µg/l SRP as P	Salinity PSU	Salinity (mean) PSU	Silica µg/l as SiO2	Surface Temperature °C	Temperature °C	TON µg/l as N
DCC			Surface Water Objectives for Transitional Water Bodies - SI 272 of 2009				< 4.0 mg/l					0% PSU			0% - 17% PSU					< 1.5 Deg. C	
			Compliant				95%-ile					70% - 130%			< 60ug/l P (median)					outside mixing	
			Non-Compliant									35% PSU			35% PSU					zone	
EPA Code												80% - 120%			<40 ug/l P (median)						
DB 020	123_ESTUAR	130870	(130870) Liffey Estuary Upper, Liffey at Matt Talbot Bridge - Surface Sample	20/04/2016 08:04	1135281	61	<1			0.7	1882	98		1.7	29	5		3100		9.9	1821
				04/05/2016 08:19	1141011	85	1			2	1290	95		1.8	22	13.75		300		10.52	1205
				16/06/2016 07:59	1159693	113	<1			1.6	977	80		2.2	70	6.04		3852		16.1	864
				14/07/2016 11:41	1172305	72	<1			1.6	816	88		1.3	41	8.94		2629		16.61	744
				18/08/2016 08:39	1186050	127	2			2.3	1674	82		2.9	51	19.76		2704		16.78	1547
				14/09/2016 08:30	1197041	14	<1			1.6	417	87		1.3	<5	13.04		2500		15.86	403
															35						
		130871	(130871) Liffey Estuary Upper, Liffey at Matt Talbot Bridge - Depth Sample	20/04/2016 08:06	1135282	93	<1			1.2	1248	79		1.3	38	31.2		1950		9.1	1155
				04/05/2016 08:19	1141012	104	<1			3.6	686	96		1.8	27	31.68		194		9.83	582
				16/06/2016 07:58	1159694	230	<1			3.3	635	70		2.6	89	31.8		1491		15.44	405
				14/07/2016 11:45	1172306	263	1			3.7	640	74		1.4	40	32.6		1319		15.51	377
				18/08/2016 08:39	1186051	459	3			8.4	1020	66		5.1	48	32.32		1385		16.25	561
				14/09/2016 08:31	1197042	25	<1			1.8	355	72		1.5	6	32.74		967		16.06	330
															39						
DB 120		130800	(130800) Liffey Estuary Lower, Dodder Grand Canal Basin- Surface Sample	20/04/2016 08:48	1135263	<5	<1			0.8	1297	92		1.8	<5	7.8		3961		9.7	1297
				04/05/2016 08:35	1140994	88	<1			1.5	1004	94		1.9	20	15.43		863		10.1	916
				16/06/2016 08:17	1159675	75	<1			1.3	1185	88		3.3	46	1.05		5192		14.42	1110
				14/07/2016 11:19	1172282	118	1			2.7	577	93		1.3	33	19.28		1872		15.91	459
				18/08/2016 09:04	1186032	<5	2			4.4	1266	83		3.7	50	6.96		3737		16.42	1266
				14/09/2016 08:53	1197024	26	<1			2.1	351	86		2	10	9.86		3777		15.64	325
															26.5						
		130801	(130801) Liffey Estuary Lower, Dodder Grand Canal Basin- Depth Sample	20/04/2016 08:49	1135264	94	<1			1.9	1031	96		1.6	16	30.4		2437		9.3	937
				04/05/2016 08:35	1140995	89	<1			2.8	774	95		1.5	25	29.13		475		9.99	685
				16/06/2016 08:18	1159676	120	<1			2.7	813	65		4.7	88	31.12		3419		15.45	693
				14/07/2016 11:23	1172283	152	1			3.8	510	84		2.2	35	30.52		1396		15.56	358
				18/08/2016 09:04	1186033	<5	2			4.7	1108	78		2.9	48	28.34		1666		16.75	1108
				14/09/2016 08:54	1197025	23	<1			2.8	248	87		2.4	12	31.43		1403		16.01	225
															30						
DB 210		130810	(130810) Liffey Estuary Lower, East Link Toll Bridge - Surface Sample	20/04/2016 08:25	1135265	49	<1			0.9	1657	99		1.2	19	9		2997		9.7	1608
				04/05/2016 12:32	1140996	78	<1			1.3	1009	95		1.7	21	29.38		593		10.25	931
				16/06/2016 08:28	1159677	141	<1			0.5	1154	91		3.2	67	6.5		3048		15.57	1013
				14/07/2016 11:58	1172284	115	1			1.9	801	89		1.2	39	17.44		1933		16.39	686
				18/08/2016 09:15	1186034	<5	2			1.8	1494	94		3	47	18.06		4525		16.93	1494
				14/09/2016 08:00	1197026	<5	<1			1.6	231	91		1.5	<5	19.72		1202		15.89	231
															30						
		130811	(130811) Liffey Estuary Lower, East Link Toll Bridge - Depth Sample	20/04/2016 08:28	1135266	129	<1			3.5	692	94		1.8	28	31.1		896		9.2	563
				04/05/2016 12:32	1140997	127	<1			2.5	348	93		1.4	30	32.09		124		9.68	221
				16/06/2016 08:31	1159678	176	1			3.6	439	91		2.7	65	32.42		633		15.14	263
				14/07/2016 12:05	1172285	161	1			2.8	357	79		1.1	42	32.82		510		15.17	196
				18/08/2016 09:15	1186035	8	2			2.5	276	95		1.6	42	33.17		499		16.31	268
				14/09/2016 08:02	1197027	28	<1			1.5	106	89		1.3	<5	33.02		381		15.92	78
															36						
DB 220		130820	(130820) Liffey Estuary Lower, RO RO Ramp No. 5 (Old TW Outfall) - Surface Samp	20/04/2016 09:15	1135267	109	<1			2.3	991	101		1.5	27	21		1575		10.6	882
				04/05/2016 12:12	1140998	172	<1			2	353	108		1	32	31.08		118		13.34	181
				16/06/2016 08:49	1159679	128	<1			4.4	436	106		3.6	59	28.37		1074		18.19	308
				14/07/2016 07:14	1172286	199	3			2.7	361	105		1	26	32.15		240		18.02	162
				18/08/2016 09:37	1186036	27	3			1.5	806	91		1.8	49	20.31		1314		18.54	779
				14/09/2016 09:37	1197028	45	<1			1.5	171	94		1.2	<5	29.38		526		15.99	126
															29.5						
		130821	(130821) Liffey Estuary Lower, RO RO Ramp No. 5 (Old TW Outfall) - Depth Sampl	20/04/2016 09:16	1135268	86	1			5.7	347	102		2	21	32.6		336		9.1	261
				04/05/2016 12:12	1140999	115	<1			2	253	100		1.4	27	32.5		90		9.63	138
				16/06/2016 08:56	1159680	101	<1			8.6	233	111		2.2	46	32.37		314		15.17	132
				14/07/2016 07:24	1172287	104	1			3.3	289	97		0.9	38	32.64		240		15.17	185
				18/08/2016 09:37	1186037	<5	2			2	< 15	95		1.5	44	32.39		677		16.28	<10
				14/09/2016 09:34	1197029	<5	<1			2.7	68	95		2.4	7	33.18		299		15.88	68
															32.5						

DB 410		130830	(130830) Liffey Estuary Lower, Ringsend Cascade - Surface Sample	20/04/2016 11:38	1135269	6984	3			0.7	7178	101		0.7	460	24.6		1547		11.5	194
				04/05/2016 10:45	1141000	7695	2			1.5	7809	97		1.2	530	26.49		1164		10.94	114
				16/06/2016 11:09	1159681	2011	2			5.2	6067	101		3.4	441	23.58		2611		16.08	4056
				14/07/2016 09:41	1172288	2127	2			2	8876	99		0.5	836	31.66		1996		15.31	6749
				18/08/2016 09:54	1186038	<5	3			2.1	< 15	94		1.8	45	29.77		678		17.99	<10
				14/09/2016 09:52	1197030	1657	2			1.5	2339	97		1	383	24.81		1186		18.3	682
															450.5						
		130831	(130831) Liffey Estuary Lower, Ringsend Cascade - Depth Sample	20/04/2016 11:40	1135270	2079	2			4.9	2277	94		1.8	146	32.4		608		9.2	198
				04/05/2016 10:45	1141001	735	<1			0.6	803	96		2.5	75	33.14		150		9.39	68
				16/06/2016 11:12	1159682	184	1			6.7	580	102		6.4	72	31.28		503		15.06	396
				14/07/2016 09:39	1172289	142	1			1.3	352	98		1.1	45	33.37		158		14.7	210
				18/08/2016 09:54	1186039	195	2			2	574	93		1.2	126	31.79		693		16.6	379
				14/09/2016 09:53	1197031	138	<1			2.7	265	92		1.8	27	33.36		348		15.8	127
															73.5						
DB 420		130840	(130840) Liffey Estuary Lower, Poolbeg Lighthouse - Surface Sample	20/04/2016 11:14	1135271	158	<1			3.9	333	100		1.4	38	32.2		243		9.4	175
				16/06/2016 10:33	1159683	146	<1			10.1	488	116		8.4	44	32		182		14.96	342
				14/07/2016 10:30	1172290	295	<1			2.3	1335	97		0.8	160	31.28		442		15.73	1040
				18/08/2016 10:09	1186040	7	1			2.5	26	97		1	22	33.08		142		15.79	19
															41						
		130841	(130841) Liffey Estuary Lower, Poolbeg Lighthouse - Depth Sample	20/04/2016 11:15	1135272	78	<1			3.3	228	104		1.3	27	32.8		174		9.1	150
				16/06/2016 10:44	1159684	55	<1			5.3	143	114		9	29	33.55		56		14.33	88
				14/07/2016 10:32	1172295	59	<1			2.2	214	101		0.5	42	33.69		109		14.47	155
				18/08/2016 10:09	1186041	<5	<1			1.6	13	98		0.8	22	33.6		164		15.48	13
															28						
	123A_ESTUA	130839	(130839) Liffey Estuary Lower, Poolbeg Lighthouse - Composite Sample	04/05/2016 10:12	1141002	57	<1	98.6	9.3	1.7	105		98.7	1.3	21		33.18	28	9.4		48
				14/09/2016 12:34	1197032	<5	<1	95.3	15.5	1.7	76		95.9	0.8	5		33.68	258	15.7		76
															13						
DB 300	123_ESTUAR	45076	(45076) Tolka River U/S Drumcondra Bridge	20/04/2016 10:45	1135030	31	<1			3.9	2009	112		1.4	15	0.1		3885		9.5	1978
				04/05/2016 15:30	1141213	24	2			23.4	1377	137		6.3	7	0.1		488		12.5	1353
				16/06/2016 14:50	1159760	66	1			2.3	1551	98		4.5	57	0.2		4966		15.1	1485
				14/07/2016 10:20	1172121	21	2			12.3	1288	119		4.4	56	0.1		2981		14.8	1267
				17/08/2016 10:05	1185417	<5	4			8.6	1048	126		4.4	36	0.1		4639		17	1048
				15/09/2016 10:30	1197300	<5	1			3.3	1014	117		2.3	37	0.1		7941		15.9	1014
															36.5						
DB 320		130900	(130900) Tolka Estuary at East Point Business Park Bridge - Surface Sample	20/04/2016 10:10	1135031	141	2			3	2048	97		2.4	13	0.8		3266		9.7	1907
				04/05/2016 15:00	1141214	79	2			7.9	1294	152		5.4	31	3.7		461		13	1215
				16/06/2016 14:10	1159761	179	2			14.2	1706	100		14.1	109	4.1		5072		15.4	1527
				14/07/2016 09:35	1172122	31	2			3.6	838	76		2.5	70	14.2		1475		14.4	807
				17/08/2016 09:40	1185418	23	2			5.1	1272	110		5.8	169	16.7		2844		17.5	1249
				15/09/2016 09:35	1197301	83	1			2.4	232	91		5.4	29	18.9		1693		16.5	149
															50.5						
		130901	(130901) Tolka Estuary at East Point Business Park Bridge - Depth Sample	20/04/2016 09:55	1135032	160	<1			1.8	2030	94		1.7	13	0.9		3317		9.3	1870
				04/05/2016 15:10	1141215	75	2			6.9	1292	156		5.2	30	3.7		455		13	1217
				16/06/2016 14:20	1159762	666	6			48.1	2016	78		88.4	259	23.6		3068		16.4	1350
				14/07/2016 09:45	1172123	89	1			3.9	809	84		2	72	16.1		1307		15.2	720
				17/08/2016 09:30	1185419	10	2			6.9	742	106		7.8	130	23		1969		17.5	732
				15/09/2016 09:50	1197302	134	1			5.5	420	97		5.4	30	22.3		1609		16.7	286
															51						
DB 330		130910	(130910) Tolka Estuary, Castle Ave. - Surface Sample	20/04/2016 10:40	1135283	1778	<1			2.5	2169	100		1.3	147	27		892		10.4	391
				04/05/2016 09:24	1141013	495	<1			1.9	711	95		1.3	120	29.85		257		10.27	216
				16/06/2016 10:07	1159695	427	1			9.1	1519	95		2.5	136	27.88		1220		15.74	1092
				14/07/2016 08:23	1172307	99	1			3.3	311	93		1	51	30.82		397		14.74	212
				18/08/2016 12:32	1186052	455	3			4.4	1021	74		3.5	163	23.26		1638		17.28	566
				14/09/2016 11:43	1197043	53	<1			2.8	238	95		2.1	<5	28.1		620		16.42	185
															128						
		130911	(130911) Tolka Estuary, Castle Ave. - Depth Sample	20/04/2016 10:41	1135284	1674	1			2.5	2031	100		1.5	151	29.4		853		10	357
				04/05/2016 09:24	1141014	498	1			1.7	677	95		1.3	81	30.95		194		10.13	179
				16/06/2016 10:09	1159696	286	1			7.5	990	93		3.7	106	30.51		822		15.87	704
				14/07/2016 08:27	1172308	112	1			2.8	345	96		0.7	46	31.92		341		15.04	233
				18/08/2016 12:32	1186053	234	2			3.9	456	92		2	95	31.68		764		16.45	222
				14/09/2016 11:47	1197044	33	2			3.1	173	96		1.7	25	30.1		492		16.22	140
															88						

