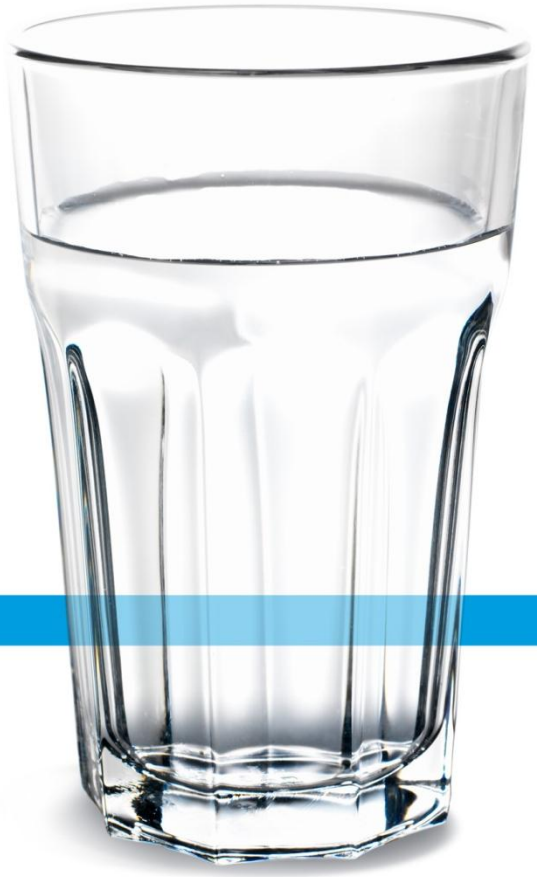
Annual Environmental Report 2015

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



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1. Executive Summary and Introduction to the 2015 AER

1.1. Summary Report on 2015

This Annual Environmental Report has been prepared for **D0034-01**, **Greater Dublin Area**, 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**)
- Sewer Integrity Assessment for the North Fringe Sewer Catchment and 9C Catchment (**Appendix 7.6**)
- Priority Substances Assessment (**Appendix 7.7**)
- Toxicity / Leachate Management Report (**Appendix 7.8**)
- Final Effluent Toxicity Assessment (**Appendix 7.9**)

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
- Dún 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 and FOG removal)
- primary treatment
- secondary treatment - SBR
- sludge treatment
- tertiary treatment – UV treatment during the bathing season

The final effluent from the Primary Discharge Point was compliant with the Emission Limit Values in 2015 for the following parameters:-

- pH
- E.Coli (Faecal Coliforms)
- Toxicity

The final effluent from the Primary Discharge Point was non-compliant with the Emission Limit Values in 2015 for the following parameters:-

- cBOD
- COD
- Suspended Solids
- Total Nitrogen
- Total Phosphorus

A total of 15,706 tonnes sludge (as tonnes dry solids) was removed from the wastewater treatment plant in 2015 as dried sludge Biofert granules 15,122 t/ds and Class A dewatered sludge cake 584 t/ds). Sludge was transferred to Quinn's of Baltinglass, Co. Wicklow.

Dublin City Council Functional Area

There were no major capital or operational changes undertaken in 2015 in the Dublin City Council Functional Area. The following minor improvement works were undertaken during 2015:-

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

Both of these works are expected to be completed in March 2016.

In addition to the above, Process Proving Step 2 (PPS2) is under construction and will be commissioned in June/July 2016. PPS2, involves the retrofitting of one of the existing SBR reactors with the equipment required for the aerobic granular sludge(AGS) treatment process and then the operation of this reactor over a testing period (6 months and over) to prove the AGS under full scale operational conditions.

South Dublin County Council Functional Area

The following upgrade works were carried out on the drainage network serving South Dublin County Council:-

- Dodder Valley Trunk Sewer (DVS) - A new siphon house was constructed at Belfield.

Other works are detailed in **Appendix 7.5**.

Fingal County Council Functional Area

The following improvement works were undertaken during 2015:-

- Regular sump cleaning,
- Routine maintenance, provision and monitoring of telemetry system, ongoing staff training, and
- Pump station improvements ongoing - electrical panel reviews, control panel upgrades, chain replacements, alarm review.

Dún Laoghaire Rathdown County Council Functional Area

There were no major capital or operational changes undertaken in 2015.

Meath County Council Functional Area

There were no improvement works undertaken during 2015 in the Meath Functional Area.

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

2. Monitoring Reports Summary 2015

2.1. Summary report on influent monitoring

Table 2.1 - Influent Monitoring Summary

	BOD (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**	**247**	**246**	**101**	**101**		
Annual Max.	503	1174	760	9.26	52.4	1,179,832	3,101,783
Annual Mean	285.42	575	273	6.01	37.65	423,577	1,933,203

Other inputs in the form of sludge / leachate are added to the WWTP *after* the influent monitoring point and are therefore not represented by influent monitoring. Other inputs 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 greater than the peak Treatment Plant Capacity as detailed further in Section 3.2.

The annual mean organic loading (flow weighted) 1,933,203 PE/day is greater than the Treatment Plant Capacity as detailed further in Section 3.2. Note that the annual mean PE reported for 2014 was 1,777,994.

The 2015 annual mean value represents an increase of 155,209 PE reflecting the upward economic growth trend during the year.

The annual maximum organic loading of 3,101,873 PE is greater than the Treatment Plan Capacity as detailed further in Section 3.2. This PE value was calculated for 08/04/15 when the BOD was 503 mg/l and the influent flow was 369,994 m^3.

The Annual Maximum weekly average PE calculated for the Urban Wastewater Returns for 2015 was 2,735,528 PE. The Annual Mean Weekly PE calculated for the Urban Wastewater Returns for 2015 was 1,894,686 PE.

2.2. Discharges from the agglomeration

Table 2.2a - Effluent Monitoring Summary, 2015

	BOD** (mg/l)[2]	COD** (mg/l)[2]	TSS** (mg/l)[2]	Total P** (mg/l)	Total N** (mg/l)	pH **	Toxicity (TU)	Comment *See Significance of Results below
WWDL ELV (*Schedule A*)	25	125	35	1	10	6-9	5	****24-hour composite samples**
ELV with Condition 2 Interpretation included	50	250	87.5	1.2	12.0	-	-	
Number of sample results	142	247	246	101	101	247	6	Toxicity tests carried out for bacteria / marine alga, crustacean and fish. See **Appendix 7.8**
Number of sample results above WWDL ELV	26	17	83	101	93	0	0	BOD non-compliance detailed below TSS non-compliance detailed below TP non-compliance detailed below TN non-compliance detailed below
Number of sample results above ELV with Condition 2 Interpretation included	5	5	13	101	86	0	-	COD non-compliance detailed below
Annual Mean (for parameters where a mean ELV applies)								
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/100 ml)	Enterococci (CFU/100ml) ***	Colour (Hazen Units)**	Comment *See Significance of Results below
WWDL ELV (*Schedule A*)	-	-	-	-	100,0000	-	-	****24-hour composite samples**
ELV with Condition 2 Interpretation included	-	-	-	-	150,000	-	-	***E.Coli and Enterococci reported for discrete samples taken post-UV between 02/06/15 and 14/09/15
Number of sample results	246	246	246	100	60	44	247	
Number of sample results above WWDL ELV	-	-	-	-	2	-	-	
Number of sample results above ELV with Condition 2 Interpretation included	-	-	-	-	0	-	-	
Annual Mean (for parameters where a mean ELV applies)	17.73	14.14	2.67	7.11	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.

Compliance with COD, BOD and in particular TSS was poor due to a number of reasons:

(1) Plant Overloading

(2) An SBR cell was out of service from October to December to accommodate the implementation of PPS2.

This requires a complete retrofit of one SBR cell with the Nereda Technology and also extensive modifications to an adjacent cell which was removed from service from August to December.

Remedial work also had to be undertaken in November to two other adjoining cells due to increased hydraulic pressure as a result of PPS2.

In addition a number of SBR cells were unavailable due to planned and unplanned maintenance activities.

(3) A number of extreme weather events were experienced during the months of November and December

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

Improvement works are in progress to expand the plant capacity and to provide nutrient removal (see Section 4.2).

The impact on 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 (Y/N)**				**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 **Estuarine Receiving Water**	Liffey	Unknown	n/a	n/a	n/a	n/a	Moderate	No – The River Liffey Upstream of Islandbridge Weir is freshwater and cannot be impacted by estuarine receiving waters.
Downstream monitoring point **Estuarine Receiving Water**	Liffey Estuary Upper	Unknown	Yes	No- Saline Waters	No- Saline Waters	No	Moderate	Yes – Liffey Estuary Upper impacted by some DO, BOD and Phosphate non-compliances
	Liffey Estuary Lower		Dollymount Bathing Zone				Good	Yes – Liffey Estuary Lower impacted by some DO, BOD and Phosphate non-compliances
	Tolka Estuary						Moderate	Yes – Tolka Estuary impacted by some DO, BOD and Phosphate non-compliances
	Dublin Bay		Sandymount Merrion				Good	Yes – Dublin Bay impacted by some Chlorophyll a non-compliances *See detailed report in Section 2.3.

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.
- The discharge from the wastewater treatment plant does not 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 and misconnections to surface water sewers.

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 2015 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 2015	Date	High Tide Time	Height (m OD)	Low Tide Time	Height (m OD)	Tidal Status during Survey
1. April	30/04/15	10.22	3.59	03.49	1.28	High to Mid-Ebb

Survey No. and Month 2015	Date	High Tide Time	Height (m OD)	Low Tide Time	Height (m OD)	Tidal Status during Survey
2. May	28/05/15	08.45	3.43	01.54	1.51	High to Mid-Ebb
3. June	11/06/15	07.21	3.82	13.27	0.85	Mid-Ebb to Ebb
4. July	01/07/15	11.55	3.84	17.27	0.76	Flow to mid-Ebb
5. August	12/08/15	11.15	3.72	16.50	1.09	Flow to Mid-Ebb
6. September	16/09/15	14.04	3.83	07.34	0.75	Mid-Flow to High

2.3.1. Marine Monitoring Summary – ASW2 to ASW10

A total of 6 surveys were carried out in the Liffey and Tolka Estuaries during 2015 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 Annesely Bridge

A summary of transitional water quality compliance with S.I. 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 ASW10S where the DO was slightly supersaturated (133% Sat.) on 11/06/15 at the surface.

All BOD values were compliant except for 2 surface locations:

- ASW8, Liffey at Winetavern Street Bridge, where the BOD was 5 mg/l on 11/06/15
- ASW10, Tolka D/S Annesely Bridge, where the BOD was 7 mg/l on 01/07/15

Four exceedances of Molybdate Reactive Phosphate (MRP) standards occurred in the near field of the Ringsend discharge at ASW2, ASW3, ASW4 and ASW5. The non-compliant median MRP results were as follows:

Location	MRP 2015 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)	**207 µg/l as P**		Close to SW1 Outfall within the Mixing Zone
ASW3 (Surface)	**287 µg/l as P**		Close to SW1 Outfall within the Mixing Zone
ASW4 (Surface)	**204 µg/l as P**		Close to SW1 Outfall within the Mixing Zone
ASW5 (Surface)	**127 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 2015, 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 O2 at D300 – River Tolka U/S Drumcondra Bridge on 28/05/15 (>8 mg/l O2 on 28/05/15). Note that this is a freshwater sampling point.

A Dissolved Oxygen (lower) exceedances occurred in the Liffey at depth at DB 020 (Matt Talbot Bridge). The results were 70% saturation on 01/07/15.

A Dissolved Oxygen (upper) exceedance occurred in the Liffey at depth at DB 120 (Dodder/Grand Canal Basin). The result was 122% saturation on 30/04/15.

Two Dissolved Oxygen (upper) exceedances (slight) occurred in the Tolka at DB 300 – Upstream of Drumcondra Bridge. The results were 132% saturation on 30/04/15 and 135% saturation on 11/06/15.

Dissolved Oxygen (upper) exceedances occurred in the Tolka at DB 320 (Tolka at East Point Business Park Bridge). The results were 158% saturation (surface) and 169% saturation (depth) on 30/04/15.

9 Molybdate Reactive Phosphate (MRP) exceedances occurred at 5 locations as follows:

Location	**MRP 2015 Median Result**	**S.I. 272 Standard**	**Comment**
	Liffey Estuary		
DB 410 (Surface)	**423 µg/l P**	< 40 µg/l P	SW1 Discharge Impact
DB 420 (Surface)	**79 µg/l P**		SW1 Discharge and riverine impacts
DB 420 (Composite)	**93 µg/l P**		SW1 Discharge and riverine impacts
	Tolka Estuary		
DB 330 (Surface)	**57 µg/l P**	< 40 µg/l P	SW1 Discharge and riverine impacts
DB 330 (Composite)	**114 µg/l P**		SW1 Discharge and riverine impacts
DB 340 (Surface)	**96 µg/l P**		SW1 Discharge and riverine impacts
DB 350 (Surface)	**76 µg/l P**		SW1 Discharge and riverine impacts
DB 350 (Depth)	**67 µg/l P**		SW1 Discharge and riverine impacts
Db 350 (Composite)	**98 µg/l P**		SW1 Discharge and riverine impacts

2.3.3. Marine Monitoring Summary – Coastal Water Monitoring – Dublin Bay 2015 – Points agreed with EPA

A total of 4 surveys were carried out at 9 locations in Dublin Bay during 2015. 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	Dún 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 2015 shows full compliance with temperature, dissolved oxygen (lower), dissolved oxygen (upper).

The Dissolved Inorganic Nitrogen (DIN) standard for coastal waters (High status </= 170 µg/l N) was complied with fully on all survey dates.

The median chlorophyll High to Good limit (cold acetone extraction = < 2.5 µg/l) was complied with at all 9 locations on all survey dates except:

DB 430 (composite samples) - 1 km NE Poolbeg Lighthouse sampled on 20/05/15 and 06/08/15. The median of both composites was 5.6 µg/l. This slightly exceeded the Good to Moderate limit (cold acetone extraction = < 5.0 µg/l).

DB 510 (composite sample) – 2.5 km ENE Poolbeg Lighthouse sampled on 20/05/15. The result from this sample was 8.1 µg/l. This was above the Good to Moderate limit (cold acetone extraction = < 5.0 µg/l).

There were **no other impacts** on coastal and Irish Sea water quality during surveys carried out in 2015.

2.3.4. Shoreline Monitoring – 2015 Bathing Season

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

Shoreline sampling was carried out at 8 locations during the 2015 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 was determined by the EPA in 2014 following review of the 4 year period 2011 to 2014. The Status has not yet been reported for the 2012 to 2015 period.

Designated bathing waters at Dollymount (Bathing Zone) and Sandymount Strand were allocated **GOOD** status for the period 2011-2014. Merrion Strand was allocated **SUFFICIENT** status for the period 2011 – 2014. Water quality results from the 2015 Bathing Season (**Appendix 7.2.5**) indicate that Merrion Strand has deteriorated to **POOR** status. Investigative monitoring is ongoing.

Site Location	**ASW 12***	**ASW 17***	**ASW 18***
No. of E.Coli results	20	21	20
2015 Annual Status	Sufficient	Sufficient	Poor
No. of Enterococci results	20	21	20
2015 Annual Status	Poor	Sufficient	Poor

The remaining 5 locations are not designated bathing waters.