DB 340	130920 (130920) Tolka Estuary, Clontarf Boat Club - Surface Sample	04/05/2016 09:42	1141015	167	<1			1.5	256	98		0.9	34	32.3		82		9.94	89
		16/06/2016 09:48	1159697	195	<1			8.3	631	107		7.8	67	29.39		779		15.45	436
		18/08/2016 11:59	1186054	47	2			1.9	108	97		0.7	41	32.93		288		16.05	61
		14/09/2016 11:26	1197045	<5	<1			2.5	53	97		1.1	11	32.45		219		16.17	53
													37.5						
	130921 (130921) Tolka Estuary, Clontarf Boat Club - Depth Sample	04/05/2016 09:42	1141016	122	<1			1.3	198	98		0.9	31	32.77		61		9.66	76
		16/06/2016 09:51	1159698	121	1			10.3	365	109		2.2	51	32.36		405		15.2	244
		18/08/2016 11:59	1186055	26	1			2	67	96		1	36	33.14		285		15.79	41
		14/09/2016 11:28	1197046	42	1			2.4	73	98		1.3	<5	33.11		154		15.83	31
													33.5						
	130922 (130922) Tolka Estuary, Clontarf Boat Club - Composite Sample	20/04/2016 10:13	1135285	327	<1	103.6	9.2	4.8	543		104.2	<0.1	52		30.6	352	10.9		216
		14/07/2016 08:00	1172309	186	1	99.5	15	2.7	398		99	1	42		32.74	190	14.9		212
													47						
DB 350	130930 (130930) Tolka Estuary, S. Lagoon at Bull Wall Wooden Bridge - Surface Sample	20/04/2016 09:47	1135286	703	<1			0.3	959	100		0.1	88	26.4		521		10.6	256
		04/05/2016 08:54	1141017	389	<1			1.3	503	98		1.3	62	31.68		133		10.02	114
		16/06/2016 09:31	1159699	330	1			12.3	1194	102		2.5	113	29.37		763		15.77	864
		18/08/2016 12:15	1186056	296	3			1.9	441	91		1.3	74	30.15		547		16.89	145
		14/09/2016 11:20	1197047	16	<1			2.9	121	97		1.4	<5	31.17		384		16.21	105
													74						
	130931 (130931) Tolka Estuary, S. Lagoon at Bull Wall Wooden Bridge - Depth Sample	20/04/2016 09:48	1135287	1950	<1			3.3	2262	104		1.5	171	30.1		842		10	312
		04/05/2016 08:54	1141018	444	<1			1.8	554	98		1.5	69	31.84		141		9.95	110
		16/06/2016 09:36	1159700	239	2			12.7	888	106		6.3	91	31		596		15.85	649
		18/08/2016 12:15	1186057	233	2			2.1	347	95		0.9	61	32.29		452		16.24	114
		14/09/2016 11:13	1197048	<5	2			2.7	69	99		1.4	6	32.38		297		16.01	69
													69						
	130932 (130932) Tolka Estuary, S. Lagoon at Bull Wall Wooden Bridge - Composite Sampl	14/07/2016 07:42	1172310	121	2	91.4	14.8	1.9	301		95.5	3	49		31.39	349	14.4		180
													49						

2016			Appendix 7.2 (4) Dublin Bay Water Monitoring : Points Agreed by the EPA																			
Report for Samples Taken During the Period: 01/01/2016 - 31/12/2016																						
Customer	Test List	Sampling Point	Sampling Point Description	Sampled Date	Sample Number	Ammonia	B.O.D. Saline	Bottom Oxygen	Bottom Temperature	Chlorophyll a	DIN	Dissolved Oxygen	Oxygen at 0 m depth	Pheophytin a	Phosphorus (React)	Salinity	Salinity (mean)	Silica	Surface Temperature	Temperature	TON
OCC						µg/l as N	mg/l	% Sat.	°C	mg/m3	µg/l	% Sat.	% Sat.	mg/m3	µg/l SRP as P	PSU	PSU	µg/l as SiO2	°C	°C	µg/l as N
											GOOD STATUS										
			Surface Water Objectives for Transitional Water Bodies - SI 272 of 2009					35% PSU		HIGH/GOOD	0% PSU	35% PSU	35% PSU						< 1.5 Deg. C	< 1.5 Deg. C	
			Compliant					80% - 120%		2.5 ug/l (median)	< 2600 ug/l N	80% - 120%	80% - 120%						outside mixing	outside mixing	
			Non-Compliant							GOOD to MODERATE	34.5% PSU								zone	zone	
										5.0 ug/l (median)	<250 ug/l N										
											HIGH STATUS										
EPA Code											34.5% PSU										
											< 170 ug/l N										
DB 610	123_ESTUAR	130600	(130600) Irish Sea Dublin, Bailey - Surface Sample	05/05/2016 09:40	1141641	116	<1			2	168	100		1.6	30	32.83		55		10.27	52
		130601	(130601) Irish Sea Dublin, Bailey - Depth Sample	05/05/2016 09:42	1141642	36	<1			3.2	76	100		3.1	26	33.15		40		9.46	40
	123A_ESTUA	130602	(130602) Irish Sea Dublin, Bailey - Composite Sample	15/06/2016 09:49	1159079	18	<1	113.6	14.2	4.4	18		114.1	2.5	22		33.58	54	14.3		<10
				13/07/2016 09:00	1171497	25	<1	105.6	14.4	4.5	39		103.3	1.4	15		33.61	22	14.6		14
				17/08/2016 09:50	1185390	14	<1	100	15.6	1.6	14		100	0.7	19		33.78	175	15.6		<10
										3.2 HIGH											
DB 430	123_ESTUAR	130700	(130700) Dublin Bay,1km NE Poolbeg Lighthouse - Surface Sample	15/06/2016 08:37	1159065	29	<1			3.9	98	115		1.2	29	33.04		95		14.82	69
		130701	(130701) Dublin Bay,1km NE Poolbeg Lighthouse - Depth Sample	15/06/2016 08:40	1159066	14	1			4.5	14	113		0.8	26	33.57		94		14.48	<10
	123A_ESTUA	130702	(130702) Dublin Bay,1km NE Poolbeg Lighthouse - Composite Sample	05/05/2016 08:43	1141632	33	<1	99.4	9.6	1.3	94		99.4	2.9	23		33.16	38	9.6		61
				13/07/2016 08:02	1171489	74	<1	101.5	14.7	0.8	120		101.3	3.3	18		33.54	64	14.6		46
				17/08/2016 08:40	1185381	63	<1	99.9	15.7	1.6	84		100.2	0.9	5		33.85	154	15.8		21
										1.6 HIGH											
DB 450	123_ESTUAR	130710	(130710) Dublin Bay, South Bull Bouy, 1km SE Poolbeg Lighthouse - Surface	15/06/2016 07:59	1159067	161	1			8.5	473	112		0.1	48	31.83		310		14.81	312
		130711	(130711) Dublin Bay, South Bull Bouy, 1km SE Poolbeg Lighthouse - Depth	15/06/2016 08:00	1159068	34	<1			4.4	64	114		1	25	33.59		117		14.23	30
	123A_ESTUA	130712	(130712) Dublin Bay, South Bull Bouy, 1km SE Poolbeg Lighthouse - Compo	05/05/2016 08:28	1141633	33	<1	99.6	9.5	1.5	70		99.8	1.1	22		33.2	38	9.6		37
				13/07/2016 07:33	1171490	23	<1	102.7	14.5	3.9	23		100.3	<0.1	217		33.68	46	14.2		<10
				17/08/2016 07:49	1185382	40	<1	100.2	15.6	1.6	59		101.1	0.6	22		33.88	182	15.7		19
										3.9	< GOOD										
DB S10*	123_ESTUAR	130720	(130720) Dublin Bay, 2.5km ENE Poolbeg Lighthouse - Surface Sample	15/06/2016 09:03	1159071	17	2			36.7	17	135		<0.1	24	32.56		50		15.62	<10
		130721	(130721) Dublin Bay, 2.5km ENE Poolbeg Lighthouse - Depth Sample	15/06/2016 09:00	1159072	18	<1			6.6	18	114		2.4	21	33.6		63		14.25	<10
	123A_ESTUA	130722	(130722) Dublin Bay, 2.5km ENE Poolbeg Lighthouse - Composite Sample	05/05/2016 09:00	1141635	27	<1	100	9.5	1.1	60		99.7	1.2	20		33.2	35	9.5		33
				13/07/2016 08:21	1171492	30	<1	101.7	14.6	2.5	45		102.9	2.3	19		33.52	39	14.6		15
				17/08/2016 09:00	1185384	34	<1	99.2	15.6	1.3	51		100.1	0.8	23		33.85	177	15.6		17
										2.5 HIGH											
DB S40*	123_ESTUAR	130730	(130730) Dublin Bay, 2.5km SSE Poolbeg Lighthouse - Surface Sample	15/06/2016 08:13	1159073	141	1			4.3	376	112		8	40	32.37		198		14.8	235
		130731	(130731) Dublin Bay, 2.5km SSE Poolbeg Lighthouse - Depth Sample	15/06/2016 08:18	1159074	10	<1			4	10	115		1.4	20	33.63		56		14.15	<10
	123A_ESTUA	130732	(130732) Dublin Bay, 2.5km SSE Poolbeg Lighthouse - Composite Sample	05/05/2016 08:14	1141636	43	<1	99.7	9.4	1.5	82		99.7	1.2	23		33.16	38	9.5		39
				13/07/2016 07:44	1171493	53	1	102.5	14.5	2.9	53		103.1	1.6	17		33.65	23	14.4		<10
				17/08/2016 08:14	1185385	92	<1	99.9	15.6	1.5	152		100.7	1.1	23		33.87	165	15.7		60
										2.9	< GOOD										
DB S50	123_ESTUAR	130740	(130740) Dublin Bay, No. 4 Bouy, 2.5km E of S Poolbeg Lighthouse - Surface	15/06/2016 07:08	1159069	39	2			4.9	165	113		0.6	28	33.38		89		14.26	126
		130741	(130741) Dublin Bay, No. 4 Bouy, 2.5km E of S Poolbeg Lighthouse - Depth	15/06/2016 07:12	1159070	10	<1			3	91	113		1.2	24	33.65		72		14.09	81
	123A_ESTUA	130742	(130742) Dublin Bay, No. 4 Bouy, 2.5km E of S Poolbeg Lighthouse - Compo	05/05/2016 07:26	1141634	31	<1	99.6	9.4	1.9	65		99.2	1.7	21		33.19	35	9.6		34
				13/07/2016 06:45	1171491	75	1	102.8	14.5	1.5	75		102.7	1.2	463		33.69	56	14.3		<10
				17/08/2016 07:28	1185383	35	1	99.1	15.5	1.1	55		99.3	1.1	38		33.88	171	15.6		20
										1.9 HIGH											
DB S60	123_ESTUAR	130750	(130750) Dublin Bay, Drumleck Point, 5km ENE Poolbeg Lighthouse - Surfa	05/05/2016 09:16	1141638	172	<1			1.5	236	100		1.2	34	32.71		66		10.41	64
				17/08/2016 09:27	1185387	18	1			3.1	31	104		1.3	32	33.46		200		16.87	13
		130751	(130751) Dublin Bay, Drumleck Point, 5km ENE Poolbeg Lighthouse - Depth	05/05/2016 09:17	1141639	62	<1			2.7	102	99		4.5	24	33.17		42		9.47	40
				17/08/2016 09:27	1185388	26	<1			1.5	41	99		1.1	20	33.82		188		15.77	15
	123A_ESTUA	130752	(130752) Dublin Bay, Drumleck Point, 5km ENE Poolbeg Lighthouse - Comp	15/06/2016 09:17	1159077	7	<1	114.6	14.3	<0.1	7		114.2	13.3	21		33.6	51	14.4		<10
				13/07/2016 08:39	1171495	56	1	102	14.6	3.5	56		102.2	2.4	19		33.6	22	14.6		<10
										2.1 GOOD											
DB S70*	123A_ESTUA	130762	(130762) Dublin Bay, 5km ESE Poolbeg Lighthouse - Composite Sample	05/05/2016 10:10	1141640	25	<1	100.3	9.4	1.2	49		101.2	1.1	23		33.23	39	9.6		24
				15/06/2016 10:04	1159078	7	1	113.6	13.9	<0.1	7		115.4	12.8	22		33.61	55	14.5		<10
				13/07/2016 09:34	1171496	57	1	102.1	14.6	3.2	81		101.6	2.2	15		33.62	22	14.6		24
				17/08/2016 10:30	1185389	21	<1	100	15.3	1.3	77		99.3	0.6	20		33.85	127	15.4		56
										1.25 HIGH											
DB S80	123_ESTUAR	130770	(130770) Dublin Bay, Dún Laoghaire, 5km E of S Poolbeg Lighthouse - Surfa	15/06/2016 12:22	1159075	26	1			6.7	58	120		1.5	22	33.21		55		14.66	32
		130771	(130771) Dublin Bay, Dún Laoghaire, 5km E of S Poolbeg Lighthouse - Depth	15/06/2016 12:31	1159076	25	2			2.8	43	112		3.8	24	33.64		92		14.06	18
	123A_ESTUA	130772	(130772) Dublin Bay, Dún Laoghaire, 5km E of S Poolbeg Lighthouse - Comp	05/05/2016 10:55	1141637	45	<1	99.3	9.4	1.5	85		100.3	1.1	28		33.2	36	9.6		40
				13/07/2016 10:18	1171494	27	<1	102.9	14.5	1.1	27		102.7	2	16		33.68	33	14.5		<10
				17/08/2016 11:00	1185386	30	<1	98.8	15.4	1.2	44		98.7	0.8	23		33.85	145	15.5		14
										1.5 HIGH											

2016			Appendix 7.2 (5) Bathing Water Monitoring													
Report for Samples Taken During the Period: 01/01/2016 - 31/12/2016																
Customer	Test List	Sampling	Sampling Point Description	Sampled Date	Sample Number											
DCC						E. coli	Enterococci	Enterococci (Confirmed)	Floating Materials	Mineral Oil (visual)	pH	Phenols_Olfactory	Salinity	Surfactants	Visual Inspection	
						MPN/100ml	CFU/100ml	CFU/100ml			pH		PSU			
EPA Code																
ASW 11	121_BEACH	40520	(40520) Dollymount North	30/05/2016 07:30	1152474	63	93		Absent	Absent	8.4	Absent	33.9	Absent	Normal	
				01/06/2016 09:15	1153575	10		111	Absent	Absent	8.2	Absent	33.4	Absent	Normal	
				07/06/2016 15:10	1155508	<10	22		Absent	Absent	8.2	Absent	33.2	Absent	Normal	
				13/06/2016 07:00	1157796	41	10		Absent	Absent	7.8	Absent	31.5	Absent	Normal	
				20/06/2016 13:00	1161037	148	27		Absent	Absent	8.3	Absent	33.6	Absent	Normal	
				26/06/2016 15:30	1163769	20	11		Absent	Absent	8.1	Absent	33.3	Absent	Normal	
				29/06/2016 07:00	1164873	213	39		Absent	Absent	8	Absent	32.6	Absent	Normal	
				04/07/2016 11:00	1167179	41	4		Absent	Absent	8.2	Absent	33.8	Absent	Normal	
				11/07/2016 17:25	1170671	10	9		Absent	Absent	8.2	Absent	33.5	Absent	Normal	
				18/07/2016 12:30	1173375	63	14		Absent	Absent	8.4	Absent	34	Absent	Normal	
				24/07/2016 15:00	1175972	20	4		Absent	Absent	8.3	Absent	33.3	Absent	Normal	
				25/07/2016 16:20	1176514	<10	3		Absent	Absent	8.2	Absent	34.1	Absent	Normal	
				02/08/2016 11:30	1179243	52	18		Absent	Absent	8.2	Absent	33.9	Absent	Normal	
				07/08/2016 15:00	1180998	10	11		Absent	Absent	8.3	Absent	34.2	Absent	Normal	
				15/08/2016 10:40	1184279	10	15		Absent	Absent	8.3	Absent	34	Absent	Normal	
				19/08/2016 08:10	1186425	189		125	Absent	Absent	8.1	Absent	32.5	Absent	Normal	
				22/08/2016 14:55	1187654	20	31		Absent	Absent	8.1	Absent	33.8	Absent	Normal	
				29/08/2016 10:00	1190349	20	4		Absent	Absent	8.2	Absent	33.9	Absent	Normal	
				04/09/2016 14:00	1192905	20	6		Absent	Absent	8.1	Absent	34	Absent	Normal	
				06/09/2016 15:55	1193891	20	2		Absent	Absent	8.4	Absent	32.9	Absent	Normal	
				12/09/2016 11:00	1195980	20	28		Absent	Absent	8	Absent	33.8	Absent	Normal	
ASW 12*		40526	(40526) Dollymount Bathing Zone	30/05/2016 08:00	1152475	31	12		Absent	Absent	8.4	Absent	33.9	Absent	Normal	
				01/06/2016 09:40	1153576	<10	12		Absent	Absent	8.2	Absent	33.7	Absent	Normal	
				07/06/2016 14:50	1155509	31	15		Absent	Absent	8.2	Absent	33	Absent	Normal	
				13/06/2016 07:20	1157797	86	17		Absent	Absent	8.2	Absent	32.2	Absent	Normal	
				20/06/2016 12:45	1161038	86	28		Absent	Absent	8.2	Absent	33.5	Absent	Normal	
				26/06/2016 15:50	1163770	173	19		Absent	Absent	8.2	Absent	33.4	Absent	Normal	
				29/06/2016 07:20	1164874	63	15		Absent	Absent	8	Absent	32.8	Absent	Normal	
				04/07/2016 11:20	1167180	52	9		Absent	Absent	8.3	Absent	33.8	Absent	Normal	
				11/07/2016 17:45	1170672	<10	21		Absent	Absent	8.2	Absent	33	Absent	Normal	
				18/07/2016 12:10	1173376	41	15		Absent	Absent	8.5	Absent	33.9	Absent	Normal	
				24/07/2016 15:20	1175973	10	10		Absent	Absent	8.3	Absent	33.5	Absent	Normal	
				25/07/2016 16:40	1176515	41	5		Absent	Absent	8.3	Absent	33.8	Absent	Normal	
				02/08/2016 11:45	1179244	20	14		Absent	Absent	8.1	Absent	33.9	Absent	Normal	
				07/08/2016 15:20	1180999	31	14		Absent	Absent	8.3	Absent	34.2	Absent	Normal	
				15/08/2016 11:00	1184280	<10	3		Absent	Absent	8.2	Absent	34.1	Absent	Normal	
				22/08/2016 14:40	1187655	63	15		Absent	Absent	8.2	Absent	33.8	Absent	Normal	
				29/08/2016 10:20	1190350	31	5		Absent	Absent	8.2	Absent	33.8	Absent	Normal	
				04/09/2016 14:20	1192906	20	8		Absent	Absent	8.1	Absent	33.6	Absent	Normal	
				06/09/2016 16:15	1193892	41	13		Absent	Absent	8.5	Absent	32.8	Absent	Normal	
				12/09/2016 11:15	1195981	52	17		Absent	Absent	8	Absent	33.6	Absent	Normal	

ASW 13		40530	(40530) Dollymount South	30/05/2016 08:30	1152476	10	9		Absent	Absent	8.2	Absent	33.2	Absent	Normal
				01/06/2016 10:05	1153577	216	92		Absent	Absent	8	Absent	31.1	Absent	Normal
				07/06/2016 14:20	1155510	175	45		Absent	Absent	8.2	Absent	32.4	Absent	Normal
				13/06/2016 07:45	1157798	1187		260	Absent	Absent	7.9	Absent	28.3	Absent	Normal
				20/06/2016 12:25	1161039	135	9		Absent	Absent	8.2	Absent	33.5	Absent	Normal
				26/06/2016 16:20	1163771	41	24		Absent	Absent	8	Absent	31.8	Absent	Normal
				29/06/2016 07:40	1164875	2755		770	Absent	Absent	7.9	Absent	30.9	Absent	Normal
				04/07/2016 11:40	1167181	<10	5		Absent	Absent	8.1	Absent	33.6	Absent	Normal
				11/07/2016 18:25	1170673	41	4		Absent	Absent	8.2	Absent	31.5	Absent	Normal
				18/07/2016 11:50	1173377	10	11		Absent	Absent	8.1	Absent	33.5	Absent	Normal
				24/07/2016 15:40	1175974	10	4		Absent	Absent	8.1	Absent	33.4	Absent	Normal
				25/07/2016 17:00	1176516	120	30		Absent	Absent	8.1	Absent	34.1	Absent	Normal
				02/08/2016 12:05	1179245	246	87		Absent	Absent	8.2	Absent	33.8	Absent	Normal
				07/08/2016 16:00	1181000	<10	2		Absent	Absent	8.1	Absent	34	Absent	Normal
				15/08/2016 10:25	1184285	52	7		Absent	Absent	8	Absent	33.8	Absent	Normal
				19/08/2016 09:00	1186427	17329		>2000	Absent	Absent	8	Absent	32.3	Absent	Normal
				22/08/2016 15:15	1187656	216		210	Absent	Absent	8.2	Absent	33.9	Absent	Normal
				29/08/2016 10:40	1190351	41	19		Absent	Absent	8.2	Absent	33.6	Absent	Normal
				04/09/2016 14:40	1192907	364		140	Absent	Absent	8.4	Absent	33.6	Absent	Normal
				06/09/2016 15:10	1193893	146	13		Absent	Absent	8.6	Absent	34	Absent	Normal
				12/09/2016 11:30	1195982	373		106	Absent	Absent	8.1	Absent	33.6	Absent	Normal
ASW 14		40535	(40535) Bull Wall Wood Causeway	30/05/2016 08:50	1152477	31	<1		Absent	Absent	8.7	Absent	33.8	Absent	Normal
				01/06/2016 10:20	1153578	20	6		Absent	Absent	8.3	Absent	33.3	Absent	Normal
				07/06/2016 14:00	1155511	86	15		Absent	Absent	8.2	Absent	33.1	Absent	Normal
				13/06/2016 08:05	1157799	41	13		Absent	Absent	8.1	Absent	33.4	Absent	Normal
				20/06/2016 12:10	1161040	888	51		Absent	Absent	8.1	Absent	30	Absent	Normal
				26/06/2016 16:35	1163772	10	9		Absent	Absent	8.4	Absent	33.1	Absent	Normal
				29/06/2016 07:50	1164876	243	56		Absent	Absent	8	Absent	33.5	Absent	Normal
				04/07/2016 11:55	1167182	31	12		Absent	Absent	8.1	Absent	33.7	Absent	Normal
				11/07/2016 18:10	1170674	31	2		Absent	Absent	8.2	Absent	33.6	Absent	Normal
				18/07/2016 11:30	1173378	171	10		Absent	Absent	8.1	Absent	33.1	Absent	Normal
				24/07/2016 16:00	1175975	63	27		Absent	Absent	8.2	Absent	32.9	Absent	Normal
				25/07/2016 17:20	1176517	51	21		Absent	Absent	8.2	Absent	33.1	Absent	Normal
				02/08/2016 12:20	1179246	1126		118	Absent	Absent	8	Absent	33.1	Absent	Normal
				07/08/2016 15:40	1181001	20	11		Absent	Absent	8.1	Absent	33.1	Absent	Normal
				15/08/2016 10:15	1184286	160	93		Absent	Absent	8.1	Absent	32.2	Absent	Normal
				19/08/2016 09:45	1186428	>24196		>2000	Absent	Absent	8	Absent	29.3	Absent	Normal
				22/08/2016 15:20	1187657	122	27		Absent	Absent	8.1	Absent	32.1	Absent	Normal
				29/08/2016 10:50	1190352	504		118	Absent	Absent	8.1	Absent	31.8	Absent	Normal
				04/09/2016 15:00	1192908	743		220	Absent	Absent	8	Absent	31.3	Absent	Normal
				06/09/2016 15:30	1193894	754		159	Absent	Absent	8	Absent	32.9	Absent	Normal
				12/09/2016 11:45	1195983	455		177	Absent	Absent	8	Absent	31.7	Absent	Normal

ASW 15		40538	(40538) Poolbeg Outfall Main Discharge	30/05/2016 08:20	1152490	24196		>2000	Absent	Absent	7.6	Absent	20.3	Absent	Normal
				01/06/2016 09:45	1153325	6488		>2000	Absent	Absent	7.6	Absent	18.3	Absent	Normal
				07/06/2016 13:45	1155492	24196		>2000	Absent	Absent	7.5	Absent	26.5	Absent	Normal
				13/06/2016 06:40	1157586	7270		>2000	Absent	Absent	7.6	Absent	22.8	Absent	Normal
				20/06/2016 11:35	1161041	12997		>2000	Absent	Absent	7.7	Absent	24.7	Absent	Normal
				26/06/2016 16:55	1163773	4352		990	Absent	Absent	7.7	Absent	22.6	Absent	Normal
				29/06/2016 06:00	1164877	1515		490	Absent	Absent	7.9	Absent	31.2	Absent	Normal
				04/07/2016 13:20	1167226	85	29		Absent	Absent	8	Absent	32.3	Absent	Normal
				11/07/2016 17:30	1170664	1050		670	Absent	Absent	8	Absent	31	Absent	Normal
				18/07/2016 13:20	1173409	512		139	Absent	Absent	8	Absent	29.9	Absent	Normal
				24/07/2016 16:30	1175976	14136		>2000	Absent	Absent	7.9	Absent	28.7	Absent	Normal
				25/07/2016 17:40	1176507	3448		1080	Absent	Absent	7.9	Absent	30.2	Absent	Normal
				02/08/2016 12:20	1179282	1153		460	Absent	Absent	8	Absent	31.7	Absent	Normal
				07/08/2016 15:40	1181003	388		230	Absent	Absent	8	Absent	31.9	Absent	Normal
				15/08/2016 11:30	1184258	932		290	Absent	Absent	8	Absent	30.4	Absent	Normal
				22/08/2016 16:35	1187647	4611		1180	Absent	Absent	7.7	Absent	27.1	Absent	Normal
				29/08/2016 11:30	1190411	776		230	Absent	Absent	8	Absent	32	Absent	Normal
				04/09/2016 15:20	1192898	3448		>2000	Absent	Absent	7.8	Absent	28.7	Absent	Normal
				06/09/2016 16:30	1193885	6867		1700	Absent	Absent	7.8	Absent	28.7	Absent	Normal
				12/09/2016 08:40	1195765	471		820	Absent	Absent	8	Absent	32.6	Absent	Normal
ASW 16		40540	(40540) Half Moon Club S-Side Wall	30/05/2016 08:35	1152491	41	10		Absent	Absent	8.1	Absent	32.2	Absent	Normal
				01/06/2016 10:00	1153326	51	49		Absent	Absent	8	Absent	32	Absent	Normal
				07/06/2016 14:05	1155493	148	87		Absent	Absent	8.1	Absent	33.5	Absent	Normal
				13/06/2016 07:15	1157587	52	67		Absent	Absent	8	Absent	32.9	Absent	Normal
				20/06/2016 11:20	1161042	813		170	Absent	Absent	8.2	Absent	33.3	Absent	Normal
				26/06/2016 16:50	1163774	73	33		Absent	Absent	8.1	Absent	32	Absent	Normal
				29/06/2016 06:20	1164878	52		117	Absent	Absent	7.9	Absent	32.9	Absent	Normal
				04/07/2016 13:30	1167227	10	<1		Absent	Absent	8.1	Absent	33.6	Absent	Normal
				11/07/2016 17:45	1170665	30	7		Absent	Absent	8	Absent	33.6	Absent	Normal
				18/07/2016 13:40	1173410	97	5		Absent	Absent	8.1	Absent	33.3	Absent	Normal
				24/07/2016 17:20	1175977	10	9		Absent	Absent	8.1	Absent	33.6	Absent	Normal
				25/07/2016 16:00	1176508	<10	2		Absent	Absent	8.1	Absent	33.4	Absent	Normal
				02/08/2016 12:40	1179283	10	2		Absent	Absent	8	Absent	33.7	Absent	Normal
				07/08/2016 16:30	1181004	<10	4		Absent	Absent	8.1	Absent	34.1	Absent	Normal
				15/08/2016 11:45	1184259	10	<1		Absent	Absent	8	Absent	33.9	Absent	Normal
				22/08/2016 17:00	1187648	10	14		Absent	Absent	8	Absent	33.6	Absent	Normal
				29/08/2016 12:00	1190412	10	3		Absent	Absent	8.1	Absent	33.4	Absent	Normal
				04/09/2016 15:45	1192899	30	3		Absent	Absent	8	Absent	33.4	Absent	Normal
				06/09/2016 16:45	1193886	63	5		Absent	Absent	8	Absent	33.1	Absent	Normal
				12/09/2016 08:50	1195766	417	57		Absent	Absent	8	Absent	33.8	Absent	Normal