Monitoring just before the season and between 02/06/15 and 14/09/15 showed microbiological results (**Appendix 7.2.5**) that indicate a 2015 annual status summarised below:

Site Location	ASW 11	ASW 13	ASW 14	**ASW 15***	ASW 16
No. of E.Coli results	21	21	20	20	20
2015 Annual Status	Excellent	Poor	Good		Sufficient
No. of Enterococci results	21	21	20	19	20
2015 Annual Status	Excellent	Poor	Good		Excellent

*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: 05/02/2016.

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)	42,337.2	85,118.6	40,852.3	894.5	5,606.4
Effluent mass emission (t/year)	3,480.3	13,515.2	6,516.9	574.2	3,079.1
% Efficiency (% reduction of influent load)	91.78%	84.12%	84.05%	35.84%	54.92%

*Flow weighted loadings

3.2. Treatment Capacity Report

Table 3.2 - Treatment Capacity Report Summary

Hydraulic Capacity – Design / As Constructed (dry weather flow) (m^3/year)	145,065,600
Hydraulic Capacity – Design / As Constructed (peak flow) (m^3/year)	350,049,600
Hydraulic Capacity – Current loading (m^3/year)	154,605,392
Hydraulic Capacity – Remaining (m^3/year)	25,149,800*
Organic Capacity - Design / As Constructed (PE)	1.64 Million
Organic Capacity - Current loading (PE)	1.93 Million**
Organic Capacity – Remaining (PE)	None
Will the capacity be exceeded in the next three years?	Yes

* Remaining hydraulic capacity calculated based on average design flows (1.25DWF), however the works can take greater than the average design flows hydraulically provided peak flow not exceeded.

** Calculated as Mean Flow Weighted PE

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

The data in Table 3.3 is estimated based on influent monitoring as detailed in Section 2.1 above.

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	99.9%
Load collected in the sewer network but discharged without treatment	0.1%

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	94.1
Load collected in the sewer network but discharges without treatment	<1% for SWO

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	15,077,215	Measured + Estimated
B. Volume collected in the agglomeration that enters treatment plant	14,187,165	Measured
C. Volume collected in the sewer network but discharged without treatment (includes SWO, EO and any discharges that are not treated)	890,050	EO 800,000m^3 estimate CSO 90,050m^3 estimate
% of volume generated in the agglomeration that is discharged without treatment. D=(C/A*100)	5.9% (<1% for SWO)	

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	Date & Time	Nature of Complaint	Cause of Complaint	Actions taken to resolve issue	Closed (Y/N)
None					

South Dublin County Council Functional Area

Table 3.4b - Complaints Summary Table

Number	Date & Time	Nature of Complaint	Cause of Complaint	Actions taken to resolve issue	Closed (Y/N)
INCI008569	9th Sept 2015	Discharge to Liffey	Overflow to River Liffey as the St Edmonsbury Liffey foul siphon was blocked with grease.	Blockage cleared next day. FOG inspections in area discharging to sewer to be reviewed and operation of siphon to be checked twice weekly. Telemetry alarm provided to alert on siphon blockage.	Y

Fingal County Council Functional Area

Table 3.4c - Complaints Summary Table

Number	Date and time	Nature	Cause	Actions taken to Resolve	Closed
1	24-Jan-15	INV Sewage Flooding	Mains Blockage - STRAND RD, PORTMARNOCK	Cleared by FCC Jet Vac Tanker	CLOSED
2	25-Jan-15	INV Sewage Flooding	Mains Blockage - CONVENT LANE, PORTMARNOCK	Cleared by FCC Jet Vac Tanker	CLOSED
3	05-Mar-15	INV Sewage Flooding	Mains Blockage - PORTMARNOCK PARK, PORTMARNOCK	Cleared by FCC Jet Vac Tanker	CLOSED
4	14-Apr-15	INV Sewage Flooding	Mains Blockage - 66 CARRICK COURT, PORTMARNOCK	Cleared by FCC Jet Vac Tanker	CLOSED
5	24-Apr-15	INV Sewage Flooding	Mains Blockage - CAPPAGH COTTAGES, BLANCHARDSTOWN	Cleared by FCC Jet Vac Tanker	CLOSED
6	24-Apr-15	INV Sewage Flooding	Mains Blockage - PATRICKSTOWN, MULHUDDART	Cleared by FCC Jet Vac Tanker	CLOSED
7	24-Apr-15	INV Sewage Flooding	Mains Blockage - LIME TREE, PORTMARNOCK	Cleared by FCC Jet Vac Tanker	CLOSED
8	27-Apr-15	INV Sewage Flooding	Mains Blockage - LOHUNDA, CLONSILLA	Cleared by FCC Jet Vac Tanker	CLOSED
9	30-Apr-15	INV Sewage Flooding	Mains Blockage - CARRICK COURT, PORTMARNOCK	Cleared by FCC Jet Vac Tanker	CLOSED
10	01-May-15	INV Sewage Flooding	Mains Blockage - WILLOW WOOD P/K, CLONSILLA	Cleared by FCC Jet Vac Tanker	CLOSED
11	01-May-15	INV Sewage Flooding	Mains Blockage - GLEN VIEW GATE, CLONSILLA	Cleared by FCC Jet Vac Tanker	CLOSED
12	02-May-15	INV Sewage Flooding	Mains Blockage - 30 MARTELLO TOWERS, PORTMARNOCK	Cleared by FCC Jet Vac Tanker	CLOSED
13	03-May-15	INV Sewage Flooding	Mains Blockage - 30 MARTELLO TOWERS, PORTMARNOCK	Cleared by FCC Jet Vac Tanker	CLOSED
14	05-May-15	INV Sewage Flooding	Mains Blockage - 187 RUSHEEN P/K, CLONSILLA	Cleared by FCC Jet Vac Tanker	CLOSED

Number	Date and time	Nature	Cause	Actions taken to Resolve	Closed
15	07-May-15	INV Sewage Flooding	Mains Blockage - GLEN VILE GATE, CLONSILLA	Cleared by FCC Jet Vac Tanker	CLOSED
16	20-May-15	INV Sewage Flooding	Mains Blockage - THORMANBY RD, HOWTH	Cleared by FCC Jet Vac Tanker	CLOSED
17	21-May-15	INV Sewage Flooding	Mains Blockage - HUNTSTOWN LAWN, HUNTSTOWN	Cleared by FCC Jet Vac Tanker	CLOSED
18	21-May-15	INV Sewage Flooding	Mains Blockage - OLD RACE COURSE, PHOENIX P/K	Cleared by FCC Jet Vac Tanker	CLOSED
19	22-May-15	INV Sewage Flooding	Mains Blockage - WOODVIEW, PORTMARNOCK	Cleared by FCC Jet Vac Tanker	CLOSED
20	25-May-15	INV Sewage Flooding	Mains Blockage - RAILWAY AVE, BALDOYLE	Cleared by FCC Jet Vac Tanker	CLOSED
21	27-May-15	INV Sewage Flooding	Mains Blockage - MEADOWBROOK, BALDOYLE	Cleared by FCC Jet Vac Tanker	CLOSED
22	28-May-15	INV Sewage Flooding	Mains Blockage - WILLOW WOOD VIEW, CARPENTERSTOWN	Cleared by FCC Jet Vac Tanker	CLOSED
23	03-Jun-15	INV Sewage Flooding	Mains Blockage - STATION RD, SUTTON	Cleared by FCC Jet Vac Tanker	CLOSED
24	03-Jun-15	INV Sewage Flooding	Mains Blockage - SUTTON COURT, SUTTON	Cleared by FCC Jet Vac Tanker	CLOSED
25	08-Jun-15	INV Sewage Flooding	Mains Blockage - RAILWAY AVE, BALDOYLE	Cleared by FCC Jet Vac Tanker	CLOSED
26	10-Jun-15	INV Sewage Flooding	Mains Blockage - 1 WOODLAWN, BLAKESTOWN, BLANCHARDSTOWN	Cleared by FCC Jet Vac Tanker	CLOSED
27	12-Jun-15	INV Sewage Flooding	Mains Blockage - RAILWAY AVE, BALDOYLE	Cleared by FCC Jet Vac Tanker	CLOSED
28	12-Jun-15	INV Sewage Flooding	Mains Blockage - GRANGE PK, BALDOYLE	Cleared by FCC Jet Vac Tanker	CLOSED
29	12-Jun-15	INV Sewage Flooding	Mains Blockage - CLONSILLA RD, BLANCHARDSTOWN	Cleared by FCC Jet Vac Tanker	CLOSED
30	12-Jun-15	INV Sewage Flooding	Mains Blockage - LAHUNDA DRIVE, BLANCHARDSTOWN	Cleared by FCC Jet Vac Tanker	CLOSED
31	23-Jun-15	INV Sewage Flooding	Mains Blockage - IND EST, BALDOYLE	Cleared by FCC Jet Vac Tanker	CLOSED

Number	Date and time	Nature	Cause	Actions taken to Resolve	Closed
32	01-Jul-15	INV Sewage Flooding	Mains Blockage - BAMBURY FIELD, CLONSILLA	Cleared by FCC Jet Vac Tanker	CLOSED
33	01-Jul-15	INV Sewage Flooding	Mains Blockage - CLONSILLA CLOSE, CLONSILLA	Cleared by FCC Jet Vac Tanker	CLOSED
34	03-Jul-15	INV Sewage Flooding	Mains Blockage - GRANGE P/K, BALDOYLE	Cleared by FCC Jet Vac Tanker	CLOSED
35	10-Jul-15	INV Sewage Flooding	Mains Blockage - MAIN ST, CASTLEKNOCK	Cleared by FCC Jet Vac Tanker	CLOSED
36	11-Jul-15	INV Sewage Flooding	Mains Blockage - STRAND RD, PORTMARNOCK	Cleared by FCC Jet Vac Tanker	CLOSED
37	15-Jul-15	INV Sewage Flooding	Mains Blockage - ONGAR VILLAGE, BLANCHARDSTOWN	Cleared by FCC Jet Vac Tanker	CLOSED
38	15-Jul-15	INV Sewage Flooding	Mains Blockage - KILBARRACK RD, SUTTON	Cleared by FCC Jet Vac Tanker	CLOSED
39	24-Jul-15	INV Sewage Flooding	Mains Blockage - TYRELLSTOWN, MULHUDDART	Cleared by FCC Jet Vac Tanker	CLOSED
40	24-Jul-15	INV Sewage Flooding	Mains Blockage - WHITESTOWN DR, BLANCHARDSTOWN	Cleared by FCC Jet Vac Tanker	CLOSED
41	27-Jul-15	INV Sewage Flooding	Mains Blockage - OFFINGTON DRIVE, HOWTH	Cleared by FCC Jet Vac Tanker	CLOSED
42	05-Aug-15	INV Sewage Flooding	Mains Blockage - STATION RD, SUTTON	Cleared by FCC Jet Vac Tanker	CLOSED
43	06-Aug-15	INV Sewage Flooding	Mains Blockage - RAILWAY AVE, SUTTON	Cleared by FCC Jet Vac Tanker	CLOSED
44	06-Aug-15	INV Sewage Flooding	Mains Blockage - STRAND RD, SUTTON	Cleared by FCC Jet Vac Tanker	CLOSED
45	10-Aug-15	INV Sewage Flooding	Mains Blockage - HOWTH RD, SUTTON	Cleared by FCC Jet Vac Tanker	CLOSED
46	13-Aug-15	INV Sewage Flooding	Mains Blockage - HOWTH	Cleared by FCC Jet Vac Tanker	CLOSED
47	17-Aug-15	INV Sewage Flooding	Mains Blockage - WILLOW WOOD WAY, BLANCHARDSTOWN	Cleared by FCC Jet Vac Tanker	CLOSED
48	19-Aug-15	INV Sewage Flooding	Mains Blockage - CAPPAGH HOSPITAL, CAPPAGH	Cleared by FCC Jet Vac Tanker	CLOSED

Number	Date and time	Nature	Cause	Actions taken to Resolve	Closed
49	26-Aug-15	INV Sewage Flooding	Mains Blockage - LITTLE PACE, CLONEE	Cleared by FCC Jet Vac Tanker	CLOSED
50	28-Aug-15	INV Sewage Flooding	Mains Blockage - AT BELL PUB, BLANCHARDSTOWN	Cleared by FCC Jet Vac Tanker	CLOSED
51	03-Sep-15	INV Sewage Flooding	Mains Blockage - ROSELAWN, CASTLEKNOCK	Cleared by FCC Jet Vac Tanker	CLOSED
52	09-Sep-15	INV Sewage Flooding	Mains Blockage - MARION PK, BALDOYLE	Cleared by FCC Jet Vac Tanker	CLOSED
53	09-Sep-15	INV Sewage Flooding	Mains Blockage - BLACKBERRY WAY, PORTMARNOCK	Cleared by FCC Jet Vac Tanker	CLOSED
54	11-Sep-15	INV Sewage Flooding	Mains Blockage - PORTMARNOCK BRIDGE P/S	Cleared by FCC Jet Vac Tanker	CLOSED
55	21-Sep-15	INV Sewage Flooding	Mains Blockage - CHURCH RD, SUTTON	Cleared by FCC Jet Vac Tanker	CLOSED
56	02-Oct-15	INV Sewage Flooding	Mains Blockage - BAYSIDE, SUTTON	Cleared by FCC Jet Vac Tanker	CLOSED
57	07-Oct-15	INV Sewage Flooding	Mains Blockage - HUNTERS RUN, CLONEE	Cleared by FCC Jet Vac Tanker	CLOSED
58	19-Oct-15	INV Sewage Flooding	Mains Blockage - DRUMHEATH, MULHUDDART	Cleared by FCC Jet Vac Tanker	CLOSED
59	20-Oct-15	INV Sewage Flooding	Mains Blockage - WILLOWWOOD GREEN, HARTSTOWN	Cleared by FCC Jet Vac Tanker	CLOSED
60	22-Oct-15	INV Sewage Flooding	Mains Blockage - HARTSTOWN PARK, HARTSTOWN	Cleared by FCC Jet Vac Tanker	CLOSED
61	29-Oct-15	INV Sewage Flooding	Mains Blockage - ENTRANCE TO CAPPAGH HOSPITAL, FINGLAS	Cleared by FCC Jet Vac Tanker	CLOSED
62	31-Oct-15	INV Sewage Flooding	Mains Blockage - RIVERWOOD LAWN, CARPENTERSTOWN	Cleared by FCC Jet Vac Tanker	CLOSED
63	03-Nov-15	INV Sewage Flooding	Mains Blockage - STRAND RD, SUTTON	Cleared by FCC Jet Vac Tanker	CLOSED
64	07-Nov-15	INV Sewage Flooding	Mains Blockage - CASTLEFIELD COURT, CLONSILLA	Cleared by FCC Jet Vac Tanker	CLOSED
65	09-Nov-15	INV Sewage Flooding	Mains Blockage - PORTMARNOCK, PORTMARNOCK	Cleared by FCC Jet Vac Tanker	CLOSED