ASW 17*		40545 (40545) Sandymount	30/05/2016 07:30	1152492	<10	<1		Absent	Absent	8.4	Absent	34.8	Absent	Normal
			01/06/2016 09:10	1153327	20	35		Absent	Absent	8.1	Absent	35	Absent	Normal
			07/06/2016 14:20	1155494	75	20		Absent	Absent	8.1	Absent	33.6	Absent	Normal
			13/06/2016 07:25	1157588	161	25		Absent	Absent	8.1	Absent	32.1	Absent	Normal
			20/06/2016 10:55	1161043	275	49		Absent	Absent	8.1	Absent	32.9	Absent	Normal
			26/06/2016 16:30	1163775	<10	16		Absent	Absent	8.1	Absent	31.6	Absent	Normal
			29/06/2016 07:00	1164879	1597		1440	Absent	Absent	7.9	Absent	29.8	Absent	Normal
			04/07/2016 11:40	1167228	336		115	Absent	Absent	8.1	Absent	33.6	Absent	Normal
			11/07/2016 18:20	1170666	<10	8		Absent	Absent	8.1	Absent	33.8	Absent	Normal
			18/07/2016 12:30	1173411	120	21		Absent	Absent	8.1	Absent	34.8	Absent	Normal
			24/07/2016 15:30	1175978	<10	52		Absent	Absent	8.2	Absent	32.2	Absent	Normal
			25/07/2016 17:00	1176509	10	5		Absent	Absent	8.2	Absent	33.6	Absent	Normal
			02/08/2016 13:20	1179284	933		260	Absent	Absent	7.9	Absent	31	Absent	Normal
			07/08/2016 15:25	1181005	30	4		Absent	Absent	8.1	Absent	34.1	Absent	Normal
			15/08/2016 10:30	1184260	108	25		Absent	Absent	8.1	Absent	33.7	Absent	Normal
			22/08/2016 16:00	1187649	31		480	Absent	Absent	8.2	Absent	32.6	Absent	Normal
			29/08/2016 11:00	1190413	109	24		Absent	Absent	8	Absent	33.2	Absent	Normal
			04/09/2016 14:45	1192900	52	22		Absent	Absent	8.2	Absent	32.1	Absent	Normal
			06/09/2016 16:10	1193887	31	26		Absent	Absent	8.6	Absent	32.8	Absent	Normal
			12/09/2016 09:15	1195767	3654		390	Absent	Absent	8	Absent	33.5	Absent	Normal
ASW 18*		40550 (40550) Merrion Strand	30/05/2016 07:45	1152493	10	<1		Absent	Absent	8.3	Absent	34.8	Absent	Normal
			01/06/2016 08:30	1153328	75	20		Absent	Absent	8.2	Absent	34.9	Absent	Normal
			07/06/2016 14:28	1155495	10	23		Absent	Absent	8.1	Absent	33.5	Absent	Normal
			13/06/2016 07:30	1157589	120	23		Absent	Absent	8.1	Absent	32.1	Absent	Normal
			20/06/2016 10:40	1161044	548	54		Absent	Absent	8.1	Absent	33.1	Absent	Normal
			26/06/2016 16:00	1163776	20		122	Absent	Absent	8.1	Absent	32.3	Absent	Normal
			29/06/2016 07:10	1164880	1246		1190	Absent	Absent	8	Absent	29	Absent	Normal
			04/07/2016 11:50	1167229	613		200	Absent	Absent	8.2	Absent	31.7	Absent	Normal
			11/07/2016 18:40	1170667	331	37		Absent	Absent	8.2	Absent	33	Absent	Normal
			18/07/2016 11:40	1173412	355	10		Absent	Absent	8.1	Absent	35	Absent	Normal
			24/07/2016 15:45	1175979	20	5		Absent	Absent	8.2	Absent	33.1	Absent	Normal
			25/07/2016 16:30	1176510	<10	9		Absent	Absent	8.5	Absent	33.9	Absent	Normal
			02/08/2016 13:30	1179285	504		119	Absent	Absent	8	Absent	33.4	Absent	Normal
			07/08/2016 15:00	1181006	171		100	Absent	Absent	8.1	Absent	34.7	Absent	Normal
			15/08/2016 10:40	1184261	175	72		Absent	Absent	8	Absent	34.6	Absent	Normal
			22/08/2016 15:30	1187650	98		105	Absent	Absent	8.3	Absent	33.1	Absent	Normal
			29/08/2016 10:30	1190414	364		240	Absent	Absent	8.1	Absent	34.5	Absent	Normal
			04/09/2016 14:00	1192901	41	8		Absent	Absent	8.3	Absent	32.3	Absent	Normal
			06/09/2016 15:30	1193888	435	42		Absent	Absent	8.4	Absent	33.5	Absent	Normal
			12/09/2016 09:32	1195768	>24196		>2000	Absent	Absent	8.2	Absent	32.5	Absent	Normal

Appendix 7.3

Pollutant Release and Transfer Register (PRTR) Summary Sheets

| PRTR# : D0034 | Facility Name : Ringsend Waste Water Treatment Plant | Filename : D0034_2016.xlsm | Return Year : 2016 |

Guidance to completing the PRTR workbook

PRTR Returns Workbook

Version 1.1.19

REFERENCE YEAR	2016

1. FACILITY IDENTIFICATION

Parent Company Name	Irish Water
Facility Name	Ringsend Waste Water Treatment Plant
PRTR Identification Number	D0034
Licence Number	D0034-01

Classes of Activity

No.	class_name
-	Refer to PRTR class activities below

Address 1	
Address 2	
Address 3	
Address 4	
	Dublin
Country	Ireland
Coordinates of Location	-6.19681343949 53.3390944464
River Basin District	IEEA
NACE Code	3700
Main Economic Activity	Sewerage
AER Returns Contact Name	Niall Horgan
AER Returns Contact Email Address	nhorgan@water.ie
AER Returns Contact Position	Environmental Compliance Specialist
AER Returns Contact Telephone Number	01 8925396
AER Returns Contact Mobile Phone Number	
AER Returns Contact Fax Number	
Production Volume	0.0
Production Volume Units	
Number of Installations	0
Number of Operating Hours in Year	0
Number of Employees	56
User Feedback/Comments	Total Annual flow (m3/annum) : EP1 -151,824,372 (2015), 147,320,283 (2016) down 3%. Fugitive -2,781,020 (2015), 3,059,501 (2016) up 10%. Average conc. of Ammonia at EP1: 14.144mg/l (2015), 19.56mg/l (2016) up 38% therefore Annual Mass Emissions up 34%. Av. conc. of BOD at EP1: 20.331mg/l (2015), 27.764mg/l (2016) up 37% therefore Annual Mass Emissions up 32%. Av. conc. of COD at EP1: 85.47mg/l (2015), 105.813mg/l (2016) up 24% therefore Annual Mass Emissions up 20%. Av. conc. of SS at EP1: 38.065mg/l (2015), 51.618mg/l (2016) up 36% therefore Annual Mass Emissions up 32%. Av. conc. of Total Nitrogen at EP1: 20.424mg/l (2015), 25.044mg/l (2016) up 23% therefore Annual Mass Emissions up 19%
Web Address	

2. PRTR CLASS ACTIVITIES

Activity Number	Activity Name
5(f)	Urban waste-water treatment plants

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) ?	

This question is only applicable if you are an IPPC or Quarry site

4.1 RELEASES TO AIR Link to previous years emissions data | PRTR# : D0034 | Facility Name : Ringsend Waste Water Treatment Plant | Filename : D0034_2016.xlsm | Return Year : 2016 | 10/02/2017 10:03

SECTION A : SECTOR SPECIFIC PRTR POLLUTANTS

RELEASES TO AIR					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD			ADD EMISSION POINT	QUANTITY		
			Method Used					
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
01	Methane (CH4)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
02	Carbon monoxide (CO)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	9540.0	9583.0	0.0	43.0
03	Carbon dioxide (CO2)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	2811600.0	37847599.0	0.0	35035999.0
05	Nitrous oxide (N2O)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	192.0	0.0	192.0
07	Non-methane volatile organic compounds (NMVOC)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	14.0	0.0	14.0
08	Nitrogen oxides (NOx/NO2)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	29177.0	29308.0	0.0	131.0
11	Sulphur oxides (SOx/SO2)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	13.0	0.0	13.0

ADD NEW ROW | DELETE ROW *

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

TANTS

RELEASES TO AIR					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD			ADD EMISSION POINT	QUANTITY		
			Method Used					
	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

ADD NEW ROW | DELETE ROW *

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION C : REMAINING POLLUTANT EMISSIONS (As required in your Licence)

RELEASES TO AIR					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD			ADD EMISSION POINT	QUANTITY		
			Method Used					
Pollutant No.	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

ADD NEW ROW | DELETE ROW *

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

Additional Data Requested from Landfill operators

For the purposes of the National Inventory on Greenhouse Gases, landfill operators are requested to provide summary data on landfill gas (Methane) flared or utilised on their facilities to accompany the figures for total methane generated. Operators should only report their Net methane (CH4) emission to the environment under T(total) KG/yr for Section A: Sector specific PRTR pollutants above. Please complete the table below:

Landfill: Ringsend Waste Water Treatment Plant

Please enter summary data on the quantities of methane flared and / or utilised

	T (Total) kg/Year	M/C/E	Method Used: Method Code	Method Used: Designation or Description	Facility Total Capacity m3 per hour	
Total estimated methane generation (as per site model)	0.0				N/A	
Methane flared	0.0				0.0	(Total Flaring Capacity)
Methane utilised in engine/s	0.0				0.0	(Total Utilising Capacity)
Net methane emission (as reported in Section A above)	0.0				N/A	

4.2 RELEASES TO WATERS Link to previous years emissions data | PRTR# : D0034 | Facility Name : Ringsend Waste Water Treatment Plant | Filename : D0034_2016.xlsm | Return Year : 2016 | 10/02/2017 10:03

SECTION A : SECTOR SPECIFIC PRTR POLLUTANTS Data on ambient monitoring of storm/surface water or groundwater, conducted as part of your licence requirements, should NOT be submitted under AER / PRTR Reporting as this only concerns R

RELEASES TO WATERS					Please enter all quantities in this section in KGs			
POLLUTANT					ADD EMISSION POINT	QUANTITY		
			Method Used					
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
34	1,2-dichloroethane (EDC)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
25	Alachlor	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
26	Aldrin	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
61	Anthracene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.408	0.414	0.0	0.006
17	Arsenic and compounds (as As)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	326.56	330.69	0.0	4.13
27	Atrazine	E	ESTIMATE	EPA UWWTP Tool Version 5.0	1.54	1.575	0.0	0.035
62	Benzene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	2.478	2.986	0.0	0.508
91	Benzo(g,h,i)perylene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.295	0.301	0.0	0.006
63	Brominated diphenylethers (PBDE)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
18	Cadmium and compounds (as Cd)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	7.612	8.453	0.0	0.841
28	Chlordane	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
29	Chlordecone	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
30	Chlorfenvinphos	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
79	Chlorides (as Cl)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	129347208.474	129347208.474	0.0	0.0
31	Chloro-alkanes, C10-C13	E	ESTIMATE	EPA UWWTP Tool Version 5.0	30.941	31.584	0.0	0.643
32	Chlorpyrifos	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.01	0.01	0.0	0.0
19	Chromium and compounds (as Cr)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	45.424	45.73	0.0	0.306
20	Copper and compounds (as Cu)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	1799.763	1817.049	0.0	17.286
82	Cyanides (as total CN)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	431.916	440.483	0.0	8.567
33	DDT	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
70	Di-(2-ethyl hexyl) phthalate (DEHP)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	135.133	144.189	0.0	9.056
35	Dichloromethane (DCM)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	6.696	7.063	0.0	0.367
36	Dieldrin	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
37	Diuron	E	ESTIMATE	EPA UWWTP Tool Version 5.0	3.884	3.884	0.0	0.0
38	Endosulphan	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
39	Endrin	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
65	Ethyl benzene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	2.444	2.794	0.0	0.35
88	Fluoranthene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.345	0.383	0.0	0.038
83	Fluorides (as total F)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	81026.156	82035.791	0.0	1009.635
40	Halogenated organic compounds (as AOX)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	351.631	358.934	0.0	7.303
41	Heptachlor	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
90	Hexabromobiphenyl	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0