Number	Date and time	Nature	Cause	Actions taken to Resolve	Closed
66	10-Nov-15	INV Sewage Flooding	Mains Blockage - STRAND RD, PORTMARNOCK	Cleared by FCC Jet Vac Tanker	CLOSED
67	11-Nov-15	INV Sewage Flooding	Mains Blockage - CASTLECURRAGH, MULHUDDART	Cleared by FCC Jet Vac Tanker	CLOSED
68	13-Nov-15	INV Sewage Flooding	Mains Blockage - WILLOWWOOD GREEN, HARTSTOWN	Cleared by FCC Jet Vac Tanker	CLOSED
69	16-Nov-15	INV Sewage Flooding	Mains Blockage - STRAND RD, SUTTON	Cleared by FCC Jet Vac Tanker	CLOSED
70	17-Nov-15	INV Sewage Flooding	Mains Blockage - THORMANBY LAWN, HOWTH	Cleared by FCC Jet Vac Tanker	CLOSED
71	19-Nov-15	INV Sewage Flooding	Mains Blockage - CASTLEFIELD COURT, CLONSILLA	Cleared by FCC Jet Vac Tanker	CLOSED
72	27-Nov-15	INV Sewage Flooding	Mains Blockage - THORMANBY LAWN, HOWTH	Cleared by FCC Jet Vac Tanker	CLOSED
73	30-Nov-15	INV Sewage Flooding	Mains Blockage - DEER PK, HOWTH	Cleared by FCC Jet Vac Tanker	CLOSED
74	03-Dec-15	INV Sewage Flooding	Mains Blockage - PARK VIEW, CASTLEKNOCK	Cleared by FCC Jet Vac Tanker	CLOSED
75	04-Dec-15	INV Sewage Flooding	Mains Blockage - PARK VIEW, CASTLEKNOCK	Cleared by FCC Jet Vac Tanker	CLOSED
76	17-Dec-15	INV Sewage Flooding	Mains Blockage - STAPOLIN LAWNS, BALDOYLE	Cleared by FCC Jet Vac Tanker	CLOSED

Dún Laoghaire Rathdown County Council Functional Area

Table 3.4d - Complaints Summary Table

Number	Date & Time	Nature of Complaint	Cause of Complaint	Actions taken to resolve issue	Closed (Y/N)
1	06/07/15	Poor water quality at Seapoint due to overflow from West Pier PS.	Overflow from the short sea overflow at the West Pier Pump Station.	Water Sampled. Electronic sign warned public of the overflow.	Y
2	14/10/15	River contaminated with sewage.	CSO overflowed into the Slang River.	Sewer choke removed.	Y

Meath County Council Functional Area

Table 3.4e - Complaints Summary Table

Number	Date & Time	Nature of Complaint	Cause of Complaint	Actions taken to resolve issue	Closed (Y/N)
23611043	30/09/2015 10:44	Sewage Overflowing	Blockage	Unblocked	Y
23259609	20/05/2015 12:14	Sewage Overflowing	Blockage	Unblocked	Y
23540532	01/09/2015 12:46	Sewage Overflowing	Blockage	Unblocked	Y
23754898	22/11/2015 10:52	Sewage Overflowing	Blockage	Capital Works needed to improve network.	N

3.5. Reported Incidents Summary

A summary of reported incidents from 2015 is included in Tables 3.5a-e.

Dublin City Council Functional Area

Table 3.5a. Summary of Overall Incidents

Incident Number	Date	Incident Description	Cause	Corrective Action	Authorities Contacted	Reported to E.P.A.	Closed (Y/N)
1008791	24/08/2015	Breach of ELV	Rainfall	T.W.Upgrade	N	Y	N
1008369	19/08/2015	Uncontrolled release	Rainfall	Not Applicable	N	Y	N
1008388	23/08/2015	Uncontrolled Release	Rainfall	Not Applicable	N	Y	N
1008410	23/08/2015	Uncontrolled Release	Rainfall	Not Applicable	N	Y	N
1008469	23/08/2015	Uncontrolled Release	Rainfall	Not Applicable	N	Y	N
1006944	28/02/2015	Blocked Sewer	Blockage	Cleared the Blockage	N	Y	Y
1007161	09/03/2015	Blocked Sewer	Blockage	Cleared the Blockage	N	Y	Y
1007437	16/02/2015	Breach of ELV	Rainfall	Not Applicable	N	Y	Y
1007438	12/03/2015	Breach of ELV	Rainfall	T.W. Upgrade	N	Y	Y
1007439	25/03/2015	Breach of ELV	Rainfall	T.W. Upgrade	N	Y	Y
1007440	29/03/2015	Breach of ELV	Rainfall	T.W. Upgrade	N	Y	Y
1007441	30/03/2015	Breach of ELV	Rainfall	T.W. Upgrade	N	Y	Y
1008779	12/03/2015	Breach of ELV	Rainfall	T.W. Upgrade	N	Y	Y
1008780	25/03/2015	Breach of ELV	Rainfall	T.W. Upgrade	N	Y	Y
1008781	31/03/2015	Breach of ELV	Rainfall	T.W. Upgrade	N	Y	Y
1008782	02/04/2015	Breach of ELV	Rainfall	T.W Upgrade	N	Y	Y
1008783	13/04/2015	Breach of ELV	Rainfall	T.W. Upgrade	N	Y	Y
1008784	04/04/2015	Breach of ELV	Rainfall	T.W. Upgrade	N	Y	Y
1008785	06/05/2015	Breach of ELV	Rainfall	T.W. Upgrade	N	Y	Y
1008786	06/07/2015	Breach of ELV	Rainfall	T.W Upgrade	N	Y	Y
1008787	07/07/2015	Breach of ELV	Rainfall	T.W. Upgrade	N	Y	Y
1008788	17/07/2015	Breach of ELV	Rainfall	T.W. Upgrade	N	Y	Y
1008790	20/08/2015	Breach of ELV	Rainfall	T.W. Upgrade	N	Y	Y
1006803	13/02/2015	Uncontrolled Release	Rainfall	Not Applicable	N	Y	Y
A005538	Quarter 1-4	Non Compliance (N)	Plant Overload	T.W. Upgrade	N	Y	N

Incident Number	Date	Incident Description	Cause	Corrective Action	Authorities Contacted	Reported to E.P.A.	Closed (Y/N)
A005388	Quarter 1-4	Non Compliance (P)	Plant Overload	T.W. Upgrade	N	Y	N

Table 3.5.2a - Summary of Overall Incidents

Number of Incidents in 2015	26
Number of Incidents reported to the EPA via EDEN in 2015	26
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	Corrective Action	Authorities Contacted	Reported to EPA (Yes/No)	Closed (Y/N)
Overflow to Liffey	On 5th March 2015 - It was noted that there was much reduced flow to Kings Hospital Drainage Pumping station.	Main sewer choke	1	Sewer was jetted and nearby Liffey showed no sign of discharge and there were no complaints.	SDCC	No	Y
Overflow to Kilnamanagh Stream	1st July 2015- foul mains blockage was reported in Tamarisk.	Foul sewer choke	1	The next day the foul sewer blockage was cleared on Treetops Road by a jetter and	SDCC	No	Y

Incident Type (e.g. Non-compliance, Emission, spillage, Emergency Overflow Activation)	Incident Description	Cause	No. of incidents	Corrective Action	Authorities Contacted	Reported to EPA (Yes/No)	Closed (Y/N)
				the stream was cleaned up.			
Overflow to private gardens	6th July 2015 - Blockage was discovered on the Templeogue Road foul sewer.	Foul sewer choke	1	Blockage was cleared by a jetter that day. The gardens on Templeogue Road were cleaned on the following two days and new decorative chips were laid on 6th August.	SDCC	No	Y
Misconnection of foul to surface water system	An investigation of odours led to the discovery of foul in the Mc Uilliam attenuation tank.	Misconnection of foul to surface water	1	Polluted liquid was over pumped to foul sewer for 3 days work. Connection of surface water sewer to the foul is required and clearance of the sludge from the tank.	SDCC	No	Y
Overflow to private gardens	11th August 2015 – Private resident reported blockage.	Foul sewer choke	1	11th August 2015- blockage in foul sewer was cleared by jetter.	SDCC	No	Y

Incident Type (e.g. Non-compliance, Emission, spillage, Emergency Overflow Activation)	Incident Description	Cause	No. of incidents	Corrective Action	Authorities Contacted	Reported to EPA (Yes/No)	Closed (Y/N)
Overflow to private gardens	16th August 2015 - Flooding of garden and possible leak to Whitechurch Stream.	Foul sewer blockage	1	Blockage removed and stream inspected. No sign of pollution or debris found in Whitechurch Stream.	SDCC	Yes	Y
Overflow to River Liffey	9th Sept 2015 - Discharge to Liffey was reported at St Edmonsbury Foul Siphon.	Liffey siphon blocked with grease.	1	Blockage cleared next day. FOG inspections in area discharging to sewer to be reviewed and operation of siphon to be checked twice weekly. Telemetry alarm provided to alert on siphon blockage.	Fisheries/SDCC	Yes	Y
Overflow to houses and gardens	3rd Dec 2015 - Residents reported flooding from ground floor toilets and	Dodder Foul Trunk Sewer Surcharge due to rain.	1	Attended Site and cleaned gardens, fitting of non-return valves and	SDCC	Yes	Y

Incident Type (e.g. Non-compliance, Emission, spillage, Emergency Overflow Activation)	Incident Description	Cause	No. of incidents	Corrective Action	Authorities Contacted	Reported to EPA (Yes/No)	Closed (Y/N)
	showers.			provision of manhole to be done by end January 2106.			
Overflow to private gardens	3rd Dec 2015- Glenview park gardens had been flooded with sewage.	Dodder Foul Trunk Sewer surcharge due to rain.	1	Glenview park - gardens cleaned. Options to be discussed - upstream diversion and possible CSO to Dodder are possible solutions.	SDCC	Yes	Y
Overflow to Dodder	3rd Dec 2015 - The foul sewer manhole biscuit blew out in the park area near Mt. Carmel the steel footbridge causing damage to ground.	Damage due to Dodder Foul Trunk Sewer surcharge due to rain.	1	Mount Carmel in Firhouse - Damage to manhole to be repaired when ground conditions permit machinery on park area. SDCC to submit ANB to increase size of CSO to Dodder.	SDCC	Yes	Y

Incident Type (e.g. Non-compliance, Emission, spillage, Emergency Overflow Activation)	Incident Description	Cause	No. of incidents	Corrective Action	Authorities Contacted	Reported to EPA (Yes/No)	Closed (Y/N)
Overflow to private gardens	3rd Dec 2015- 2 Tamarisk Avenue back-up of foul drain on front driveway.	Constriction on Foul sewer.	1	2 Tamarisk Avenue- spill area disinfected. ANB to be submitted for realignment of 4m deep sewer downstream. In interim CSO capacity increase may be considered.	SDCC	Yes	Y
Overflow to private gardens	3rd Dec 2015- Backup of foul drain which flooded garden.	Foul sewer choke.	1	Sewer blockage cleared and garden cleaned up. Sewer line has been dragged and stone removed. Further grease to be removed from the sewer.	SDCC	Yes	Y
Overflow to private gardens	3rd Dec 2015 - gardens flooded with foul.	Gas main routed through foul sewer.	1	Gardens were cleaned up. Gas main discovered through sewer by camera on 16/12/15 and Bord Gais	SDCC	Yes	Y

Incident Type (e.g. Non-compliance, Emission, spillage, Emergency Overflow Activation)	Incident Description	Cause	No. of incidents	Corrective Action	Authorities Contacted	Reported to EPA (Yes/No)	Closed (Y/N)
				informed 11/01/15.			
Overflow to private gardens	3rd Dec 2015 - gardens flooded with foul.	Blockage on foul sewer.	1	Tree roots suspected and need to be removed.	SDCC	Yes	Y
Overflow onto road	3rd Dec 2015- Hermitage Road Lucan flooded with foul.	Blockage foul sewer.	1	Choke was cleared by jetter.	SDCC	Yes	Y
Spillage on footpath	3rd Dec 2015- manhole cover lifted off mounting.	Dodder Foul Trunk Sewer Surcharge due to rain.	1	Manhole reseated and area around manhole disinfected.	SDCC	Yes	Y
Overflow to private gardens	4th Dec 2015- foul drains overflowed in gardens.	Foul sewer choke.	1	Choke was cleared and gardens cleaned.	SDCC	Yes	Y
Overflow to surface water system	Lynches Lane Drainage Pumping station malfunctioned intermittently from 28 - 31/01/2015.	Pumps choked with debris.	1	One Pump was unblocked and the other sent away for repair.	SDCC	Yes	Y

Table 3.5.2b - Summary of Overall Incidents

Number of Incidents in 2015	18
Number of Incidents reported to the EPA via EDEN in 2015	13
Explanation of any discrepancies between the two numbers above	This arose due to changes in staffing arrangements. Irish Water are introducing an Incident Reporting process which will ensure incidents are reported as required.

Fingal County Council Functional Area

Table 3.5.1c - Summary of Incidents

Incident Type	Incident Description	Cause	No. of Incidents	Corrective Action	Authorities Contacted	Reported to EPA (Yes/No)	Closed (Y/N)
SWO	Portmarnock Bridge PS overflowed.	Pump trip	1	Pumps re-set	Irish Water, Inland Fisheries, Dept of Agriculture	Yes	Y
SWO	Portmarnock Bridge PS overflowed.	Pump trip due to electrical fault	1	Electrical fault rectified	Irish Water, Inland Fisheries, Dept of Agriculture	Yes	Y
SWO	Portmarnock Bridge PS overflowed.	Pump tripped	1	Pump lifted and unblocked	Irish Water, Inland Fisheries, Dept of Agriculture	Yes	Y
SWO	Portmarnock Bridge PS	Pump tripped	1	Pump re-set	Irish Water, Inland Fisheries, Dept of	Yes	Y

Incident Type	Incident Description	Cause	No. of Incidents	Corrective Action	Authorities Contacted	Reported to EPA (Yes/No)	Closed (Y/N)
	overflowed.				Agriculture		
Plant Failure	Santry PS overflowed.	Pumps failed	1	Pump re-set	Irish Water, Inland Fisheries, Dept of Agriculture	Yes	Y
Plant Failure	Santry PS overflowed.	Pumps failed	1	Pump re-set	Irish Water, Inland Fisheries, Dept of Agriculture	Yes	Y
SWO	Portmarnock Strand PS overflowed.	Heavy rainfall	1	None possible	BIM, FSAI, MI, SFPA, Inland Fisheries, Dept of Agriculture, FCC, IW	Yes	Y
SWO	Portmarnock Strand PS overflowed.	Heavy rainfall/pump failure	1	Pumps re-set	BIM, FSAI, MI,SFPA, Inland Fisheries, Dept of Agriculture, FCC, IW	Yes	Y
SWO	Portmarnock Strand PS overflowed.	Power failure on main grid	1	None possible	BIM, FSAI, MI, SFPA, Inland Fisheries, Dept of Agriculture, FCC, IW	Yes	Y
SWO	Portmarnock Strand PS overflowed.	Heavy rainfall	1	None possible	BIM, FSAI, MI, SFPA, Inland Fisheries, Dept of Agriculture, FCC, IW	Yes	Y
Power Failure	Mayne River PS overflowed.	Power failure on main grid	1	None possible	Inland Fisheries, Dept of Agriculture, FCC, IW	Yes	Y
SWO	Portmarnock Strand PS overflowed.	Power failure on main grid	1	None possible	BIM, FSAI, MI, SFPA, Inland Fisheries, Dept of	Yes	Y

Incident Type	Incident Description	Cause	No. of Incidents	Corrective Action	Authorities Contacted	Reported to EPA (Yes/No)	Closed (Y/N)
					Agriculture, FCC, IW		
SWO	Portmarnock Strand PS overflowed.	Power failure on main grid	1	None possible	BIM, FSAI, MI, SFPA, Inland Fisheries, Dept of Agriculture, FCC, IW	Yes	Y
SWO	Portmarnock Strand PS overflowed.	Power failure on main grid	1	None possible	BIM, FSAI, MI, SFPA, Inland Fisheries, Dept of Agriculture, FCC, IW	Yes	Y

Table 3.5.2c- Summary of Overall Incidents

Number of Incidents in 2015	14
Number of Incidents reported to the EPA via EDEN in 2015	14
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 (Y/N)	Corrective Action	Authorities Contacted Note 1	Reported to EPA (Yes/No)	Closed (Y/N)
Emergency Overflow Activation	Operation of both Short Long Sea Overflows at the West Pier Pump Station	Very Heavy Rain	8	Y	None	None	Yes	Y
Emergency Overflow Activation	Operation of the Long Sea Overflow only at the West Pier Pump Station	Heavy Rain	3	Y	None	None	Yes	Y

Table 3.5.2d - Summary of Overall Incidents

Number of Incidents in 2015	32 in Total 11 at the West pier. Estimated 1 no. at DLRCC/B5/009 and estimated 20 at DLRCC/B5/017 See Table in Section 4.1 for further details.
Number of Incidents reported to the EPA via EDEN in 2015	11 No. All West Pier Pump Station incidents reported.
Explanation of any discrepancies between the two numbers above	DLRCC/B5/009 and DLRCC/B5/017 are not monitored. Figures are estimates.

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	Corrective Action	Authorities Contacted. Note 1	Reported to EPA (Yes/No)	Closed (Y/N)
Overflow to River Broadmeadow	Overflow from Castle Street Pumping Station due to break down of forward feed pumps. 09/06/15	Break down of forward feed pumps.	1	This pumping station sump has since been desludged and cleaned out, hence removing the further risk of the forward feed pumps tripping out. Meath County Council will closely monitor the pumping station sump and clean out the sump again as required.	EPA and Inland Fisheries	Yes	Y
Overflow to River Broadmeadow	Overflow from Castle Street Pumping Station due to power cut to forward feed pumps. 31/08/15	Break down of forward feed pumps.	1	Power failure and insufficient storm tank storage capacity ultimately led to this accidental uncontrolled release to waters. The storm tank capacity is effected by malfunctioning return valves between the storm and foul sump which requires repair. The repair of these valves is currently been sent out for tender.	EPA and Inland Fisheries	Yes	Y
Overflow to River	The forward feed pumps at	Power loss to forward	1	Pumps were fixed by fitters. Pumps put back into operation.	EPA and Inland Fisheries	Yes	Y

Incident Type (e.g. Non-compliance, Emission, spillage, pollution incident)	Incident Description	Cause	No. of Incidents	Corrective Action	Authorities Contacted. Note 1	Reported to EPA (Yes/No)	Closed (Y/N)
Broadmeadow	Ratoath pumping station lost power causing a subsequent accidental release to waters.	feed pumps					
Overflow to River Broadmeadow	Uncontrolled release of sewage effluent to waters from Millennium Park Pumping Station Ashbourne Pump No.1 : the float switch developed a fault, Pump No.2 : blocked with rags in the sump, Pump No 3 had tripped out, no	Pump failure due to power loss.	1	Pumps brought back into operation. Electricians and EMR attended site with the caretaker to go through all the alarms and SCADA to ensure that all are working as they should as there were issues with them following the move earlier on this year from the Broadwin system to Ignition.	EPA and Inland Fisheries	Yes	Y

Incident Type (e.g. Non-compliance, Emission, spillage, pollution incident)	Incident Description	Cause	No. of Incidents	Corrective Action	Authorities Contacted. Note 1	Reported to EPA (Yes/No)	Closed (Y/N)
	cause known						
Overflow to River Broadmeadow	Ashbourne/Ratoath Pumping stations failed which lead to a storm water overflow to the adjoining waters once the storm tanks had filled up. The Kilbride pumping station also failed on Monday the 14th of September 2015.	Plant or equipment breakdown	1	Pumps were fixed by fitters. Pumps put back into operation.	EPA and Inland Fisheries	Yes	Y
Overflow to River Broadmeadow	Accidental discharge of sewage to waters from Ratoath Pumping Station. During	Heavy Rainfall	1	Assess effect of discharge on receiving waters.	EPA and Inland Fisheries	Yes	Y

Incident Type (e.g. Non-compliance, Emission, spillage, pollution incident)	Incident Description	Cause	No. of Incidents	Corrective Action	Authorities Contacted. Note 1	Reported to EPA (Yes/No)	Closed (Y/N)
	the weekend of 6th December high rain fall was recorded in the area. Due to the high volume of intake flows to the plant, the plant was unable to cope with the volumes and therefore overflowed to the river.						
Overflow to River Broadmeadow	Accidental discharge of sewage to waters from Ashbourne (Deer Park Pumping Station). During the weekend of 6th December high rain fall	Heavy Rainfall	1	Assess effect of discharge on receiving waters.	EPA and Inland Fisheries	Yes	Y

Incident Type (e.g. Non-compliance, Emission, spillage, pollution incident)	Incident Description	Cause	No. of Incidents	Corrective Action	Authorities Contacted. Note 1	Reported to EPA (Yes/No)	Closed (Y/N)
	was recorded in the area. Due to the high volume of intake flows to the plant, the plant was unable to cope with the volumes and therefore overflowed to the river.						

Table 3.5.2e - Summary of Overall Incidents

Number of Incidents in 2015	7
Number of Incidents reported to the EPA via EDEN in 2015	7
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/year	% of load to WWTP	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? (Y/N)
Domestic /Septic Tank Sludge	N/A	N/A	N/A	Y	N	Y
Industrial / Commercial Sludge	47,134	N/A	0.031% volume	Y	Y	Y
Landfill Leachate (delivered by tanker)	23,273	N/A	0.015% volume	Y	Y	Y
Landfill Leachate (delivered by sewer network) Dunsink Civic Amenity Fingal Co.Co.	157,106	N/A	0.102% volume	Y	Y (WMA Consent)	N
Other (specify)	N/A					

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 therefore already reported in S.2.1 *Influent Monitoring Summary*, then 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 4.2.1a are shown below.

Actual data for columns 5 (no. time activated), 6 (total volume discharged in m^3) and 7 (total volume discharged in PE) in Table 4.1.1a are not available for Dublin City Council. These data have been estimated by combining information contained within the Greater Dublin Strategic Drainage Study (GDSDS) with an analysis of discharge from a single storm water overflow during a major storm event. The GDSDS was never intended to provide the level of detail required to complete Table 4.1.1a and is, therefore, unreliable.

Accurate data for Table 4.1.1a can only be obtained through a comprehensive study of individual storm water overflows. The study should determine the following:

- Frequency of overflow
- Volume discharge in each overflow episode
- An assessment of the quality of the effluent discharged

Table 4.1.1a Storm water overflow identification and assessment summary table

SWO Code	Grid Reference		Included in S.4 of WWDL	DECLG Assessment Criteria				No. of Times Activated in 2015	Total Volume Discharged in 2015 (m^3)	Total Volume Discharged in 2015 (PE)	Measured /Estimated	
PT_CD	EASTING	NORTHING		Q1	Q2	Q3	Q4		Volume Emitted			STC25 Ref
CSO186DCC	317881	232507	Y	Yes*	Yes*	Yes*	No	53	521,299	1,338,001	E	SO17328507
CSO88DCC	317683	234884	Y	Yes*	Yes*	Yes*	No	53	394,401	1,012,296	E	SO17346807
CSO180DCC	318106.6	232850	Y	Yes*	Yes*	Yes*	No	53	325,145	834,539	E	SO18321802
CSO171DCC	317550	232447	Y	Yes*	Yes*	Yes*	No	53	284,186	729,411	E	SO17325401
CSO36DCC	317234	234294	Y	Yes*	Yes*	Yes*	No	53	237,469	609,504	E	SO17342203
CSO176DCC	317639	232519	Y	Yes*	Yes*	Yes*	No	53	196,982	505,587	E	SO17326503
CSO168DCC	318139	233413.1	Y	Yes*	Yes*	Yes*	No	53	194,860	500,141	E	SO18331407
CSO156DCC	322127.4	237600.7	Y	Yes*	Yes*	Yes*	No	53	163,715	420,202	E	SO22371604
CSO49DCC	313699	234415	Y	Yes*	Yes*	Yes*	No	53	156,055	400,541	E	SO13346404
CSO84DCC	315139	234124	Y	Yes*	Yes*	Yes*	No	52	126,886	325,674	E	SO15341109
CSO47DCC	315278	234216	Y	Yes*	Yes*	Yes*	No	53	106,797	274,112	E	SO15342204
CSO51DCC	315102	233451	Y	Yes*	Yes*	Yes*	No	53	105,743	271,407	E	SO15331433
CSO69DCC	310913	233836	Y	Yes*	Yes*	Yes*	No	12	96,482	247,637	E	SO10339801
CSO184DCC	317824	232486	Y	Yes*	Yes*	Yes*	No	52	96,123	246,716	E	SO17328405
CSO34DCC	316933	235409	Y	Yes*	Yes*	Yes*	No	53	86,542	222,124	E	SO16359411
CSO1DCC	314772	234232	Y	Yes*	Yes*	Yes*	No	53	77,274	198,337	E	SO14347206
CSO118DCC	316968	236195	Y	Yes*	Yes*	Yes*	No	Unknown	76,157	195,470	E	SO16369104
CSO48DCC	315133	234184	Y	Yes*	Yes*	Yes*	No	52	61,269	157,257	E	SO15341117
CSO33DCC	317191	234633	Y	Yes*	Yes*	Yes*	No	53	55,865	143,387	E	SO17341601
CSO103DCC	310784.4	232217.7	Y	Yes*	Yes*	Yes*	No	53	53,954	138,482	E	SO10327207
CSO128DCC	321115.9	237636.4	Y	Yes*	Yes*	Yes*	No	53	52,398	134,488	E	SO21371602
CSO188DCC	314450.6	230169.9	Y	Yes*	Yes*	Yes*	No	53	51,707	132,715	E	SO14304105
CSO72DCC	312285.9	233530.1	Y	Yes*	Yes*	Yes*	No	1	48,727	125,066	E	SO12332506
CSO102DCC	310740.7	232269.8	Y	Yes*	Yes*	Yes*	No	N/A	47,762	122,589	E	SO10327205
CSO89DCC	317775	234427	Y	Yes*	Yes*	Yes*	No	53	40,352	103,570	E	SO17347411

SWO Code	Grid Reference		Included in S.4 of WWDL	DECLG Assessment Criteria				No. of Times Activated in 2015	Total Volume Discharged in 2015 (m^3)	Total Volume Discharged in 2015 (PE)	Measured /Estimated	
PT_CD	EASTING	NORTHING		Q1	Q2	Q3	Q4		Volume Emitted			STC25 Ref
CSO14DCC	316849	234337	Y	Yes*	Yes*	Yes*	No	52	37,777	96,961	E	SO16348302
CSO153DCC	313415	238521	Y	Yes*	Yes*	Yes*	No	Unknown	34,201	87,783	E	SO13383501
CSO164DCC	323610.5	238743.9	Y	Yes*	Yes*	Yes*	No	Unknown	30,268	77,688	E	SO23386705
CSO173DCC	317827	231358	Y	Yes*	Yes*	Yes*	No	0	23,522	60,373	E	SO17318310
CSO80DCC	314205	234270	Y	Yes*	Yes*	Yes*	No	24	22,269	57,157	E	SO14342204
CSO5DCC	317054	235998	Y	Yes*	Yes*	Yes*	No	24	21,414	54,963	E	SO17350908
CSO11DCC	316107	234398	Y	Yes*	Yes*	Yes*	No	52	20,870	53,566	E	SO16341310
CSO73DCC	317455	235389	Y	Yes*	Yes*	Yes*	No	52	20,351	52,234	E	SO17354303
CSO2DCC	314663	234263	Y	Yes*	Yes*	Yes*	No	24	19,504	50,060	E	SO14346214
CSO181DCC	315892	232164	Y	Yes*	Yes*	Yes*	No	Unknown	18,722	48,053	E	SO15328193
CSO152DCC	321003.5	236216.9	Y	Yes*	Yes*	Yes*	No	Unknown	18,664	47,904	E	SO2130202
CSO169DCC	317909.4	232497.3	Y	Yes*	Yes*	Yes*	No	Unknown	17,822	45,743	E	SO17329403
CSO112DCC	315347	237184.2	Y	Yes*	Yes*	Yes*	No	Unknown	17,082	43,844	E	SO15373102
CSO134DCC	318903.1	237248.1	Y	Yes*	Yes*	Yes*	No	Unknown	16,565	42,517	E	SO18378205
CSO66DCC	313731	234212	Y	Yes*	Yes*	Yes*	No	24	15,862	40,712	E	SO13347206
CSO83DCC	313953	234344	Y	Yes*	Yes*	Yes*	No	24	15,850	40,682	E	SO13349307
CSO81DCC	317303	235416	Y	Yes*	Yes*	Yes*	No	52	15,783	40,510	E	SO17353415
CSO142DCC	323128.6	238498.6	Y	Yes*	Yes*	Yes*	No	53	14,623	37,532	E	SO23381414
CSO177DCC	314416.2	231520.7	Y	Yes*	Yes*	Yes*	No	52	13,220	33,931	E	SO14314503
CSO62DCC	317394	234266	Y	Yes*	Yes*	Yes*	No	24	13,208	33,901	E	SO17343203
CSO93DCC	319319	231456	Y	Yes*	Yes*	Yes*	No	24	13,075	33,559	E	SO19313502
CSO94DCC	310380.3	232486.3	Y	Yes*	Yes*	Yes*	No	Unknown	12,894	33,095	E	SO10323401
CSO7DCC	314962	233226	Y	Yes*	Yes*	Yes*	No	53	12,300	31,570	E	SO14339210
CSO15DCC	312958	234298	Y	Yes*	Yes*	Yes*	No	Unknown	9,437	24,222	E	SO12349203
CSO125DCC	318032	236337	Y	Yes*	Yes*	Yes*	No	Unknown	8,827	22,656	E	SO18360302
CSO147DCC	322791	238174.1	Y	Yes*	Yes*	Yes*	No	52	8,765	22,497	E	SO22387104
CSO190DCC	317176	230639	Y	Yes*	Yes*	Yes*	No	Unknown	8,315	21,342	E	SO17301604