42	Hexachlorobenzene (HCB)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
43	Hexachlorobutadiene (HCBD)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
89	Isodrin	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
67	Isoproturon	E	ESTIMATE	EPA UWWTP Tool Version 5.0	1.105	1.151	0.0	0.046
23	Lead and compounds (as Pb)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	447.764	480.807	0.0	33.043
45	Lindane	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.067	0.07	0.0	0.003
21	Mercury and compounds (as Hg)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.306	0.0	0.306
46	Mirex	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
68	Naphthalene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.589	1.031	0.0	0.442
22	Nickel and compounds (as Ni)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	627.227	638.241	0.0	11.014
64	Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	12.221	15.552	0.0	3.331
87	Octylphenols and Octylphenol ethoxylates	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
69	Organotin compounds (as total Sn)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
48	Pentachlorobenzene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
49	Pentachlorophenol (PCP)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
71	Phenols (as total C)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	134.029	381.439	0.0	247.41
50	Polychlorinated biphenyls (PCBs)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
72	Polycyclic aromatic hydrocarbons (PAHs)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	1.827	2.485	0.0	0.658
51	Simazine	E	ESTIMATE	EPA UWWTP Tool Version 5.0	2.076	2.119	0.0	0.043
52	Tetrachloroethylene (PER)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	8.705	8.705	0.0	0.0
53	Tetrachloromethane (TCM)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
73	Toluene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	72.666	115.263	0.0	42.597
12	Total nitrogen	M	OTH	Digestion & Colorimetry	3689489.167	3805343.291	0.0	115854.124
76	Total organic carbon (TOC) (as total C or COD/3)	M	OTH	Potassium Dichromate Method	5196133.702	5755988.73	0.0	559855.028
13	Total phosphorus	M	OTH	Digestion & Colorimetry	605633.683	623846.892	0.0	18213.209
59	Toxaphene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
74	Tributyltin and compounds	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
54	Trichlorobenzenes (TCBs)(all isomers)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
57	Trichloroethylene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
77	Trifluralin	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
75	Triphenyltin and compounds	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
60	Vinyl chloride	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
78	Xylenes	E	ESTIMATE	EPA UWWTP Tool Version 5.0	17.076	21.934	0.0	4.858
24	Zinc and compounds (as Zn)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	7272.265	7645.218	0.0	372.953

ADD NEW ROW | DELETE ROW *

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION B : REMAINING PRTR POLLUTANTS

RELEASES TO WATERS					Please enter all quantities in this section in KGs			
POLLUTANT					ADD EMISSION POINT	QUANTITY		
			Method Used					
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

ADD NEW ROW | DELETE ROW * * Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION C : REMAINING POLLUTANT EMISSIONS (as required in your Licence)

RELEASES TO WATERS					Please enter all quantities in this section in KGs			
POLLUTANT					ADD EMISSION POINT	QUANTITY		
			Method Used					
Pollutant No.	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
370	Selenium	E	ESTIMATE	EPA UWWTP Tool Version 5.0	699.771	701.811	0.0	2.04
205	Antimony (as Sb)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	22.768	24.237	0.0	1.469
368	Molybdenum	E	ESTIMATE	EPA UWWTP Tool Version 5.0	223.436	227.719	0.0	4.283
358	Tin	E	ESTIMATE	EPA UWWTP Tool Version 5.0	445.644	445.644	0.0	0.0
373	Barium	E	ESTIMATE	EPA UWWTP Tool Version 5.0	3384.684	3493.704	0.0	109.02
374	Boron	E	ESTIMATE	EPA UWWTP Tool Version 5.0	43238.503	44233.861	0.0	995.358
356	Cobalt	E	ESTIMATE	EPA UWWTP Tool Version 5.0	25.893	26.872	0.0	0.979
386	Vanadium	E	ESTIMATE	EPA UWWTP Tool Version 5.0	401.783	417.692	0.0	15.909
388	Dichlobenil	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.633	0.64	0.0	0.007
383	Linuron	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
385	Mecoprop Total	E	ESTIMATE	EPA UWWTP Tool Version 5.0	15.77	16.134	0.0	0.364
380	2,4 Dichlorophenol (2,4 D)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	7.517	7.626	0.0	0.109
384	MCPA	E	ESTIMATE	EPA UWWTP Tool Version 5.0	13.058	13.089	0.0	0.031
382	Glyphosate	E	ESTIMATE	EPA UWWTP Tool Version 5.0	225.802	227.007	0.0	1.205
389	Benzo[a]pyrene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.295	0.301	0.0	0.006
390	Benzo[b]fluoranthene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.295	0.301	0.0	0.006
391	Benzo[k]fluoranthene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.295	0.301	0.0	0.006
392	Indeno[1,2,3-c,d]pyrene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.325	0.331	0.0	0.006
393	Carbon tetrachloride	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
394	2,6-Dichlorobenzamide	E	ESTIMATE	EPA UWWTP Tool Version 5.0	11.853	12.037	0.0	0.184
395	Dicofol	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
396	Hexabromocyclodecane (HBCD)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
397	PFOS	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.071	0.071	0.0	0.0
238	Ammonia (as N)	M	OTH	Colorimetric Analysis	2881584.735	2966253.366	0.0	84668.631
303	BOD	M	OTH	5 Day BOD Test	4090200.337	4939340.364	0.0	849140.027
306	COD	M	OTH	Potassium Dichromate Method	15588401.105	15588401.105	0.0	0.0
362	Kjeldahl Nitrogen	M	OTH	Digestion & Colorimetry	3265796.034	3381157.579	0.0	115361.545
327	Nitrate (as N)	M	OTH	Colorimetric Analysis	353126.718	353444.906	0.0	318.188
372	Nitrite (as N)	M	OTH	Colorimetric Analysis	81468.116	81541.544	0.0	73.428
332	Ortho-phosphate (as PO4)	M	OTH	Colorimetric Analysis	1139817.03	1165633.099	0.0	25816.069
240	Suspended Solids	M	OTH	Gravimetric Analysis	7604378.368	8407118.002	0.0	802739.634

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

4.3 RELEASES TO WASTEWATER OR SEWER

Link to previous years emissions data

SECTION A : PRTR POLLUTANTS

OFFSITE TRANSFER OF POLLUTANTS DESTINED FOR WASTE-WATER TREATMENT OR SEWER					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD			ADD EMISSION POINT	QUANTITY		
			Method Used					
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

ADD NEW ROW | DELETE ROW *

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION B : REMAINING POLLUTANT EMISSIONS (as required in your Licence)

OFFSITE TRANSFER OF POLLUTANTS DESTINED FOR WASTE-WATER TREATMENT OR SEWER					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD			ADD EMISSION POINT	QUANTITY		
			Method Used					
Pollutant No.	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

ADD NEW ROW | DELETE ROW *

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

4.4 RELEASES TO LAND

Link to previous years emissions data

SECTION A : PRTR POLLUTANTS

RELEASES TO LAND					Please enter all quantities in this section in KGs		
POLLUTANT		METHOD			ADD EMISSION POINT	QUANTITY	
			Method Used				
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year
					0.0	0.0	0.0

ADD NEW ROW | DELETE ROW *

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION B : REMAINING POLLUTANT EMISSIONS (as required in your Licence)

RELEASES TO LAND					Please enter all quantities in this section in KGs		
POLLUTANT		METHOD			ADD EMISSION POINT	QUANTITY	
			Method Used				
Pollutant No.	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year
					0.0	0.0	0.0

ADD NEW ROW | DELETE ROW *

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

5. ONSITE TREATMENT & OFFSITE TRANSFERS OF WASTE

Please enter all quantities on this sheet in Tonnes

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: Name and Licence/Permit No of Recover/Disposer	Haz Waste : Address of Next Destination Facility Non Haz Waste: Address of Recover/Disposer	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					
Within the Country	19 08 01	No	790.0	screenings	D5	M	Weighed	Offsite in Ireland	Greenstar Ltd,Permit No. CPD 735/5	Unit 41,Cookstown Industrial Estate,Tallaght,Dublin 24,Ireland		
Within the Country	19 08 02	No	553.0	waste from desanding	D5	M	Weighed	Offsite in Ireland	Greenstar Ltd,Permit No. CPD 735/5	Unit 41,Cookstown Industrial Estate,Tallaght,Dublin 24,Ireland		
Within the Country	19 08 05	No	18148.0	sludges from treatment of urban waste water	R10	M	Weighed	Offsite in Ireland	Peadar Byrne Haulage,Licence No. 990s70099508	P.Byrne Haulage,Baltinglass,Wicklow,Co. Wicklow,Ireland		

Appendix 7.4

Storm Water Overflow Assessment

Dublin City Council Functional Area

Storm Water Overflow SW2 at Ringsend WWTP

Storm Water overflows occurred from SW2 in the Ringsend WWTP on 35 dates in 2016. These are tabulated below. See **Section 4** of main report.

2016	TOTAL Influent	Effluent	Storm Discharge	Rank
	m³/d	m³/d	m³/d	>200,000m³/d
01-Jan-16	956634	796357	160277	
02-Jan-16	1011367	828318	183049	
03-Jan-16	974018	822037	151981	
04-Jan-16	784858	782416	2442	
05-Jan-16	1329108	851546	477562	1
06-Jan-16	998007	845597	152410	
07-Jan-16	991961	816853	175108	
08-Jan-16	714057	704623	9434	
09-Jan-16	946591	811141	135450	
10-Jan-16	1113081	819684	293397	2
11-Jan-16	791814	783059	8755	
17-Feb-16	692103	665458	26645	
04-Mar-16	665236	650791	14445	
11-Apr-16	774042	735393	38649	
12-Apr-16	747315	735630	11685	
04-May-16	318717	287467	31250	
10-May-16	428271	396282	31989	
11-May-16	564755	473633	91122	
18-May-16	322367	305725	16642	
21-May-16	501195	446464	54731	
22-May-16	497603	486616	10987	
24-May-16	337162	264485	72677	
17-Aug-16	403529	301003	102526	
18-Aug-16	571934	291516	280418	3
19-Aug-16	541718	540914	804	
03-Sep-16	689617	686055	3562	
15-Oct-16	751972	748387	3585	
16-Oct-16	598402	585899	12503	
07-Nov-16	285294	281925	3369	
10-Nov-16	315455	314931	524	
21-Nov-16	416416	329664	86752	
23-Nov-16	337436	259312	78124	
25-Nov-16	305809	153204	152605	
28-Nov-16	297681	114123	183558	
29-Nov-16	378482	377998	484	
		N	**35**	
		Total	3059501	
		Max	477562	
		Min	484	

Meath County Council Functional Area

1. Storm Water Overflow Assessment for Deerpark Pumping Station (S.W. 1)
2. Storm Water Overflow Assessment for Millennium Park Pumping Station (S.W. 3)
3. Storm Water Overflow Assessment for Ratoath Pumping Station (S.W. 5)

DEERPARK PUMPING STATION				
NAME OF RECEIVING WATER: River Broadmeadow				GIS CO -ORDINATES OF DISCHARGE: E307070 N251861
SECONDARY DISCHARGE POINT CODE: S.W.1 Meath DEERPARK				PHOTOGRAPHS TAKEN: Yes VIDEO TAKEN:
				WEATHER: Dry
				WEATHER CONDITIONS OVER 24HRS: Dry
	Yes	No	N/A	COMMENTS
Was there evidence of the operation of the storm water overflow?		No		
Is there a system in place to monitor the frequency of the operation of the SWO?	Yes			Level probes and scada system in place.
Is the SWO operating according to the criteria specified in the Procedures and Criteria in relation to Storm Water Overflows?	Yes			There is a large storage capacity onsite 3200 m^3 and the max forward feed flow is circa 7776 m^3/day. For these reasons the findings of this assessment is that the SWO is operating to the criteria specified in the Procedures and Criteria in relation to Storm Water Overflows (Formula A) as the forward feed flow exceeds formula A by more than a factor of 2
Is the SWO causing significant visual/aesthetic impact or resulting in public complaints?		No		
Have the local authority evaluated whether there is deterioration in the water quality of the receiving water due to the operation of the SWO?	Yes	No		Ambient data shows no major impact. Biological impact has not been assessed.
Have the local authority evaluated whether the SWO gives rise to failure to meet the requirements of national	Yes			No bathing areas in the vicinity.

Regulations (for example, the Bathing Water Regulations)?				
Does the SWO operate in dry weather?		**No**		Only in heavy rainfall.
Was there evidence of gross solids or litter in the receiving water associated with the SWO discharge resulting in an impairment of, or an interference with, amenities or the environment?		**No**		No evidence of gross solids in the receiving water associated with a SWO discharge.

Assessment to determine compliance with the criteria for storm water overflows, as set out in the DoEHLG *'Procedures and Criteria in Relation to Storm Water Overflows',* 1995.		
1	**Do the discharges cause significant visual or aesthetic impact and public complaints?**	No
2	**Do the discharges cause deterioration in the water quality in the receiving water?**	No. Biological impact has not been assessed.
3	**Do the discharges give rise to failure in meeting the requirements of national regulations on foot of EU Directives?**	No
4	**Does it operate in dry weather?**	No

Figure 1: Storm water overflow pipe at Deerpark pumping station:

SWO Identification and Inspection Summary Report								
WWDL Name / Code for Storm Water Overflow	**Irish Grid Ref.**	**Included in Schedule A4 of the WWDL**	**Significance of the overflow (High / Medium / Low)**	**Compliance with DoEHLG Criteria**	**No. of times activated in the year (No. of events)**	**Total volume discharged in the year (m^3)**	**Total volume discharged in the year (P.E.)**	**Estimated or Measured data**
S.W 1	307069E 251861N	Yes	Low	Compliant	Unknown	Unknown	Unknown	N/A

SWO Identification and Inspection Summary Report	
How much sewage was discharged via SWO's in the agglomeration in the year (m^3/yr)?	Unknown
How much sewage was discharged via the SWO's in the agglomeration in the year (p.e.)?	Unknown
What % of the total volume of sewage generated in the agglomeration was discharged via the SWO's in the agglomeration in the year?	Unknown
Is each SWO identified as non-compliant with DoEHLG Guidance included in the Programme of Improvements?	N/A
The SWO assessment include the requirements of Schedule A3 and C3	N/A
Have the EPA been advised of any additional SWO's / changes to Schedule C and A4 under Condition 1.7?	N/A

MILLENNIUM PARK PUMP STATION				
NAME OF RECEIVING WATER: Tributary of Broadmeadow River				**GIS CO -ORDINATES OF DISCHARGE: E306100 N252760**
SECONDARY DISCHARGE POINT CODE: S.W 3 Meath				**PHOTOGRAPHS TAKEN: VIDEO TAKEN: Yes**
TIME IN:11am TIME OUT:12.30pm				**WEATHER: Dry and sunny**
				WEATHER CONDITIONS OVER 24HRS: Dry
	Yes	**No**	**N/A**	**COMMENTS**
Was there evidence of the operation of the storm water overflow?		**No**		There was a very slight trickle of flow into the surface water drain connected to the SWO but this appeared to be surface water and was not foul.
Is there a system in place to monitor the frequency of the operation of the SWO?	**Yes**			Level probes and scada system in place.
Is the SWO operating according to the criteria specified in the Procedures and Criteria in relation to Storm Water Overflows?	**Yes**			The overflow in question has only operated as an emergency overflow and not as an SWO. There is a large storage capacity onsite sized for 9,856PE and the max forward feed flow is circa 17,850m^3/day. For these reasons the findings of this assessment is that the SWO is operating to the criteria specified in the Procedures and Criteria in relation to Storm Water Overflows (Formula A) as the forward feed flow exceeds formula A by more than a factor of 2 Formula A: DWF + (+1.36 x P) + 2E P 4535 1020.4 6167.9 500 Formula A 7688.3 m^3/day
Is the SWO causing significant visual/aesthetic impact or resulting in public complaints?		**No**		There has been a single public complaint on the 30/09/2015 but this was in relation to an emergency overflow caused by the power failure on the 29/09/2015.