SWO Code	Grid Reference		Included in S.4 of WWDL	DECLG Assessment Criteria				No. of Times Activated in 2015	Total Volume Discharged in 2015 (m^3)	Total Volume Discharged in 2015 (PE)	Measured /Estimated	
PT_CD	EASTING	NORTHING		Q1	Q2	Q3	Q4		Volume Emitted			STC25 Ref
CSO65DCC	313820	234224	Y	Yes*	Yes*	Yes*	No	24	8,095	20,777	E	SO13348206
CSO60DCC	315398	233788	Y	Yes*	Yes*	Yes*	No	53	7,698	19,758	E	SO15333701
CSO119DCC	317476	236267	Y	Yes*	Yes*	Yes*	No	Unknown	7,618	19,553	E	SO17364203
CSO87DCC	316865	234654	Y	Yes*	Yes*	Yes*	No	12	7,568	19,425	E	SO16348607
CSO35DCC	316885	233670	Y	Yes*	Yes*	Yes*	No	24	6,895	17,697	E	SO16338601
CSO10DCC	313533	233809	Y	Yes*	Yes*	Yes*	No	Unknown	6,890	17,684	E	SO13335804
CSO182DCC	314819.9	232376.7	Y	Yes*	Yes*	Yes*	No	12	5,838	14,984	E	SO14328311
CSO71DCC	310510	234079	Y	Yes*	Yes*	Yes*	No	24	5,315	13,642	E	SO10345001
CSO32DCC	317182	234623	Y	Yes*	Yes*	Yes*	No	12	5,313	13,637	E	SO17341607
CSO26DCC	312632.1	233616.3	Y	Yes*	Yes*	Yes*	No	52	5,241	13,452	E	SO12336604
CSO140DCC	322305.9	241250.1	Y	Yes*	Yes*	Yes*	No	Unknown	5,047	12,954	E	SO22413204
CSO107DCC	318741	232076	Y	Yes*	Yes*	Yes*	No	52	4,946	12,695	E	SO18327003
CSO46DCC	315717	234317	Y	Yes*	Yes*	Yes*	No	12	4,911	12,605	E	SO15347306
CSO29DCC	315417	234244	Y	Yes*	Yes*	Yes*	No	24	4,680	12,012	E	SO15344205
CSO23DCC	316108	234474	Y	Yes*	Yes*	Yes*	No	4	3,561	9,140	E	SO16341406
CSO141DCC	321150.1	238284.2	Y	Yes*	Yes*	Yes*	No	24	3,345	8,586	E	SO21381202
CSO146DCC	315371.4	237860.2	Y	Yes*	Yes*	Yes*	No	6	3,287	8,437	E	SO15373801
CSO76DCC	311756.9	233212.2	Y	Yes*	Yes*	Yes*	No	52	3,272	8,398	E	SO11337206
CSO161DCC	315285	239290	Y	Yes*	Yes*	Yes*	No	Unknown	3,182	8,167	E	SO15394203
CSO45DCC	315551	234270	Y	Yes*	Yes*	Yes*	No	12	2,909	7,466	E	SO15345206
CSO30DCC	312009.9	233526.7	Y	Yes*	Yes*	Yes*	No	1	2,863	7,348	E	SO12330604
CSO19DCC	316857	236017	Y	Yes*	Yes*	Yes*	No	12	2,733	7,015	E	SO16368009
CSO97DCC	319373	230608	Y	Yes*	Yes*	Yes*	No	12	2,566	6,586	E	SO19303601
CSO178DCC	314413.1	231520.5	Y	Yes*	Yes*	Yes*	No	12	2,447	6,281	E	SO14314501
CSO25DCC	314580	234294	Y	Yes*	Yes*	Yes*	No	12	2,263	5,808	E	SO14345210
CSO28DCC	313210	233631	Y	Yes*	Yes*	Yes*	No	4	2,117	5,434	E	SO13332616
CSO50DCC	315113.2	233446	Y	Yes*	Yes*	Yes*	No	6	2,088	5,359	E	SO15331414

SWO Code	Grid Reference		Included in S.4 of WWDL	DECLG Assessment Criteria				No. of Times Activated in 2015	Total Volume Discharged in 2015 (m^3)	Total Volume Discharged in 2015 (PE)	Measured /Estimated	
PT_CD	EASTING	NORTHING		Q1	Q2	Q3	Q4		Volume Emitted			STC25 Ref
CSO167DCC	317890	231357	Y	Yes*	Yes*	Yes*	No	6	1,990	5,108	E	SO17318301
CSO22DCC	311515.7	232829.5	Y	Yes*	Yes*	Yes*	No	N/A	1,972	5,061	E	SO11325805
CSO27DCC	315533	234142	Y	Yes*	Yes*	Yes*	No	24	1,792	4,599	E	SO15345113
CSO124DCC	317564	236640	Y	Yes*	Yes*	Yes*	No	Unknown	1,486	3,814	E	SO17365601
CSO21DCC	315487	234037	Y	Yes*	Yes*	Yes*	No	Unknown	1,477	3,791	E	SO15344004
CSO187DCC	316306	230383	Y	Yes*	Yes*	Yes*	No	6	1,415	3,632	E	SO16303302
CSO150DCC	321216.2	238351.5	Y	Yes*	Yes*	Yes*	No	24	1,185	3,042	E	SO21382304
CSO136DCC	318558.7	237698.9	Y	Yes*	Yes*	Yes*	No	Unknown	1,145	2,939	E	SO18375603
CSO170DCC	317699	231474	Y	Yes*	Yes*	Yes*	No	12	1,092	2,803	E	SO17316403
CSO82DCC	317299.2	235411.1	Y	Yes*	Yes*	Yes*	No	52	1,060	2,721	E	SO17353415
CSO4DCC	317065	235991	Y	Yes*	Yes*	Yes*	No	24	1,052	2,700	E	SO17350906
CSO114DCC	315933.2	237458.9	Y	Yes*	Yes*	Yes*	No	Unknown	1,007	2,585	E	SO15379403
CSO120DCC	317288	237032	Y	Yes*	Yes*	Yes*	No	Unknown	966	2,479	E	SO17372001
CSO18DCC	316852	236022	Y	Yes*	Yes*	Yes*	No	4	945	2,426	E	SO16368001
CSO189DCC	316956	230477	Y	Yes*	Yes*	Yes*	No	N/A	898	2,305	E	
CSO131DCC	320166.1	237863.4	Y	Yes*	Yes*	Yes*	No	52	889	2,282	E	SO20371802
CSO75DCC	312544.7	233667.4	Y	Yes*	Yes*	Yes*	No	12	865	2,220	E	SO12335605
CSO63DCC	314704	234412	Y	Yes*	Yes*	Yes*	No	4	848	2,177	E	SO14347406
CSO8DCC	316161	236672	Y	Yes*	Yes*	Yes*	No	1	704	1,807	E	SO16361609
CSO175DCC	317743	231303	Y	Yes*	Yes*	Yes*	No	6	697	1,789	E	SO17317302
CSO74DCC	312533.3	233579.4	Y	Yes*	Yes*	Yes*	No	Unknown	651	1,671	E	SO12335506
CSO151DCC	313201	236289	Y	Yes*	Yes*	Yes*	No	NA	549	1,409	E	SO13362202
CSO70DCC	310244.3	234243.1	Y	Yes*	Yes*	Yes*	No	4	521	1,337	E	SO10342201
CSO139DCC	313685	238438	Y	Yes*	Yes*	Yes*	No	53	427	1,096	E	SO13386401
CSO101DCC	319921	230594	Y	Yes*	Yes*	Yes*	No	6	369	947	E	SO19309504
CSO90DCC	311588.6	231730.6	Y	Yes*	Yes*	Yes*	No	Unknown	247	634	E	SO11315707
CSO98DCC	319373	230608	Y	Yes*	Yes*	Yes*	No	Unknown	236	606	E	SO19303603

SWO Code	Grid Reference		Included in S.4 of WWDL	DECLG Assessment Criteria				No. of Times Activated in 2015	Total Volume Discharged in 2015 (m^3)	Total Volume Discharged in 2015 (PE)	Measured /Estimated	
PT_CD	EASTING	NORTHING		Q1	Q2	Q3	Q4		Volume Emitted			STC25 Ref
CSO126DCC	319927	235869	Y	Yes*	Yes*	Yes*	No	Unknown	223	572	E	SO19359806
CSO68DCC	310354.6	234122	Y	Yes*	Yes*	Yes*	No	2	190	488	E	SO10343105
CSO78DCC	314686	234201	Y	Yes*	Yes*	Yes*	No	2	153	393	E	SO14346205
CSO197DCC	316297	237050	Y	Yes*	Yes*	Yes*	No	Unknown	120	308	E	SO16372001
CSO24DCC	314430	234315	Y	Yes*	Yes*	Yes*	No	2	119	305	E	SO14344316
CSO43DCC	313387	233674	Y	Yes*	Yes*	Yes*	No	Unknown	97	249	E	SO13333602
CSO6DCC	314959	233223	Y	Yes*	Yes*	Yes*	No	52	82	210	E	SO14339210
CSO130DCC	316652	238118	Y	Yes*	Yes*	Yes*	No	Unknown	72	185	E	SO16383101
CSO31DCC	315899	236808.9	Y	Yes*	Yes*	Yes*	No	Unknown	64	164	E	SO15368802
CSO135DCC	313840.1	237483.7	Y	Yes*	Yes*	Yes*	No	4	47	121	E	SO13378401
CSO61DCC	315322	233808	Y	Yes*	Yes*	Yes*	No	4	41	105	E	SO15333801
CSO129DCC	314692.1	238454	Y	Yes*	Yes*	Yes*	No	52	37	95	E	SO14386402
CSO20DCC	313539.2	233798.2	Y	Yes*	Yes*	Yes*	No	1	30	77	E	SO13335709
CSO38DCC	312689.5	234345.9	Y	Yes*	Yes*	Yes*	No	Unknown	7	18	E	SO12346305
CSO13DCC	314893	234204	Y	Yes*	Yes*	Yes*	No	1	6	15	E	SO14348209
CSO9DCC	316043	236686	Y	Yes*	Yes*	Yes*	No	2	6	15	E	SO16360601
CSO157DCC	313270	238784	Y	Yes*	Yes*	Yes*	No	24	5	13	E	SO13382701
CSO100DCC	313420.7	232720.8	Y	No**	No**	No**	No	Unknown	0	0	E	SO13324701
CSO104DCC	313402.8	232802.7	Y	No**	No**	No**	No	1	0	0	E	SO13324801
CSO105DCC	317843	233804	Y	No**	No**	No**	No	1	0	0	E	SO17338807
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
CSO12DCC	316024	234360	Y	No**	No**	No**	No	1	0	0	E	SO16340308
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

SWO Code	Grid Reference		Included in S.4 of WWDL	DECLG Assessment Criteria				No. of Times Activated in 2015	Total Volume Discharged in 2015 (m^3)	Total Volume Discharged in 2015 (PE)	Measured /Estimated	
PT_CD	EASTING	NORTHING		Q1	Q2	Q3	Q4		Volume Emitted			STC25 Ref
CSO144DCC	320761.3	238396.4	Y	No**	No**	No**	No	6	0	0	E	SO20387301
CSO149DCC	313240.1	238953.6	Y	No**	No**	No**	No	4	0	0	E	SO13381805
CSO154DCC	322129.6	239548.4	Y	No**	No**	No**	No	1	0	0	E	SO22391501
CSO155DCC	321528.6	237973.6	Y	No**	No**	No**	No	1	0	0	E	SO21375901
CSO158DCC	323132	241110	Y	No**	No**	No**	No	Unknown	0	0	E	?
CSO160DCC	313720.8	237668.9	Y	No**	No**	No**	No	Unknown	0	0	E	SO13377607
CSO162DCC	321555	235735.1	Y	No**	No**	No**	No	Unknown	0	0	E	SO21355703
CSO163DCC	314105.8	237565	Y	No**	No**	No**	No	Unknown	0	0	E	SO14371501
CSO165DCC	320130	235782.3	Y	No**	No**	No**	No	Unknown	0	0	E	SO20351704
CSO166DCC	317562.2	230766.8	Y	No**	No**	No**	No	Unknown	0	0	E	SO17305702
CSO16DCC	312966	234298	Y	No**	No**	No**	No	0	0	0	E	SO12349202
CSO174DCC	317852	231363	Y	No**	No**	No**	No	0	0	0	E	SO17318310
CSO179DCC	318131.7	233429.2	Y	No**	No**	No**	No	Unknown	0	0	E	SO18331410
CSO17DCC	312966	234298	Y	No**	No**	No**	No	1	0	0	E	SO12349202
CSO183DCC	316789.6	230086.1	Y	No**	No**	No**	No	N/A	0	0	E	Located in South Dublin County Council
CSO185DCC	316609.1	232018	Y	No**	No**	No**	No	Unknown	0	0	E	SO16325007
CSO195DCC	314827.7	229636.6	Y	No**	No**	No**	No	N/A	0	0	E	Located in South Dublin County Council
CSO196DCC	314816.5	229635.4	Y	No**	No**	No**	No	N/A	0	0	E	Located in South Dublin County Council
CSO37DCC	312015.3	233664.8	Y	No**	No**	No**	No	1	0	0	E	SO12330604
CSO3DCC	315862	234379	Y	No**	No**	No**	No	1	0	0	E	SO15348308
CSO40DCC	309727.8	234677.8	Y	No**	No**	No**	No	1	0	0	E	SO09347603

SWO Code	Grid Reference		Included in S.4 of WWDL	DECLG Assessment Criteria				No. of Times Activated in 2015	Total Volume Discharged in 2015 (m^3)	Total Volume Discharged in 2015 (PE)	Measured /Estimated	
PT_CD	EASTING	NORTHING		Q1	Q2	Q3	Q4		Volume Emitted			STC25 Ref
CSO41DCC	314987	234131	Y	No**	No**	No**	No	1	0	0	E	SO14349101
CSO42DCC	315977.8	236911.8	Y	No**	No**	No**	No	Unknown	0	0	E	SO15369902
CSO44DCC	316904	236073	Y	No**	No**	No**	No	1	0	0	E	SO16369001
CSO52DCC	317843	233804	Y	No**	No**	No**	No	1	0	0	E	SO17338807
CSO53DCC	309604.2	234375.7	Y	No**	No**	No**	No	4	0	0	E	SO09346312
CSO54DCC	312990	233670	Y	No**	No**	No**	No	1	0	0	E	SO12339609
CSO55DCC	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
CSO57DCC	313022	233676	Y	No**	No**	No**	No	1	0	0	E	SO13330605
CSO58DCC	313064	233680	Y	No**	No**	No**	No	1	0	0	E	SO13330604
CSO59DCC	314244	234324	Y	No**	No**	No**	No	1	0	0	E	SO14342308
CSO64DCC	314700	234516	Y	No**	No**	No**	No	Unknown	0	0	E	SO14347510
CSO67DCC	310350.4	234127.5	Y	No**	No**	No**	No	1	0	0	E	SO10343107
CSO77DCC	314492	234246	Y	No**	No**	No**	No	1	0	0	E	SO14344202
CSO79DCC	314322	234267	Y	No**	No**	No**	No	1	0	0	E	SO14343207
CSO85DCC	315136	234112	Y	No**	No**	No**	No	1	0	0	E	SO15341103
CSO91DCC	311397.9	230549.3	Y	No**	No**	No**	No	Unknown	0	0	E	??
CSO92DCC	313440	232440.5	Y	No**	No**	No**	No	Unknown	0	0	E	SO13324405
CSO95DCC	318879.5	233947.3	Y	No**	No**	No**	No	Unknown	0	0	E	SO18338911
CSO96DCC	313724.7	232628.4	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	318105.2	232849.3	Y	Unknown	Unknown	Unknown	Unknown	52	Unknown	Unknown	E	SO18321802
Not Applicable	317325.5	233388.9	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO17333303
Not Applicable	318249	230834	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO18302806

SWO Code	Grid Reference		Included in S.4 of WWDL	DECLG Assessment Criteria				No. of Times Activated in 2015	Total Volume Discharged in 2015 (m^3)	Total Volume Discharged in 2015 (PE)	Measured /Estimated	
PT_CD	EASTING	NORTHING		Q1	Q2	Q3	Q4		Volume Emitted			STC25 Ref
Not Applicable	317785	231204	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO17317203
Not Applicable	311914.5	236281.4	Y	Unknown	Unknown	Unknown	Unknown	4	Unknown	Unknown	E	SO11369201
Not Applicable	315273	237272	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO15372202
Not Applicable	318892	237253.9	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO18378205
Not Applicable	319050.8	237218.1	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	321437.3	236402.3	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO21364410
Not Applicable	319242.3	235931.2	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO19352902
Not Applicable	321196.1	236118.1	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO21361101
Not Applicable	319347.5	237236.5	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO19373202
Not Applicable	316236.7	236868.9	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO16362801
Not Applicable	317481.9	236222.9	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO17364201
Not Applicable	317526.8	236396.9	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO17365302
Not Applicable	317370.9	235907.4	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO17353903

SWO Code	Grid Reference		Included in S.4 of WWDL	DECLG Assessment Criteria				No. of Times Activated in 2015	Total Volume Discharged in 2015 (m^3)	Total Volume Discharged in 2015 (PE)	Measured /Estimated	
PT_CD	EASTING	NORTHING		Q1	Q2	Q3	Q4		Volume Emitted			STC25 Ref
Not Applicable	317858.2	236890.9	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO17368804
Not Applicable	315674.1	237839.1	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO15376802
Not Applicable	320456.8	237749.2	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO20374701
Not Applicable	313857.4	233350.5	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO13338304
Not Applicable	322654	239351	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO22396301
Not Applicable	323086.7	239136	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO23390101
Not Applicable	313217	233706	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO13332705
Not Applicable	313840.1	237483.8	Y	Unknown	Unknown	Unknown	Unknown	4	Unknown	Unknown	E	SO13378401
Not Applicable	310277.9	234429.5	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO10342403
Not Applicable	313909	233340	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO13339307
Not Applicable	319443.8	237358.5	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO19374302
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	312535.8	235893.8	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO12355807

SWO Code	Grid Reference		Included in S.4 of WWDL	DECLG Assessment Criteria				No. of Times Activated in 2015	Total Volume Discharged in 2015 (m^3)	Total Volume Discharged in 2015 (PE)	Measured /Estimated	
PT_CD	EASTING	NORTHING		Q1	Q2	Q3	Q4		Volume Emitted			STC25 Ref
Not Applicable	317075	235588	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO17350508
Not Applicable	314608.7	237773.1	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO14376708
Not Applicable	312837.3	239706.2	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO12398709
Not Applicable	317274.9	236972.1	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	317083.4	240679	Y	Unknown	Unknown	Unknown	Unknown	N/A	Unknown	Unknown	E	In Fingal Co Co
Not Applicable	311497.2	233703.2	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO11334707
Not Applicable	320742.6	236300	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO20367301
Not Applicable	317338.7	236667.9	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	317235	235455	Y	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	E	SO17352412
Not Applicable	320291.7	236508.8	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	30	2,781,020	12,700,000	*E (using mean Influent BOD* of 274 mg/l)	**See Appendix 7.4.1**

SWO Code	Grid Reference		Included in S.4 of WWDL	DECLG Assessment Criteria				No. of Times Activated in 2015	Total Volume Discharged in 2015 (m^3)	Total Volume Discharged in 2015 (PE)	Measured /Estimated	
PT_CD	EASTING	NORTHING		Q1	Q2	Q3	Q4		Volume Emitted			STC25 Ref
				*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			
				**'No' on the basis of the modelled results.								

SWO Code	Grid Reference		Included in S.4 of WWDL	DECLG Assessment Criteria				No. of Times Activated in 2015	Total Volume Discharged in 2015 (m^3)	Total Volume Discharged in 2015 (PE)	Measured /Estimated	
PT_CD	EASTING	NORTHING		Q1	Q2	Q3	Q4		Volume Emitted			STC25 Ref
				Confirmation of results required by more detailed study.								

Table 4.1.2a Storm water overflow identification and assessment summary table

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 2015?	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

Refer to **Appendix 7.4** for Storm Water Overflow Assessment.

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 2015 (No. of events)	Total volume discharged in 2015 (m^3)	Total volume discharged in 2015 (P.E.)	Estimated /Measured data
SDCCPS01	702432X, 735066Y	Lucan Spa PS	Low	Yes	<5	No Data Available	No Data Available	E
SDCCPS02	703221X, 735072Y	Lucan Low Level PS	Low	Yes	0	No Data Available	No Data Available	E
SDCCPS03	703964X, 734515Y	Esker Lane PS	Low	Yes	0	No Data Available	No Data Available	E
SDCCPS04	707012X, 735193	Quarryvale PS	Low	Yes	0	No Data Available	No Data Available	E
SDCCPS05	708588X, 734325Y	Johnstown PS	Low	Yes	0	No Data Available	No Data Available	E
SDCCPS06	703073X, 732117Y	Grange Castle PS	Low	Yes	0	No Data Available	No Data Available	E
SDCCPS07	706856X, 732230Y	Ballymanagin PS	Low	Yes	0	No Data Available	No Data Available	E
SDCCPS08	700098X, 728983Y	Peamount PS	Low	Yes	0	No Data Available	No Data Available	E
SDCCPS09	701184X, 728875Y	Newcastle PS	Low	Yes	0	No Data Available	No Data Available	E
SDCCPS10	701532X, 727416Y	Tay Lane PS	Low	Yes	<5	No Data Available	No Data Available	E
SDCCPS11	712281X, 729622Y	Whitehall PS	Low	Yes	0	No Data Available	No Data Available	E
SDCCPS12	711483X, 728060Y	Spawell PS	Low	Yes	0	No Data Available	No Data Available	E
SDCCPS13	707631X, 735459Y	King's Hospital	Low	Yes	0	No Data Available	No Data Available	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 2015 (No. of events)	Total volume discharged in 2015 (m^3)	Total volume discharged in 2015 (P.E.)	Estimated /Measured data
		PS						
SDCCPS14	704673X, 732849Y	Lynches Lane PS	Low	Yes	1	No Data Available	No Data Available	E
SDCCPS15	704314X, 732587	Kishogue PS	Low	Yes	0	No Data Available	No Data Available	E
SDCCPS16	708002X, 730773Y	St Brigids PS	Low	Yes	0	No Data Available	No Data Available	E
SDCCPS17	707770X, 729780Y	Belgard PS	Low	Yes	0	No Data Available	No Data Available	E
SDCCPS18	705601X, 727665Y	Ard Mor PS	Low	Yes	0	No Data Available	No Data Available	E
SDCCPS19		College Drive	Low	Yes	0	No Data Available	No Data Available	E
SDCCPS20	712355X, 730596Y	Dangan Park PS	Low	Yes	0	No Data Available	No Data Available	E
SDCCPS21	701651X, 734384Y	Tobermacl ugg PS	Low	Yes	0	No Data Available	No Data Available	E
SDCCPS22		Adamstow n PS	Low	Yes	0	No Data Available	No Data Available	E
SDCCSN01		Lucan Siphon (Liffey) - St Eds Muncher	Low	Yes	<5	No Data Available	No Data Available	E
SDCCSN02		Templeog ue Siphon (Dodder)	Low	Yes	<5	No Data Available	No Data Available	E
SDCCSN03		Owendoh er Siphon	Low	Yes	<5	No Data Available	No Data Available	E
SDCCSN04		UCD (Belfield) Siphon	Low	Yes	<5	No Data Available	No Data Available	E
SDCCSN05		Ringsend Siphon	Low	Yes	<5	No Data Available	No Data Available	E
SDCCSN06		Kilvere	Low	Yes	<5	No Data Available	No Data Available	E
SDCCSW01 5		Milltown Overflow	Low	Yes	<5	No Data Available	No Data Available	E
SDCCSWO0 1		Perrystow n Tank	Low	Yes	<5	No Data Available	No Data Available	E
SDCCSWO0 2		Treepark Road	Low	Yes	<5	No Data Available	No Data Available	E
SDCCSWO0 3		Airton Road	Low	Yes	<5	No Data Available	No Data Available	E
SDCCSWO0 4		Avonmore Road	Low	Yes	<5	No Data Available	No Data Available	E
SDCCSWO0 5		Brookfield Cottage	Low	Yes	<5	No Data Available	No Data Available	E
SDCCSWO0		Harris	Low	Yes	<5	No Data	No Data	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 2015 (No. of events)	Total volume discharged in 2015 (m^3)	Total volume discharged in 2015 (P.E.)	Estimated /Measured data
6		Trucks				Available	Available	
SDCCSWO07		St Peter's Road	Low	Yes	<5	No Data Available	No Data Available	E
SDCCSWO08		Castle View Road	Low	Yes	<5	No Data Available	No Data Available	E
SDCCSWO09		Aylmer Road	Low	Yes	<5	No Data Available	No Data Available	E
SDCCSWO10		Kimmage Road West	Low	Yes	<5	No Data Available	No Data Available	E
SDCCSWO11		Springfield Avenue	Low	Yes	<5	No Data Available	No Data Available	E
SDCCSWO12		Loreto Terrace	Low	Yes	<5	No Data Available	No Data Available	E
SDCCSWO13		Oldcourt Manor	Low	Yes	<5	No Data Available	No Data Available	E
SDCCSWO14		Stewarts Hospital	Low	Yes	<5	No Data Available	No Data Available	E
SDCCSW016		Glenvara	Low	Yes	<5	No Data Available	No Data Available	E
SDCCSW017		Mount Carmel	Low	Yes	<5	No Data Available	No Data Available	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 2015?	Unknown
Is each SWO identified as non-compliant with DoEHLG Guidance included in the Programme of Improvements?	N/A
The SWO assessment includes the requirements of Schedule A3 & C3	N/A
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

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 2015 (No. of events)	Total volume discharged in 2015 (m^3)	Total volume discharged in 2015 (P.E.)	Estimated /Measured data
Fingal – SW21	317088E, 240688N	Yes	Not yet assessed	Not yet assessed	14	1120	Unknown	E
Fingal-SW22	318083E, 241519N	Yes	Not yet assessed	Not yet assessed	2	80	Unknown	E
Fingal-SW23	331227E, 241541N	Yes	Not yet assessed	Not yet assessed	0	0	0	E
Fingal-SW26	324686E, 240383N	Yes	Not yet assessed	Not yet assessed	1	100	Unknown	E
Fingal-SW27	324837E, 239149N	Yes	Not yet assessed	Not yet assessed	0	0	0	E
Fingal-SW32	324858E, 244368N	A3	Not yet assessed	Not yet assessed	17	Unknown	Unknown	E
Fingal SW33	323560E, 242484N	Yes	Not yet assessed	Not yet assessed	4	Unknown	Unknown	E
Fingal-SW34	323855E, 243158N	Yes	Not yet assessed	Not yet assessed	0	0	0	E
Fingal-SW35	323969E, 241503N	Yes	Not yet assessed	Not yet assessed	2	80	Unknown	E
Fingal-SW37	324179E, 240115N	Yes	Not yet assessed	Not yet assessed	0	0	0	E
Fingal – SW38	324387E, 239355N	Yes	Not yet assessed	Not yet assessed	0	0	0	E
Fingal-SW39	323228E. 239139N	Yes	Not yet assessed	Not yet assessed	0	0	0	E
Fingal-SW40	323086E, 239133N	Yes	Not yet assessed	Not yet assessed	0	0	0	E
Fingal-SW41	323299E, 238441N	Yes	Not yet assessed	Not yet assessed	0	0	0	E
Fingal-SW42	326312E, 238143N	Yes	Not yet assessed	Not yet assessed	0	0	0	E
Fingal-SW43	325886E, 239468N	Yes	Not yet assessed	Not yet assessed	0	0	0	E
Fingal-SW44	326155E, 239701N	Yes	Not yet assessed	Not yet assessed	0	0	0	E
Fingal-SW45	327347E, 239672N	Yes	Not yet assessed	Not yet assessed	0	0	0	E
Fingal-SW46	327789E, 239464N	Yes	Not yet assessed	Not yet assessed	0	0	0	E
Fingal-SW47	328391E, 239452N	Yes	Not yet assessed	Not yet assessed	0	0	0	E
Fingal-	328800E,	Yes	Not yet	Not yet	0	0	0	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 2015 (No. of events)	Total volume discharged in 2015 (m^3)	Total volume discharged in 2015 (P.E.)	Estimated /Measured data
SW48	239337N		assessed	assessed				
Fingal-SW49	328711E, 239308N	Yes	Not yet assessed	Not yet assessed	0	0	0	E
Fingal-SW50	306076E, 243269N	Yes	Not yet assessed	Not yet assessed	0	0	0	E
Fingal-SW51	308577E, 238545N	Yes	Not yet assessed	Not yet assessed	0	0	0	E
Fingal-SW52	308318E, 238766N	Yes	Not yet assessed	Not yet assessed	4	Unknown	Unknown	E
Fingal-SW53	309614E, 238262N	Yes	Not yet assessed	Not yet assessed	0	0	0	E
Fingal-SW54	308007E, 238729N	Yes	Not yet assessed	Not yet assessed	0	0	0	E
Fingal-SW55	308950E, 237336N	Yes	Not yet assessed	Not yet assessed	0	0	0	E
Fingal-SW56	306505E, 237441N	Yes	Not yet assessed	Not yet assessed	0	0	0	E

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)?	1,380 (based on table above)
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 2015?	0.1%
Is each SWO identified as non-compliant with DoEHLG Guidance included in the Programme of Improvements?	Not yet assessed
The SWO assessment includes the requirements of Schedule A3 & C3	Not yet 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 very comprehensive stormwater overflow identification report was submitted with the AER for 2011. Works to the SWOs carried out were listed in the subsequent AERs. In 2015, four of the CSOs were monitored, namely Maretimo Gardens, DLRCC/B5/R25, The Beeches Monkstown Valley DLRCC/B5/R27, Millmount Grove DLRCC/B5/R/013, Windsor Terrace DLRCC/B5/R28 (See **Appendix 7.4**).

A summary of the significance and operation for 2015 is included below.