Have the local authority evaluated whether there is deterioration in the water quality of the receiving water due to the operation of the SWO?	**Yes**			See table of results from ambient monitoring carried out on the 30/09/2015 following on from the emergency overflow on the 29/09/2015. This was taken during the emergency overflow event and there is no ongoing deterioration of the receiving water due to the SWO
Have the local authority evaluated whether the SWO gives rise to failure to meet the requirements of national Regulations (for example, the Bathing Water Regulations)?	**Yes**			No issues. No bathing areas in the vicinity.
Does the SWO operate in dry weather?		**No**		Only in extreme weather conditions (one known occurrence during severe flooding around 14th November 2014) or if there is an issue with the pumps e.g. power failure-in this case- of power failure it is an emergency overflow that is in operation not an SWO.
Was there evidence of gross solids or litter in the receiving water associated with the SWO discharge resulting in an impairment of, or an interference with, amenities or the environment?		**No**		No evidence of gross solids in the receiving water associated with a SWO discharge. On site tests were carried out for nitrate (<1mg/l) and ammonia (<0.25mg/l)-see photos attached. No ongoing impact to the environment and amenities.

Assessment to determine compliance with the criteria for storm water overflows, as set out in the DoEHLG *'Procedures and Criteria in Relation to Storm Water Overflows',* 1995.

1	**Do the discharges cause significant visual or aesthetic impact and public complaints?**	No
2	**Do the discharges cause deterioration in the water quality in the receiving water?**	No
3	**Do the discharges give rise to failure in meeting the requirements of national regulations on foot of EU Directives?**	No
4	**Does it operate in dry weather?**	No

FIGURE 1: SURFACE WATER DRAIN CONNECTED TO SWO-NO FLOW ON ASSESSMENT DAY

FIGURE 2: OVERFLOW TO RIVER BROADMEADOW TRIBUTARY THAT RUNS ALONGSIDE RESIDENCE 28 HUNTS GROVE, EVIDENCE OF SURFACE WATER FLOW-NO FOUL DETECTED

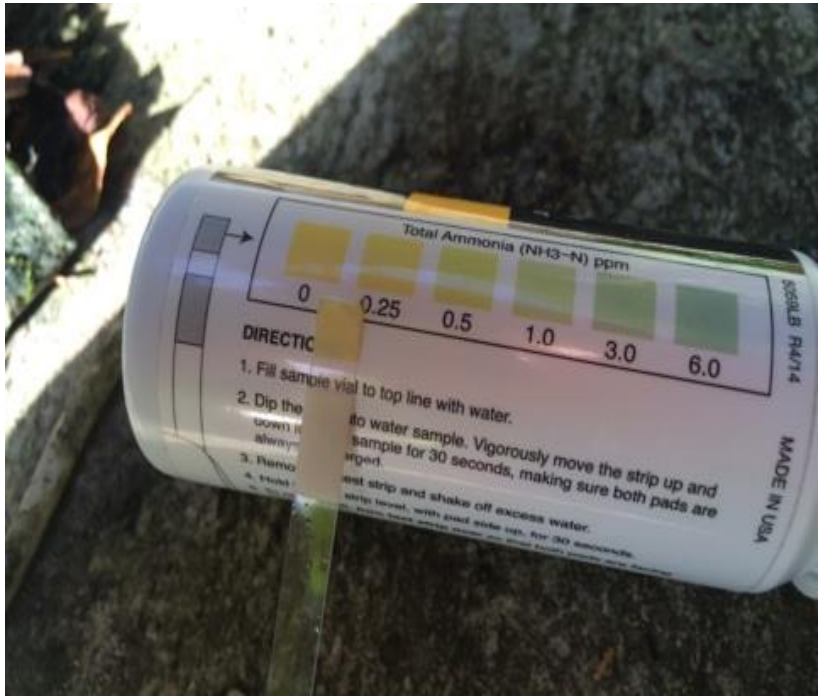
TABLE 1: AMBIENT MONITORING RESULTS FOLLOWING ON FROM AN EMERGENCY OVERFLOW ON 29/09/2015

Date	Location	TN(mg/l)	OrthoP(mg/l)	TP(mg/l)	COD(mg/l)	Ammonia(mg/l)	DO(mg/l)
30/09/2015	U/S House 40 Hunts Grove	2.73	0.044	0.065	10	0.024	10.8
30/09/2015	D/S Back Garden of 28 Hunts Grove	1.46	0.113	0.134	16.2	0.664	10.3
30/09/2015	D/S Back of Ashbourne Hotel, Hunters Lane	2.24	0.51	0.553	65.4	0.81	9

Note: These results reflected a worst case scenario during an emergency overflow and that there is no ongoing impact to the receiving waters.

FIGURE 3: ON SITE NITRATE ANALYSIS RESULT

FIGURE 4: ON SITE AMMONIA ANALYSIS RESULT



SWO Identification and Inspection Summary Report								
WWDL Name / Code for Storm Water Overflow	**Irish Grid Ref.**	**Included in Schedule A4 of the WWDL**	**Significance of the overflow (High / Medium / Low)**	**Compliance with DoEHLG Criteria**	**No. of times activated in the year (No. of events)**	**Total volume discharged in the year (m^3)**	**Total volume discharged in the year (P.E.)**	**Estimated or Measured data**
S.W 3	E306100 N252760	Yes	None	Compliant	1 (as an emergency overflow)	Unknown	Unknown	N/A

SWO Identification and Inspection Summary Report	
How much sewage was discharged via SWO's in the agglomeration in the year (m^3/yr)?	Unknown
How much sewage was discharged via the SWO's in the agglomeration in the year (p.e.)?	Unknown
What % of the total volume of sewage generated in the agglomeration was discharged via the SWO's in the agglomeration in the year?	Unknown
Is each SWO identified as non-compliant with DoEHLG Guidance included in the Programme of Improvements?	N/A
The SWO assessment include the requirements of Schedule A3 and C3	N/A
Have the EPA been advised of any additional SWO's / changes to Schedule C and A4 under Condition 1.7?	N/A

RATOATH PUMPING STATION				
NAME OF RECEIVING WATER: River Broadmeadow				**GIS CO -ORDINATES OF DISCHARGE: E302619 N251600**
SECONDARY DISCHARGE POINT CODE: S.W 5 Meath				**PHOTOGRAPHS TAKEN: Yes** **VIDEO TAKEN: No**
				WEATHER: Dry
				WEATHER CONDITIONS OVER 24HRS: Dry
	Yes	**No**	**N/A**	**COMMENTS**
Was there evidence of the operation of the storm water overflow?		**No**		
Is there a system in place to monitor the frequency of the operation of the SWO?	**Yes**			Level probes and scada system in place.
Is the SWO operating according to the criteria specified in the Procedures and Criteria in relation to Storm Water Overflows?	**Yes**			Based on the fact that the forward feed pumps can cater for 5,054 m^3/day combined with an on-site storage capacity of 2300 m^3, this storm water overflow can cater for Formula A flows for a period of up to 5.35 hrs. For these reasons the findings of this assessment is that the SWO is operating to the criteria specified in the Procedures and Criteria in relation to Storm Water Overflows (Formula A). However, there are screening issues at the Ratoath pumping station that require address. Formula A DWF +1.36 x P + 2E P 9043 2,250 12,298 813 Formula A 15,361 m^3/day
Is the SWO causing significant visual/aesthetic impact or resulting in public complaints?	**Yes**			Evidence of littering from the SWO in the receiving waters.
Have the local authority evaluated whether there is deterioration in the water	**Yes**			Ambient data shows no major impact. Biological impact has not been assessed.

quality of the receiving water due to the operation of the SWO?				
Have the local authority evaluated whether the SWO gives rise to failure to meet the requirements of national Regulations (for example, the Bathing Water Regulations)?	**Yes**			No bathing areas in the vicinity.
Does the SWO operate in dry weather?		**No**		Only in heavy rainfall.
Was there evidence of gross solids or litter in the receiving water associated with the SWO discharge resulting in an impairment of, or an interference with, amenities or the environment?	**Yes**			Evidence of littering from the SWO in the receiving water associated with a SWO discharge due to screening issues.

Assessment to determine compliance with the criteria for storm water overflows, as set out in the DoEHLG *'Procedures and Criteria in Relation to Storm Water Overflows',* 1995.		
1	**Do the discharges cause significant visual or aesthetic impact and public complaints?**	No
2	**Do the discharges cause deterioration in the water quality in the receiving water?**	No. Biological impact has not been assessed.
3	**Do the discharges give rise to failure in meeting the requirements of national regulations on foot of EU Directives?**	No
4	**Does it operate in dry weather?**	No

FIGURE 1: STORM WATER OVERFLOW AT RATOATH PUMPING STATION:

SWO Identification and Inspection Summary Report								
WWDL Name / Code for Storm Water Overflow	**Irish Grid Ref.**	**Included in Schedule A4 of the WWDL**	**Significance of the overflow (High / Medium / Low)**	**Compliance with DoEHLG Criteria**	**No. of times activated in the year (No. of events)**	**Total volume discharged in the year (m^3)**	**Total volume discharged in the year (P.E.)**	**Estimated or Measured data**
S.W. 5	302619E 251600N	Yes	Low	Compliant	Unknown	Unknown	Unknown	N/A

SWO Identification and Inspection Summary Report	
How much sewage was discharged via SWO's in the agglomeration in the year (m^3/yr)?	Unknown
How much sewage was discharged via the SWO's in the agglomeration in the year (p.e.)?	Unknown
What % of the total volume of sewage generated in the agglomeration was discharged via the SWO's in the agglomeration in the year?	Unknown
Is each SWO identified as non-compliant with DoEHLG Guidance included in the Programme of Improvements?	N/A
The SWO assessment include the requirements of Schedule A3 and C3	N/A
Have the EPA been advised of any additional SWO's / changes to Schedule C and A4 under Condition 1.7?	N/A

Appendix 7.5

Programme of Improvements

Dublin City Council Functional Area

There is no specified improvement report for this functional area. See **Section 4.4.2** for improvement details.

South Dublin County Council Functional Area

Completed Improvements 2016

Location	Description of Works	Benefits
Glenview Park	Diversion of all of the upstream catchment to Glenview into Bancroft Sewer	To prevent surcharging of sewer and flooding of gardens
Cherbury Park	Replacement of damaged sewer under NRA carriageway	To prevent surcharging and flooding of foul in Cherbury Park
Bolbrook Drive	Non-return valves fitted to drains	To prevent surcharge from sewer
St Edmonsbury Siphon	Obstruction removed from 225mm dia. siphon and grease trap fitted to foul sewer before discharge to siphon. Level sensor and scada link fitted to macerator sump.	Better operation of siphon automated alarm to warn of siphon blockage

Planned Improvement works in 2017

Location	Description of Works	Benefits
Arthur Griffith Park	Repair and relay foul sewer	To prevent chokes and flooding
Woodford, Clondalkin	Re-route foul sewer directly to 9B	Prevention of blockages on sewer
Lucan Low Level PS	Replacement Pump 1 with new improved design	Help prevent clogging and improve reliability of Lucan Low Level PS
Esker PS	Replacement of Pumps 5 & 6	To improve station throughput

Fingal County Council Functional Area

There is no specified improvement report for this functional area.

Dún Laoghaire Rathdown County Council Functional Area

There is no specified improvement report for this functional area.

Meath County Council Functional Area

There is no specified improvement report for this functional area.

Appendix 7.6

Priority Substances Assessment

Table 7.6.1: Screening of Effluent

Table 7.6.2: Impact on Receiving Waters

Table 7.6.3: Screening of Influent

Table 7.6.4: Screening of Influent Lines to Ringsend WWTP

Ringsend Influent and Effluent Priority Substances Screening, 2016

To comply with condition **4.11.1** of Licence D0034-01, 2 sub-samples of the Ringsend composite influent and effluent were analysed during 2016 for a comprehensive suite of parameters from the:

- PRTR test suite
- EPA's 54 parameter test suite (Appendix 1, EPA Guidance on the Screening for Priority Substances for Waste Water Discharge Licences) which was issued on 17/01/11.

Summary of Effluent Screening Results:

Effluent Sample Reference 1232500 taken on 13/12/16.

See Table 7.6.1. Many of the parameters tested for the PRTR suite in this effluent sample were reported as below the detection limit.

Parameters from the EPA's Guidance document detected in this effluent sample included low (microgram per litre) concentrations of Dichloromethane (<6.0 µg/l), Bromodichloromethane (0.13 µg/l), Tetrachloroethylene (0.31 µg/l) and Trichloromethane (1.3 µg/l).

Toluene (0.1 µg/l) was also detected. See highlighted parameters in **Table 7.6.1**.

PAH's present in the Influent sample (**1232499**) were not detected in the effluent sample.

Sub-microgram per litre concentrations of the herbicides Glyphosate (0.432 µg/l), Mecoprop (0.06 µg/l) and Diazinon (0.019 µg/l) were detected at similar concentrations to the Influent sample.

m,p – Methylphenol (0.45 µg/l) was also detected.

Microgram per litre concentrations of the metals Copper (49.8 µg/l), Zinc (95.6 µg/l), Chromium (2.7 µg/l), Molybdenum (4.4 µg/l), Tin (9.6 µg/l), Barium (21.5 µg/l) and Nickel (6.7 µg/l) were detected.

Fluoride was detected in the sample at 0.921 mg/l.

Results for other general parameters and additional tests were in the normal range for effluent sewage.

Table 7.6.1.

EPA Appendix 1 – Ringsend Effluent Sample 1232500 - 2016 Screening.

EPA Parameters Screened for in Waste Water Discharges

No.	Compound	Result	Group of Compounds
1.	Benzene	<0.10 µg/l	**VOC's**
2.	Carbon Tetrachloride	< 0.10 µg/l	
3	1,2-Dichloroethane	< 0.50 µg/l	
4	Dichloromethane	**< 6.0 µg/l**	
	Bromodichloromethane	**0.13 µg/l**	
5	Tetrachloroethylene	**0.31 µg/l**	
6	Trichloroethylene	< 0.10 µg/l	
7	Trichlorobenzenes	< 0.10 µg/l	(1,2,4)
8	Trichloromethane	**1.3 µg/l**	
9	Xylenes (all isomers)	< 0.30 µg/l	
10	Ethyl Benzene	< 0.10 µg/l	
11	Toluene	**0.1 µg/l**	
12	Naphthalene	< 0.04 µg/l	**PAH's**
13	Fluoranthene	< 0.04 µg/l	
14	Benzo(k)fluoranthene	< 0.06 µg/l	
15	Benzo(ghi)perylene	< 0.04 µg/l	
16	Indeno(1,2,3-c,d)pyrene	< 0.04 µg/l	
17	Benzo(b)fluoranthene	< 0.04 µg/l	
18	Benzo(a)pyrene	<0.04 µg/l	
	Acenaphthene	<0.04 µg/l	
	Pyrene	<0.04 µg/l	
	Anthracene	<0.04 µg/l	
	Fluorene	<0.04 µg/l	
	Phenanthrene	<0.04 µg/l	
	Benz(a)anthracene	<0.04 µg/l	
		<0.54 µg/l	**Total PAH's**
19	Di(2-ethylhexyl)phthalate (DEHP)	< 10.0 µg/l	**Plasticisers**
	Diethyl Phthalate	< 2.0 µg/l	
20	Isodrin	< 6 ng/l	**Pesticides**
21	Dieldrin	< 5 ng/l	
22	Diuron	< 0.05 µg/l	
23	Isoproturon	< 0.05 µg/l	
24	Atrazine	< 0.02 µg/l	
25	Simazine	< 0.02 µg/l	
26	Glyphosate	**0.432 µg/l**	
27	Mecoprop	**0.06 µg/l**	
28	2,4-D	< 0.05 µg/l	
29	MCPA	< 0.05 µg/l	
30	Linuron	< 0.15 µg/l	
31	Dichlobenil	< 4 ng/l	

32	2,6-Dichlorobenzamide	N/A*	
	Diazinon	**0.019 µg/l**	
	Dimethoate	< 0.020 µg/l	
33	PCB's (Sum of 7)	< 0.007 ng/l	**PCB's**
34	Phenols	< 1.5 µg/l	**Phenols**
	m,p- Methylphenol	**0.45 µg/l**	**Cresols**
	o- Methylphenol	< 0.30 µg/l	
35	Lead (Total as Pb)	< 6 µg/l	**Metals**
36	Arsenic (Total as As))	< 1.0 µg/l	
37	Copper (Total as Cu)	**49.8 µg/l**	
38	Zinc (Total as Zn)	**95.6 µg/l**	
39	Cadmium (Total as Cd)	< 0.60 µg/l	
40	Mercury (Total as Hg)	< 0.10 µg/l	
41	Chromium (Total as Cr)	**2.7 µg/l**	
42	Selenium (Total as Se)	< 0.8 µg/l	
43	Antimony (Total as Sb)	< 1.2 µg/l	
44	Molybdenum (Total as Mo)	**4.4 µg/l**	
45	Tin (Total as Sn)	**9.6 µg/l**	
	Organo-Tin	< 0.06 µg/l	
46	Barium (Total as Ba)	**21.5 µg/l**	
47	Boron (Total as B)	<0.23 mg/l	
48	Cobalt (Total as Co)	<2.00 µg/l	
49	Vanadium (Total as V)	< 4.00 µg/l	
50	Nickel (Total as Ni)	**6.7 µg/l**	
51	Fluoride (as F)	0.921 mg/l	**General**
52	Chloride (as Cl)	647 mg/l	
53	TOC (as C)	18.0 mg/l	
54	Cyanide (Total as CN)	< 9 µg/l	
55	Conductivity	2601 uS/cm (20 degrees C)	**Additional Tests (Sample 1233434)**
56	Hardness (mg/l CaCO3)	N/A	
57	pH	7.6	

Assessment of the Significance of the Discharge SW1 on Receiving Water Quality.

A summary of effluent screening results is presented below with a limited assessment of the significance of the discharge on receiving water. Note that the effluent results are at the licensed point of discharge (SW1) and that a mixing zone boundary has not been defined in WWDL D0034-01.

Effluent from SW1 receives a significant dilution within the undefined near field mixing zone before receiving water standards are applicable.

Chromium (Total), Copper and Zinc were the only metals screened in the effluent sample that exceeded the EQS's set for the receiving waters. Diazinon was close to the annual average (AA) EQS and Linuron was reported at less than the detection limit (< 2.0 µg/l).
A minimum dilution factor of 2-3 in the near field mixing zone allows for compliance with the EQS's for specific pollutants which are set as an annual average (AA).

This assessment does not indicate a significant impact from the specific pollutants listed on the receiving waters outside the near field of the SW1 discharge point.

Table 7.6.2 Assessment of the Significance of the Discharge SW1 on Receiving Water Environmental Quality Standards for Specific Pollutants (Table 10, SI 272 of 2009).

Specific Pollutant Parameter	AA-EQS (µg/l)	Effluent 1232500 (13/12/16)
		SW1
Arsenic	20	< 1.0
Chromium VI	0.6	2.7*
Copper	5	49.8
Cyanide	10	< 9
Diazinon	0.01	0.019
Dimethoate	0.8	< 0.020
Fluoride	1,500	921
Glyphosate	-	0.432
Linuron	0.7	< 0.15
Mancozeb	2	-
Monochlorobenzene	25	< 0.10
Phenols	8	< 1.5
Toluene	10	0.1
Xylenes	10	< 0.30
Zinc	40	95.6

*= Total Chromium which is > Chromium VI

Ringsend Influent Screening, 2016

To comply with condition **4.11.2 of Licence D0034-01**, a sub-sample of the Ringsend composite influent was analysed during 2016 (on13/12/16) – same date as the effluent sample reported above), for agglomeration regulation purposes.

Investigation of the sources of any dangerous substances detected in monitoring of the influent was carried out by monitoring the 4 incoming lines to the plant on 13/12/16 and 16/12/16.

Samples were tested for:

- PRTR test suite
- EPA's 54 parameter test suite (Appendix 1, EPA Guidance on the Screening for Priority Substances for Waste Water Discharge Licences) issued on 17/01/11.

Summary of Influent Screening Results:

2016– Influent Sample Reference 1232499 of 13/12/16.

See **Table 7.6.3.** Many of the parameters tested for the PRTR suite in this influent sample were reported as below the detection limit.

Parameters from the EPA's Guidance document detected in this influent sample included low (microgram per litre) concentrations of Tetra-chloroethylene (1.84 µg/l), Tri-chloromethane (2.99 µg/l), Xylenes (0.38 µg/l) and Toluene (1.84 µg/l).

1 of the 7 PAH's listed, Naphthalene (0.413 µg/l) and a further 3 unlisted PAH's, Acenaphthene (0.175 µg/l), Fluorene (0.192 µg/l) and Phenanthrene (0.267 µg/l) were detected.

Glyphosate was detected at a concentration of 0.498 µg/l.

Phenol (158 µg/l) and the cresol m,p-Methylphenol (183 µg/l) were detected.

The metals Lead (8 µg/l), Copper (46.3 µg/l), Zinc (149 µg/l), Chromium (3.6 µg/l), Selenium (1.46 µg/l), Barium (31.0 µg/l), Boron (0.25 mg/l), Cobalt (2.10 µg/l) and Nickel (8.3 µg/l) were detected. See highlighted parameters in **Table 7.6.3**.

Results for general parameters and additional tests were in the normal range for influent sewage.

Table 7.6.3

EPA Appendix 1 – Ringsend Influent Sample 1232499 – 2016 PRTR Screening.

EPA Parameters Screened for in Waste Water Discharges

No.	Compound	Result	Group of Compounds
1.	Benzene	< 0.10 µg/l	**VOC's**
2.	Carbon Tetrachloride	< 0.10 µg/l	
3	1,2-Dichloroethane	< 0.50 µg/l	
4	Dichloromethane	< 6.0 µg/l	
5	Tetrachloroethylene	**1.84 µg/l**	
6	Trichloroethylene	< 0.10 µg/l	
7	Trichlorobenzenes	< 0.10 µg/l	(1,2,4)
8	Trichloromethane	**2.99 µg/l**	
9	Xylenes (all isomers)	**0.38 µg/l**	
10	Ethyl Benzene	< 0.10 µg/l	
11	Toluene	**1.84 µg/l**	
12	Naphthalene	**0.416 µg/l**	**PAH's**
13	Fluoranthene	< 0.10 µg/l	
14	Benzo(k)fluoranthene	< 0.12 µg/l	
15	Benzo(ghi)perylene	< 0.10 µg/l	
16	Indeno(1,2,3-c,d)pyrene	< 0.10 µg/l	
17	Benzo(b)fluoranthene	< 0.10 µg/l	
18	Benzo(a)pyrene	< 0.10 µg/l	
	Acenaphthene	**0.175 µg/l**	
	Pyrene	< 0.10 µg/l	
	Anthracene	< 0.10 µg/l	
	Fluorene	**0.192 µg/l**	
	Phenanthrene	**0.267 µg/l**	
		< 1.87 µg/l	**Total PAH's***
19	Di(2-ethylhexyl)phthalate (DEHP)	< 20.0 µg/l	**Plasticisers**
	Diethyl Phthalate	< 4.0	
20	Isodrin	< 26 ng/l	**Pesticides**
21	Dieldrin	< 22 ng/l	
22	Diuron	< 0.10 µg/l	
23	Isoproturon	< 0.10 µg/l	
24	Atrazine	< 0.087 µg/l	
25	Simazine	< 0.108 µg/l	
26	Glyphosate	**0.498 µg/l**	
27	Mecoprop	< 0.40 µg/l	
28	2,4-D	< 0.50 µg/l	
29	MCPA	< 0.50 µg/l	
30	Linuron	< 0.10 µg/l	
31	Dichlobenil	< 17 ng/l	
32	2,6-Dichlorobenzamide	N/A	
	Diazinon	< 0.023 µg/l	
	Dimethoate	< 0.029 µg/l	

33	PCB's (Sum of 7)	< 0.0079 ng/l	**PCB's**
34	Phenols	**158 µg/l**	**Phenols**
	m,p- Methylphenol	**183 µg/l**	**Cresols**
	o- Methylphenol	< 4.0µg/l	
35	Lead (Total as Pb)	**8.00 µg/l**	**Metals**
36	Arsenic (Total as As)	< 1.00 µg/l	
37	Copper (Total as Cu)	**46.3 µg/l**	
38	Zinc (Total as Zn)	**149 µg/l**	
39	Cadmium (Total as Cd)	< 0.600 µg/l	
40	Mercury (Total as Hg)	< 0.10 µg/l	
41	Chromium (Total as Cr)	**3.6 µg/l**	
42	Selenium (Total as Se)	**1.46 µg/l**	
43	Antimony (Total as Sb)	< 1.2 ug /l	
44	Molybdenum (Total as Mo)	< 3.0 µg/l	
45	Tin (Total as Sn))	< 7.0 µg/l	
	Organo-Tin	< 0.20 µg/l	
46	Barium (Total as Ba)	**31.0 µg/l**	
47	Boron (Total as B)	**0.25 mg/l**	
48	Cobalt (Total as Co)	**2.10 µg/l**	
49	Vanadium (Total as V)	< 4.00 µg/l	
50	Nickel (Total as Ni)	**8.3 µg/l**	
51	Fluoride (as F)	0.459 mg/l	**General**
52	Chloride	715 mg/l	
53	TOC	82 mg/l	
54	Cyanide	< 9 µg/l	
55	Conductivity	3,022 uS/cm (20 degrees C)	**Additional Tests (sample 1232499)**
56	Hardness (mg/l CaCO3)	N/A	
57	pH	7.2	

Summary of Influent Lines Screening Results:

2016 – Influent Lines - Sample References 1232887 (13/12/16), 1234372 (16/12/16), 1232888 (13/12/16) and 1232889 (13/12/16).

To isolate the source of parameters detected in the Influent, samples were taken from the 4 main influent feeder lines on 13/12/16 and 16/12/16 as follows:

1232887: Dun Laoghaire – West Pier
1234372: Dodder Valley Sewer - UCD FM-10
1232888: North Dublin Drainage System – Sutton Sump
1232889: Ringsend – Main Lift Pumping Station

See **Table 7.6.4.** These samples were tested for the PRTR test suite. Many of the parameters in the influent feeder line samples were reported as below the detection limit.

Parameters detected in the 4 feeder lines have been compared with those detected in the influent sample (see **Table 7.6.3** above).

1232887: Dun Laoghaire – West Pier

Parameters detected in this sample included Trichloromethane (1.67 µg/l) and Toluene (0.40 µg/l).

The PAH's Fluoranthene (0.052 µg/l), Pyrene (0.055 µg/l) and Phenanthrene (0.065 µg/l) were detected in this sample.

Glyphosate (1.03 µg/l) was detected showing usage in the upstream catchment.

Phenol (23.7 µg/l) and m,p-Methyl Phenol (8.12 µg/l) were detected in this sample.

The metals Arsenic (1.8 µg/l), Copper (31 µg/l), Zinc (40 µg/l) and Barium (16.3 µg/l) were detected.

See highlighted parameters **in Table 7.6.4.**

1234372: Dodder Valley Sewer - UCD FM-10

Parameters detected in this sample included Tetrachloroethylene (0.33 µg/l), Trichloromethane (4.43 µg/l) and Toluene (0.42 µg/l).