Table 4.1.1d - SWO Identification and Inspection Summary Report

SWO Identification and Inspection Summary Table A

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 2015	Total Volume discharged in 2015(m^3)	Total Volume discharged in 2015 (PE)	Estimated/ Measured Data
DLRCC/B5/R/001	317559	230769	See Table B	Low	Yes	1	200	100	Estimated
DLRCC/B5/R/002	316935	230487	See Table B	Low	Yes	1	500	250	Estimated
DLRCC/B5/R/003	319999	230505	See Table B	Low	Yes	0	0	0	Estimated+ Measured
DLRCC/B5/R/004	319406	229488	See Table B	Low	Yes	6	600	300	Estimated+ Measured
DLRCC/B5/R/005	316783	230085	See Table B	Low	SDCC	SDCC	SDCC	SDCC	SDCC
DLRCC/B5/R/006	316689	230050	See Table B	Low	SDCC	SDCC	SDCC	SDCC	SDCC
DLRCC/B5/R/007	315556	229632	See Table B	Low	Yes	1	1,500	1,000	Estimated
DLRCC/B5/R/008	315434	229529	See Table B	Low	Yes	1	0	0	Estimated
DLRCC/B5/R/009	315522	229162	See Table B	Medium	Yes	1	50	50	Estimated
DLRCC/B5/R/010	316969	229568	See Table B	Low	Yes	1	50	25	Estimated
DLRCC/B5/R/011	316987	229386	See Table B	Low	Yes	1	100	50	Estimated
DLRCC/B5/R/012	316984	229359	See Table B	Low	Yes	1	50	25	Estimated
DLRCC/B5/R/013	316940	229706	See Table B	Low	Yes	1	150	75	Measured
DLRCC/B5/R/014	319938	230443	See Table B	Low	Yes	1	50	25	Estimated
DLRCC/B5/R/015	320280	230216	See Table B	Low	Yes	2	400	200	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 2015	Total Volume discharged in 2015(m^3)	Total Volume discharged in 2015 (PE)	Estimated/ Measured Data
DLRCC/B5/R/016	320631	230024	See Table B	Low	Yes	2	400	200	Estimated
DLRCC/B5/R/017	320837	229937	See Table B	Medium	Yes	20	4,500	2,000	Estimated
DLRCC/B5/R/018	321247	229477	See Table B	Low	Yes	0	0	0	Estimated
DLRCC/B5/R/019	321124	229395	See Table B	Low	Yes	0	0	0	Estimated
DLRCC/B5/R/020	321567	229551	See Table B	Low	Yes	0	0	0	Estimated
DLRCC/B5/R/021	319142	227929	See Table B	Low	Yes	4	400	200	Estimated
DLRCC/B5/R/022	320736	228221	See Table B	Low	Yes	0	0	0	Estimated
DLRCC/B5/R/023	321681	229019	See Table B	Low	Yes	1	100	50	Estimated
DLRCC/B5/R/024	321681	229019	See Table B	Low	Yes	1	100	50	Estimated
DLRCC/B5/R/025	321806	229409	See Table B	Low	Yes	0	0	0	Measured
DLRCC/B5/R/026	322033	228395	See Table B	Low	Yes	3	300	150	Estimated
DLRCC/B5/R/027	322573	228364	See Table B	Low	Yes	4	600	300	Measured+ Estimated
DLRCC/B5/R/028	324953	228312	See Table B	Low	No	20	80,000	40,000	Measured

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	Yes
DLRCC/B5/R/002	No	No	No	No	Yes
DLRCC/B5/R/003	No	No	No	No	Yes
DLRCC/B5/R/004	No	No	No	No	Yes
DLRCC/B5/R/005	No	No	No	No	Yes
DLRCC/B5/R/006	SDCC	SDCC	SDCC	SDCC	Unknown
DLRCC/B5/R/007	SDCC	SDCC	SDCC	SDCC	Unknown
DLRCC/B5/R/008	No	No	No	No	Yes
DLRCC/B5/R/009	Yes	Yes	No	No	No
DLRCC/B5/R/010	No	No	No	No	Yes
DLRCC/B5/R/011	No	No	No	No	Yes
DLRCC/B5/R/012	No	No	No	No	Yes
DLRCC/B5/R/013	No	No	No	No	Yes
DLRCC/B5/R/014	No	No	No	No	Yes
DLRCC/B5/R/015	No	No	No	No	Yes
DLRCC/B5/R/016	No	No	No	No	Yes
DLRCC/B5/R/017	No	Yes	No	No	No
DLRCC/B5/R/018	No	No	No	No	Yes
DLRCC/B5/R/019	No	No	No	No	Yes
DLRCC/B5/R/020	No	No	No	No	Yes
DLRCC/B5/R/021	No	No	No	No	Yes
DLRCC/B5/R/022	No	No	No	No	Yes
DLRCC/B5/R/023	No	No	No	No	Yes
DLRCC/B5/R/024	No	No	No	No	Yes
DLRCC/B5/R/025	No	No	No	No	Yes
DLRCC/B5/R/026	No	No	No	No	Yes
DLRCC/B5/R/027	No	No	No	No	Yes
DLRCC/B5/R/028	No	No	No	No	Yes

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)?	90,050
How much sewage was discharged via SWOs in the agglomeration in the year (p.e.)?	45,050
What % of the total volume of sewage generated in the agglomeration was discharged via SWOs in the agglomeration in 2015?	<1% (SWOs)
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?	EPA will be informed of the addition of a new overflow at Windsor Terrace DLRCC/B5/R/028 via Technical Amendment.

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 not been prepared as part of this 2015 AER.

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 2015 (No. of events)	Total volume discharged in 2015 (m^3)	Total volume discharged in 2015 (P.E.)	Estimated / Measured data
S.W 1 Meath	307000 251960	Yes	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
S.W 2 Meath	307220 251800	Yes	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
S.W 3 Meath	306100 252760	Yes	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
S.W 4 Meath	305890 252230	Yes	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
S.W 5 Meath	302640 251610	Yes	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
S.W 6 Meath	303240 251560	Yes	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
S.W 7 Meath	306676 245818	Yes	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
S.W 8 Meath	306330 246270	Yes	Unknown	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 2015?	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?	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	No	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 2016. **Capacity Upgrade** A PQQ was issued for the Capacity Upgrade contract in December 2015. Design & procurement are set to be complete in 2017 with construction to commence mid-2017. The Capacity Upgrade is to be completed & commissioned mid- 2019. **SBR Retrofit** Retrofitting AGS technology to the existing treatment tanks is to commence in 2019 (subject to ABP consent).	Element 2 Secondary Treatment Extension – completion mid-2019. Overall completion – 2021.

Specified Improvement Programmes	Licence Schedule (A or C)	Licence Completion Date	Date Expired?	Status of Works	Comments	Licensee Timeframe for Completing Works
					The new SID application to omit the LSOT is to be submitted to ABP in October 2016.	
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

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

Table 4.2.2a Improvement Programme Summary

Specified Improvement Programmes	Licence Schedule (A or C)	Licence Completion Date	Date Expired?	Status of Works	% Construction Work Completed	Comments	Licensee Timeframe for Completing Works
City Centre Sewerage Scheme (CCSS)	C.3	None specified	Not applicable	In progress	N/A	Hydraulic model construction and verification complete.	Unknown
North Docklands Sewerage Scheme	C4	None specified	Not applicable	Work on Site	75%	See Section 4.2.3a.	See Section 4.2.3a.
Rathmines and Pembroke (R&P) Scheme now renamed as *'Rathmines – Pembroke and*	C.3	None specified	Not applicable		N/A		Unknown

Specified Improvement Programmes	Licence Schedule (A or C)	Licence Completion Date	Date Expired?	Status of Works	% Construction Work Completed	Comments	Licensee Timeframe for Completing Works
Grand Canal Tunnel Drainage Area Study'							

Table 4.2.2a Improvement Programme Summary, continued

Improvement Description	Improvement Source	Progress (% Complete)	Expected Completion Date
WWTP Upgrade	WWTP (Condition 5.2)	At development stage	Subject to IW approval and funding
City Centre Sewerage Scheme	SWO Assessment (Conditions 4 and 5.2) Improved Operational Control Incident Reduction	Circa 50%	Mid 2017
North Docklands Sewerage Scheme	SWO Assessment (Conditions 4 and 5.2) Improved Operational Control Incident Reduction	> 75%	Mid 2016
Rathmines and Pembroke Drainage Scheme (and Grand Canal)	SWO Assessment (Conditions 4 and 5.2) Improved Operational Control Incident Reduction	At early development stage	Unknown

Section 4.2.3a

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 2016.

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 is ongoing and will be complete in June 2016. Process Proving Step 2 is under construction and will be commissioned in June 2016.

A PQQ was issued for the Capacity Upgrade (400,000PE) contract in December 2015. Design & procurement are set to be complete in 2017 with construction to commence mid-2017. The Capacity Upgrade is to be completed & commissioned in Q2/3 2019.

Retrofitting the AGS technology to the existing treatment tanks is to commence in 2019 (subject to planning g permission consent) and capacity is expected to meet projected demand and licence requirements by end Q2 2020.

The new SID application to omit the LSOT is to be submitted to ABP in October 2016.

North Docklands Sewerage Scheme

Background & Progress

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
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 under construction
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 main 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.

2. New Wapping Street Twin Rising Mains and Overflow Sewer to connect to contract 2. Substantially Complete November 2015.

3. Mayor Street incoming Sewer (including Mayor Street Rising Main Rehabilitation works). Expected completion date August 2016.

4. Final commissioning of Mechanical and Electrical Plant and handover of the pumping station. Expected completion date June 2015.

North Docklands Sewerage Scheme – Contract 4A

The works consists 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. Further Optioneering was required following difficulty securing wayleave agreement through 3rd party lands. Tender assessment is currently underway by Nicholas O'Dwyer Consulting Engineers and contract award (for construction) is anticipated in Q3 2016.

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 a Preliminary Report is expected in Q2 2016.

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
There are no Specified Improvement Programmes for South Dublin County Council portion of the Ringsend agglomeration							

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

Table 4.2.2b - Improvement Programme Summary

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

Improvements identified above also include measures taken to prevent environmental damage anticipated following events or accidents/incidents associated with discharges or overflows from the waste water works and as such are considered to fulfil any Statement of Measures requirements (see **Appendix 7.1**).

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	At planning stage	0%	Unknown	See comment below*
Discharge to cease: S5 Fingal to the Irish Sea	A	27/10/2010	Y	Complete	100%		

*Doldrum Bay

IW are carrying out a network assessment as follows:

- Irish Water are carrying out an assessment of the catchment which involves a catchment survey (carried out Sept - Nov 2015) and connectivity study.
- Using the updated flow/load and sewer condition data, a separate examination by consultants will assess the most appropriate options that could be undertaken to address both the issues of the discharge and the defective outfall, including a local treatment option.
- The location of the damaged outfall pipe is at the bottom of the cliff and presents a significant Health & Safety Risk in terms of safe access and egress. The most appropriate options will take this risk and the future maintenance requirements of all available options and their difficulties into consideration.

Once the studies are complete, Irish Water will be in a position to consider all options before making a decision on how to proceed (and whether to include Doldrum Bay in a license review) and prioritise works in the context of available capital funding.

There are no improvements identified under Condition 5.2.

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
No specific projects required for the part of the agglomeration within DLR.							

An Improvement Programme Report is included in **Appendix 7.5**.

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
Dún Laoghaire Sewerage Scheme Phase 1	Contract 2e - Moreen Environs Foul Sewer Upgrade, Phase 4	Removal of deficiencies in capacity	0%	Q4 2016	At design stage.
Dún Laoghaire Sewerage Scheme Phase 1	Contract 2 - Network Upgrade Sandyford/Stillorgan Improvement-Tunnel	Removal of deficiencies in capacity	0%	Q4 2017	At tender stage.
Dún Laoghaire Sewerage Scheme Phase 1	2D Foul Sewer Upgrade as part of Leopardstown Roundabout Upgrade	Removal of deficiencies in capacity	100%	Feb 2016	Complete

Improvement Identifier	Improvement Description	Improvement Source	Progress (% completed)	Expected Completion Date	Comments
	Windsor Terrace Overflow Extension	Overflow effluent pushed further out to sea	0%	Q4 2017	Foreshore Licence Application and Planning Stage
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 Measured and 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%	 June 2015 June 2015	
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%	 December 2015 December 2015	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	 December 2015 December 2015	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 2015.

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 are contained in **Appendix 7.4** of the South Dublin Portion of the 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	See Appendix 7.4b of 2014 AER

Fingal County Council Functional Area

Due to the nature of the agglomeration, two different Sewer Integrity Risk Assessment Tools have been completed.

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	

See **Appendix 7.6** for Sewer Integrity Tool Output for the North Fringe Sewer Catchment and the 9C Catchment.

Dún Laoghaire Rathdown County Council Functional Area

DLRCC, on behalf of IW, has taken the Sewer Integrity Tool (SIT) format developed by Dublin City Council in the 2012 AER for the Dublin City Centre catchment and applied it to the West Pier East Catchment. See Appendix 7.4 of 2014 AER.

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

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	Appendix 6.2 in 2014 AER
Environmental Risk Assessment Score	Low	138	Appendix 6.2 in 2014 AER
Structural Risk Assessment Score	High	135	Appendix 6.2 in 2014 AER
Operation & Maintenance Risk Assessment Score	High	158	Appendix 6.2 in 2014 AER
Overall Risk Score for the agglomeration	High	581	Appendix 6.2 in 2014 AER

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 7.7**.
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 5.4. Full report in **Appendix 7.8**.
Toxicity of Final Effluent Report	Yes	Yes	Summary of findings in Table 5.5. Full report in **Appendix 7.9**.

Licence Specific Reports Summary of Findings

Licence Specific Report	Recommendations in Report	Summary of Recommendations in Report
Priority Substances Assessment	No	Priority substances detected in effluent are well diluted in the mixing zone.
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 treated at Ringsend is not significant at 23,273 cubic metres. This constitutes **0.024% of the daily influent volume (based on 100 cubic metres/day leachate loading)** and **0.015% of the annual influent volume (based on records).**
Toxicity of Final Effluent Report	No	The toxicity of the Final Effluent complied well with the ELV for all species tested.

5.1. Priority Substances Assessment

The Priority Substances Assessment report is included in **Appendix 7.7**. 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	Screening Analysis
Does the assessment include a review of Trade inputs to the works?	No – Too many to review on an annual basis.
Does the assessment include a review of other inputs to the works?	Yes – Influent, 4 Influent lines assessed.
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 prior to dilution
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 – Licence reviews source and control priority substances.

5.2. Drinking Water Abstraction Point Risk Assessment

A Drinking Water Abstraction Point Risk Assessment report is not required.

5.3. Shellfish Impact Assessment

A Shellfish Impact Assessment Report is not required.

5.4. Toxicity/Leachate Management

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

Table 5.4 - 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?	0.015 % 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)	0.0236 % 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?	Yes
What are the results of the assessment (Suitable / Not Suitable / Suitable subject to improvement programme works completion)	Suitable
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

5.5. Toxicity of the Final Effluent Assessment Summary

The Toxicity / Leachate Management Assessment report is included in **Appendix 7.9**. A summary of the findings of this report is included below.

Table 5.5 - 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?	Yes
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.

5.6. Pearl Mussel Measures Report

Not required.