The plasticizer di-ethyl phthalate was detected at 2.5 µg/l.

Glyphosate (0.396 µg/l) was detected showing usage in the upstream catchment.

Phenol was detected at 101 µg/l and m,p- Methyl Phenol at 215 µg/l .

The metals Copper (23.6 µg/l), Zinc (69.7 µg/l) and Barium (15.3 µg/l) were detected.

See highlighted parameters **in Table 7.6.4.**

1232888: North Dublin Drainage System – Sutton Sump

Parameters detected in this sample included Trichloromethane (1.59 µg/l) and Toluene (0.15 µg/l).

The PAH's Pyrene (0.04 µg/l) and Phenanthrene (0.081 µg/l) were detected in this sample.

Glyphosate (0.562 µg/l) was detected showing usage in the upstream catchment.

Phenol was detected at 54.1 µg/l with the cresol m,p- Methyl Phenol at 158 µg/l .

The metals Copper (39 µg/l), Zinc (91 µg/l), Chromium (29.0 µg/l), Barium (31.7 µg/l) and Nickel (4.6 µg/l) were detected in this sample.

See highlighted parameters in **Table 7.6.4.**

1232889: Ringsend – Main Lift Pumping Station

Parameters detected in this sample included Tetrachloroethylene (4.3 µg/l), Trichloromethane (3.46 µg/l), Xylenes (0.79 µg/l) and Toluene (0.86 µg/l).

The PAH's Naphthalene (0.664 µg/l), Fluoranthene (0.087 µg/l), Acenaphthene (0.159 µg/l), Pyrene (0.115 µg/l), Fluorene (0.19 µg/l) and Phenanthrene (0.466 µg/l) were detected in this sample.

Glyphosate was detected at 0.375 µg/l showing usage in the upstream catchment.

Phenol (143 µg/l) and the cresol m,p-Methylphenol (178 µg/l) were detected in this sample.

The metals Copper (42 µg/l), Zinc (106 µg/l), Chromium (3 µg/l), Selenium (1.25 µg/l), Barium (27.5 µg/l) and Nickel (3.6 µg/l) were detected.

See highlighted parameters **in Table 7.6.4**

Measures to Reduce Detected Priority Substances

Ongoing reviews of trade effluent licenses and consents are carried out in the catchments upstream of the 4 influent lines to the Ringsend WWTP to reduce detected priority substances.

Table 7.6.4.

EPA Appendix 1 – Ringsend Influent Inflows - 2016 PRTR Screening.

EPA Parameters Screened for in 4 Waste Water Influent Lines to the Ringsend WWTP

No.	Compound	1232887 Dun Laoire West Pier	1234372 UCD FM 10 (Dodder)	1232888 Sutton Sump	1232889 Ringsend Main Lift
1.	Benzene	<0.20 µg/l	< 0.10 µg/l	< 0.20 µg/l	< 0.20 µg/l
2.	Carbon Tetrachloride	<0.10 µg/l	<0.10 µg/l	<0.10 µg/l	<0.10 µg/l
3	1,2-Dichloroethane	<0.50 µg/l	<0.50 µg/l	<0.50 µg/l	<0.50 µg/l
4	Dichloromethane	<6.0 µg/l	<6.0 µg/l	<6.0 µg/l	<6.0 µg/l
5	Tetrachloroethylene	<0.20 µg/l	**0.33 µg/l**	< 0.20 µg/l	**4.3 µg/l**
6	Trichloroethylene	<0.10 µg/l	< 0.10 µg/l	< 0.10 µg/l	< 0.10 µg/l
7	Trichlorobenzene (1,2,4)	<200 µg/l	< 0.10 µg/l	< 20.0 µg/l	< 20.0 µg/l
8	Trichloromethane	**1.67 µg/l**	**4.43 µg/l**	**1.59 µg/l**	**3.46 µg/l**
9	Xylenes (all isomers)	<0.30 µg/l	<0.30 µg/l	<0.30 µg/l	**0.79 µg/l**
10	Ethyl Benzene	<0.10 µg/l	< 0.10 µg/l	< 0.10 µg/l	<0.10 µg/l
11	Toluene	**0.40 µg/l**	**0.42 µg/l**	**0.15 µg/l**	**0.86 µg/l**
12	Naphthalene	<0.04 µg/l	<0.04 µg/l	< 0.04 µg/l	**0.664 µg/l**
13	Fluoranthene	**0.052 µg/l**	<0.04 µg/l	< 0.04 µg/l	**0.087 µg/l**
14	Benzo(k)fluoranthene	<0.04 µg/l	<0.04 µg/l	< 0.04 µg/l	< 0.04 µg/l
15	Benzo(ghi)perylene	<0.17 µg/l	<0.04 µg/l	< 0.08 µg/l	< 0.04 µg/l
16	Indeno(1,2,3-c,d)pyrene	<0.04 µg/l	<0.04 µg/l	< 0.04 µg/l	< 0.04 µg/l
17	Benzo(b)fluoranthene	<0.04 µg/l	<0.04 µg/l	< 0.04 µg/l	<0.04 µg/l
18	Benzo(a)pyrene	<0.04 µg/l	<0.04 µg/l	< 0.04 µg/l	<0.04 µg/l
	Acenaphthene	<0.04 µg/l	<0.04 µg/l	< 0.04 µg/l	**0.159 µg/l**
	Pyrene	**0.055 µg/l**	<0.04 µg/l	**0.04 µg/l**	**0.115 µg/l**
	Anthracene	<0.04 µg/l	<0.04 µg/l	< 0.04 µg/l	<0.04 µg/l l
	Fluorene	<0.04 µg/l	<0.04 µg/l	< 0.04 µg/l	**0.19 µg/l**
	Phenanthrene	**0.065 µg/l**	<0.04 µg/l	**0.081 µg/l**	**0.466 µg/l**
	Total PAH's	**<0.662 µg/l**	<0.48 µg/l	**<0.561 µg/l**	**<1.921 µg/l**
19	Di(2-ethylhexyl)phthalate (DEHP)	<1000 µg/l	< 10 µg/l	< 100 µg/l	< 100 µg/l
	Di-ethylphthalate	<200 µg/l	**2.5 µg/l**	<20 µg/l	<20 µg/l
20	Isodrin	<26 ng/l	< 6 ng/l	< 26 ng/l	< 26 ng/l
21	Dieldrin	<22 ng/l	< 5 ng/l	< 22 ng/l	< 22 ng/l
22	Diuron	<0.28 µg/l	< 0.12 µg/l	< 0.10 µg/l	< 0.10 µg/l
23	Isoproturon	<0.10 µg/l	< 0.10 µg/l	< 0.10 µg/l	< 0.10 µg/l
24	Atrazine	<0.09 µg/l	< 0.02 µg/l	< 0.09 µg/l	< 0.09 µg/l
25	Simazine	<0.11 µg/l	< 0.02 µg/l	< 0.11 µg/l	< 0.11 µg/l
26	Glyphosate	**1.03 µg/l**	**0.396µg/l**	**0.562 µg/l**	**0.375 µg/l**
27	Mecoprop	<0.40 µg/l	< 0.16 µg/l	< 0.40 µg/l	< 0.40 µg/l
28	2,4-D	<0.50 µg/l	< 0.20 µg/l	< 0.50 µg/l	< 0.50 µg/l
29	MCPA	<0.50 µg/l	< 0.20 µg/l	< 0.50 µg/l	< 0.50 µg/l
30	Linuron	<0.39 µg/l	< 0.10 µg/l	< 0.10 µg/l	< 0.20 µg/l
31	Dichlobenil	< 17 ng/l	< 4 ng/l	< 17 ng/l	< 17 ng/l

32	2,6-Dichlorobenzamide	N/A	N/A	N/A	N/A
	Diazinon	<0.023 µg/l	< 0.005 µg/l	<0.023 µg/l	<0.023 µg/l
	Dimethoate	<0.029 µg/l	<0.020 µg/l	<0.029 µg/l	<0.029 µg/l
33	PCB's (Sum of 7)	< 0.027 µg/l	< 0.093 µg/l	< 0.040 µg/l	< 0.073 µg/l
34	Phenols	**23.7 µg/l**	**101 µg/l**	**54.1 µg/l**	**143 µg/l**
34	m,p- Methylphenol	**8.12 µg/l**	**215 µg/l**	**158 µg/l**	**178 µg/l**
	o- Methylphenol	< 200 µg/l	< 3.0 µg/l	< 20.0 µg/l	< 20.0 µg/l
35	Lead	< 6.0 µg/l	< 6.0 µg/l	< 6.0 µg/l	< 6.0 µg/l
36	Arsenic	**1.8 µg/l**	< 1.0 µg/l	< 1.0 µg/l	< 1.0 µg/l
37	Copper	**31 µg/l**	**23.6 µg/l**	**39 µg/l**	**42 µg/l**
38	Zinc	**40 µg/l**	**69.7 µg/l**	**91 µg/l**	**106 µg/l**
39	Cadmium	<0.6 µg/l	< 0.6 µg/l	< 0.6 µg/l	< 0.6 µg/l
40	Mercury	<0.1 µg/l	< 0.1 µg/l	< 0.1 µg/l	0.2 µg/l
41	Chromium	< 2 µg/l	< 2.0 µg/l	**29 µg/l**	**3 µg/l**
42	Selenium	< 0.80 µg/l	< 0.80 µg/l	< 0.80 µg/l	**1.25 µg/l**
43	Antimony	<1.2 µg/l	< 1.2 µg/l	< 1.2 µg/l	< 1.2 µg/l
44	Molybdenum	<3.0 µg/l	< 3.0 µg/l	< 3.0 µg/l	<.3.0 µg/l
45	Tin (Total)	< 7.00 µg/l	< 7.00 µg/l	< 7.00 µg/l	< 7.00 µg/l
46	Barium	**16.3 µg/l**	**15.3 µg/l**	**31.7 µg/l**	**27.5 µg/l**
47	Boron	< 0.2 mg/l	< 0.23 mg/l	< 0.2 mg/l	< 0.2 mg/l
48	Cobalt	< 2.00 µg/l	< 2.00 µg/l	< 2.00 µg/l	<2.00 µg/l
49	Vanadium	< 4.00 µg/l	< 4.00 µg/l	< 4.00 µg/l	< 4.00 µg/l
50	Nickel	< 3.00 µg/l	< 3.00 µg/l	**4.6 µg/l**	**3.6 µg/l**
51	Fluoride	0.4 mg/l	0.318 mg/l	0.5 mg/l	0.7 mg/l
52	Chloride	65 mg/l	38.2 mg/l	128 mg/l	601 mg/l
53	TOC	-	-	-	-
54	Cyanide	< 9 µg/l	< 9 µg/l	< 9 µg/l	< 9 µg/l
55	Conductivity	-	-	-	-
56	Hardness (mg/l CaCO3)	-	-	-	-
57	pH	-	-	-	-

Appendix 7.7

Toxicity/Leachate Management Report

Leachate received by tanker at the Ringsend WWTP is managed using a system of application forms, consignment notes, monitoring and invoicing.

Leachate is also discharged to sewer and this is managed by consent to discharge.

A total volume of **195,793m^3** of leachate was received in 2016 as tabulated below.

The daily leachate PE load represents **0.123%** of the average daily PE load in 2016 (1,808,046).

Landfill Source	**Local Authority**	**Leachate Volume 2016 (m^3)**	**Daily PE Load (using volume)**	**Daily % Influent PE Load**
Ballynagran (by tanker)	Wicklow County Council	24,025	292	0.016
Kerdiffstown (by tanker)	Kildare County Council	14,196	173	0.001
Knockharley (by tanker)	Meath County Council	337	4	0.0002
Dunsink (to sewer)	Fingal County Council	157,235	1,909	0.106
Total		**195,793**	**2,378**	**0.123%**

Appendix 7.8

Final Effluent Toxicity Assessment

A treated SBR effluent sample taken on 12/12/16 from the Ringsend Plant was tested for aquatic toxicity by ENVA. See report overleaf.

Results show a value of 1.78 TU for 48 hour LC50 testing with *Brachionus Plicatilis*.

This complies with the licence limit of 5 TU.

Results show a value of 3.55 TU for a 30 minute EC50 testing with *Vibrio fisheri.*

Raffeen Industrial Estate
Ringaskiddy Road
Monkstown
Co. Cork
Tel: 021 4387200
Fax: 021 4387299
Email: micro@enva.ie
www.enva.ie

Client: The Central Laboratory

Address: Dublin City Council,
Eblana House,
68-70, Marrowbone Lane,
Dublin 8.

Customer Sample: Ringsend New Treatment Works. SBL Effluent 12.12.16.

Certificate Number: 2415016211216
Date Received: 13/12/16
Lab ID: 241/50/16
Test Date: 21/12/16

Certificate Date: 21/12/16
Order Number: 51221689

Aquatic Toxicity Test Results:

Test Parameters	Concentration % Vol./Vol.	Toxic Units	95% Confidence Limits Vol./Vol.	Method Of Calculation
48 LC_{50} to Brachionus plicatilis	56.12	1.78	43.88 – 69.99	Rotifer LC_{50} Calculation Program
30 min EC_{50} to Vibrio fischeri	28.16	3.55	15.07 – 52.64	Microtox

Test Methods:
ENVCM.137:Rotifer Brachionus plicatilis: Based on ASTM E1440-91
ENVCM136:Marine bacterium Vibrio fischeri: Based on ISO 11348-3:2007

Raffeen Industrial Estate
Ringaskiddy Road
Monkstown
Co. Cork
Tel: 021 4387200
Fax: 021 4387299
Email: micro@enva.ie
www.enva.ie

Sample Information:

Sampled By:	Customer
Sampling Procedure	N/A
Lab ID	241/50/16
Date of Analysis	14/12/16
Storage Conditions	3 ± 3 °C
Temperature	20.1°C
PH (at 25°C)	8.10
Dissolved Oxygen (mg/l)	7.9
Dissolved Oxygen (% Saturation)	93
Conductivity (µs/cm at 25°C)	746
Salinity (ppt at 20°C)	<1

Reported By: _____ 21/12/16
Claire Foley
(Technical Consultant)