5.7. Habitats Impact Assessment Report

Not required.

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 as stated in the recent letter sent to the EPA(8/1/16, the principle reasons for a review are: • Capacity upgrade of treatment works • Addition of SWO - DLRCC/B5/R/028 (NGR 324953E, 228312N) • Review of ambient monitoring points near discharge (mixing zone) • Regularisation of Doldrum Bay discharge (pending outcome of options rview).	
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 update EPA on 8/1/16	Yes
Are all outstanding reports and assessments from previous AERs included as an appendix to this AER?	N/A
List outstanding reports *(insert lines as required)*	N/A

Declaration by Irish Water

The AER contains the following;

- Introduction and background to 2015 AER
- Monitoring reports summary.
- Operational reports summary.
- Infrastructural Assessment and Programme of Improvements.
- Licence specific reports.
- Certification and Sign Off
- Appendices

I certify that, to the best of my knowledge, the information given in this Annual Environmental Report is truthful, accurate and complete:

Signed: _____ Date: 26/02/2016

Gerry Galvin
Chief Technical Advisor

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 – Sewer Integrity Tool Output
Appendix 7.7 - Priority Substances Assessment
Appendix 7.8 - Toxicity Leachate Management Report
Appendix 7.9 - 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 2015 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.

Mitigation measure to be taken	Outcome	Action	Date for completion	Owner/Contact Person
Measure on-line the most common contaminant – hydrocarbons.	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.	2015	Plant Operator (CAW) Plant OM Manager
Upgrade of on-site communications network.	No communication issues.	Upgrade of on-site communications network as a part of the plant extension project	2016	Irish Water
Increased plant capacity and process resistance 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).	2015	Irish Water
Biological nutrient removal to take place at WwTW.	No eutrophication of sensitive water bodies.	Long Sea Outfall Tunnel to be designed, constructed and commissioned.	31.12.2015	Irish Water
Increase sodium hydroxide storage tank capacity to be able to receive full bulk 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
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

Mitigation measure to be taken	Outcome	Action	Date for completion	Owner/Contact Person
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
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 2016	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
Santry Foul Pumping Station Upgrade	unknown
Baldoyle Village PS Storm Pump	unknown
Baldoyle PS overflow diverted from going out to sea to overflow back into the foul system	Completed in 2015
Portmarnock Strand PS catchment – rehabilitation of network to minimise storm water infiltration.	unknown
Rehabilitation of Mulhuddart Penstocks	unknown
Cloghran Sewerage Scheme	Q1 2016
Duplication of 9C Sewer	Q4 2019
Pump station improvements ongoing - electrical panel reviews, control panel upgrades, chain replacements, alarm review.	Ongoing

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.

An assessment of the surface water overflows in the agglomeration that are in DLR is included in the AER (see Section 4.1 and **Appendix 7.4**).

No additional measures have been taken in 2015 in relation to prevention of environmental damage. The need for measures to prevent environmental damage is reviewed on an annual basis.

Meath County Council Functional Area

No additional measures have been taken in 2015 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

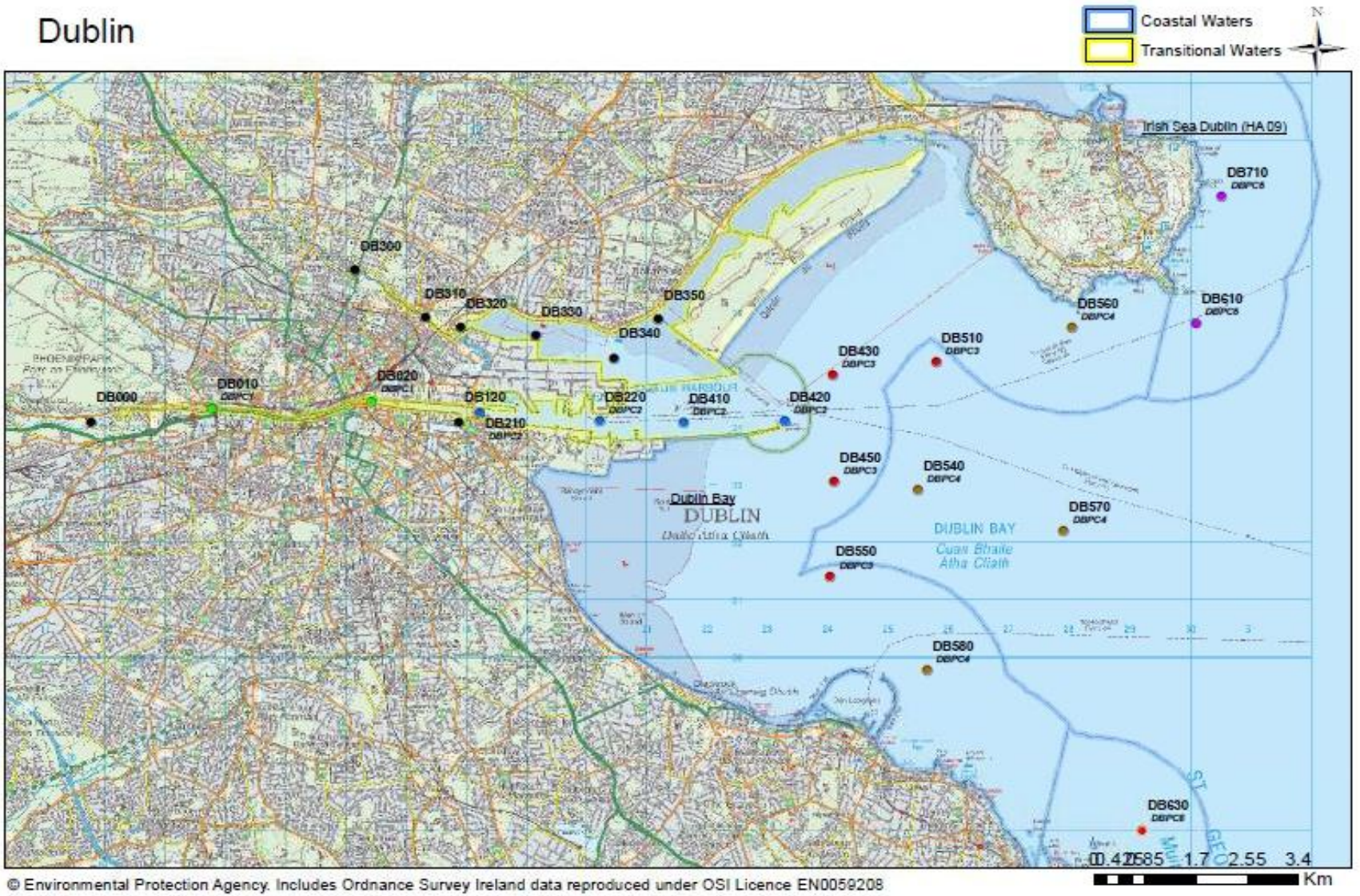

Figure 7.2.1 Dublin Ambient Sampling Points Map

Table 7.2.2 Marine Monitoring Water Quality Data: ASW2 – ASW10

Appendix 7.2(2) Transitional Water Body Monitoring 2015

Report for Samples Taken During the Period: 01/01/2015 - 31/12/2015

Customer	Test List	Sampling Point	Sampling Point Description	Sampled Date	Sample Number	Ammonia µg/l as N	B.O.D. Saline mg/l	Chlorophyll a ug/l	DIN µg/l	D.O. % Sat.	Pheophytin a mg/m3	Phosphorus (React) µg/l SRP as P	Salinity PSU	Silicate µg/l	Temperature °C	TON µg/l as N
			Surface Water Objectives for Transitional Water Bodies - SI 272 of 2009				< 4.0 mg/l	median		0% PSU		0-17% PSU				
			Compliant				(95%-ile)			70%-130%		< 60 ug/l P (median)				
			Non-Compliant							35% PSU		35% PSU				
										80%-120%		< 40 ug/l P (median)				
ASW2S	123_ESTUAR	130842	(130842) Liffey Estuary Lower, 25m North of Poolbeg Wall - Surface Sample	30/04/2015 10:00	996269	8925	4	1.7	9701	108	<0.1		28.1	2870	10.6	776
				28/05/2015 11:06	1006999	2152	3	2.1	2533	103	0.3	479	26.2	501	13.3	381
				11/06/2015 10:22	1012906	223	2	2.1	618	109	1.5	207	30.2	332	14.5	395
				01/07/2015 10:35	1021207	62	1	2.5	329	100	1.5	127	30.3	358	16.9	267
				12/08/2015 10:47	1038878	223	1	1.7	399	96	0.8	142	31.5	355	16.2	176
				16/09/2015 10:00	1053031	1218	1	1.3	1604	94	0.8	348	33.0	1510	14.8	386
								1.9				207				
ASW2D		130843	(130843) Liffey Estuary Lower, 25m North of Poolbeg Wall - Depth Sample	30/04/2015 10:00	996270	159	2	4.8	221	109	0.7	36	31.3	94	9.9	62
				28/05/2015 11:08	1007000	34	2	4.7	132	102	0.8	25	30.6	99	12.6	98
				11/06/2015 10:23	1012907	97	2	3.7	237	109	0.7	77	32.0	127	14.5	140
				01/07/2015 10:37	1021208	17	1	0.7	58	101	1.9	22	33.4	103	14.4	41
				12/08/2015 10:48	1038879	10	1	2.1	27	95	1.0	14	34.0	131	14.7	17
				16/09/2015 10:00	1053032	110	1	2.9	188	96	1.0	45	33.8	406	14.2	78
								3.3				30				
ASW3S		130844	(130844) Liffey Estuary Lower, 50m North of Poolbeg Wall - Surface Sample	30/04/2015 10:00	996271	4161	4	2.7	4813	110	0.7	753	27.6	1888	11.0	652
				28/05/2015 11:16	1007001	896	2	3.1	1497	105	1.4	105	26.4	318	13.4	574
				11/06/2015 10:31	1012908	545	2	2.7	1119	108	0.9	302	29.6	474	14.6	574
				01/07/2015 10:47	1021205	38	<1	2.3	238	101	1.5	84	31.1	314	16.8	200
				12/08/2015 10:57	1038880	460	<1	1.5	836	98	0.6	384	29.6	713	16.5	376
				16/09/2015 10:00	1053033	935	1	1.6	1266	96	0.9	271	30.0	1153	14.4	331
								2.5				287				
ASW3D		130845	(130845) Liffey Estuary Lower, 50m North of Poolbeg Wall - Depth Sample	30/04/2015 10:00	996272	54	2	4.5	109	88	0.9	23	31.8	73	9.5	55
				28/05/2015 11:18	1007002	12	2	4.8	85	104	1.2	18	30.4	95	12.7	73
				11/06/2015 10:32	1012909	72	1	2.5	183	108	0.7	63	32.2	107	13.9	111
				01/07/2015 10:49	1021206	7	<1	2.0	17	101	<0.1	10	33.3	73	14.3	10
				12/08/2015 10:58	1038881	9	<1	1.7	33	95	0.8	12	34.0	115	14.7	24
				16/09/2015 10:00	1053034	42	<1	2.1	100	96	1.1	31	33.8	378	14.2	58
								2.3				21				
ASW4S		130846	(130846) Liffey Estuary Lower, 75m North of Poolbeg Wall - Surface Sample	30/04/2015 10:00	996273	5757	4	0.9	6661	112	0.4	1080	28.9	2675	11.0	904
				28/05/2015 11:30	1007003	51	1	3.7	185	105	1.6	29	29.6	119	12.8	134
				11/06/2015 11:00	1012910	186	2	1.9	436	109	1.5	172	31.8	223	14.4	250
				01/07/2015 10:58	1021209	56	<1	3.9	570	103	0.2	235	31.4	593	16.4	514
				12/08/2015 11:07	1038882	<5	<1	1.9	< 15	98	0.7	9	31.0	134	16.5	<10
				16/09/2015 10:00	1053035	973	<1	1.3	1314	94	0.4	279	29.2	1168	14.7	341
								1.9				204				
ASW4D		130847	(130847) Liffey Estuary Lower, 75m North of Poolbeg Wall - Depth Sample	30/04/2015 10:00	996274	144	2	4.5	194	108	1.0	30	31.9	72	9.4	50
				28/05/2015 11:04	1007004	6	2	3.3	61	100	1.6	20	30.9	100	12.3	55
				11/06/2015 11:02	1012911	57	1	2.4	132	107	3.7	54	33.5	73	13.6	75
				01/07/2015 10:59	1021210	10	<1	1.1	25	101	1.2	12	33.3	110	14.3	15
				12/08/2015 11:08	1038883	564	<1	1.7	937	95	0.8	359	34.0	676	14.7	373
				16/09/2015 10:00	1053036	201	<1	2.0	324	96	0.8	76	33.8	456	14.2	123
								2.2				42	32.9			

ASW5S		130848	(130848) Liffey Estuary Lower, 100m North of Poolbeg Wall - Surface Sample	30/04/2015 10:00	996275	4037	3	1.9	4977	111	0.6	824	27.4	2191	11.0	940
				28/05/2015 11:42	1007005	93	2	2.7	493	105	1.6	48	30.3	167	12.1	400
				11/06/2015 10:43	1012912	115	1	3.1	271	110	0.9	112	31.7	163	14.7	156
				01/07/2015 11:06	1021211	26	<1	2.1	122	103	1.3	54	32.1	197	15.9	96
				12/08/2015 11:17	1038884	400	<1	0.8	754	98	1.5	285	29.9	588	16.4	354
				16/09/2015 10:00	1053037	480	<1	2.0	689	97	0.9	141	33.2	1087	14.2	209
								2.1				127				
ASW5D		130849	(130849) Liffey Estuary Lower, 100m North of Poolbeg Wall - Depth Sample	30/04/2015 10:00	996276	36	2	4.0	76	110	0.7	17	32.0	60	9.4	40
				28/05/2015 11:44	1007006	<5	2	3.6	116	104	0.9	10	31.2	66	12.0	116
				11/06/2015 10:44	1012913	88	1	2.4	190	109	0.8	78	32.4	105	14.1	102
				01/07/2015 11:08	1021212	16	<1	<0.1	16	101	11.6	8	33.4	100	14.3	<10
				12/08/2015 11:19	1038885	6	<1	4.5	17	94	1.4	10	34.1	129	14.5	11
				16/09/2015 10:00	1053038	107	<1	2.0	196	96	0.7	50	33.8	1090	14.1	89
								3				14				
ASW6S		40063	(40063) Liffey City D/S Islandbdg Weir	30/04/2015 13:50	996292	<5	1	2.0	2646	113	1.3	2.5	0.0	1560	11.4	2646
				28/05/2015 09:00	1006894	<5	1	0.8	1877	101	0.3	6	0	2090	13.8	1877
				11/06/2015 08:50	1012848	<5	2	2.1	2283	107	1.6	16	0	1510	15.4	2283
				01/07/2015 09:10	1021128	<5	1	2.8	< 15	99	1.7	7	0.0	108	19.7	<10
				12/08/2015 08:50	1038647	13	<1	1.8	1847	105	2.3	40	0.1	1006	16.2	1834
				16/09/2015 10:45	1053042	17	1	1.3	3040	104	2.1	59	0.1	3686	14.5	3023
								1.9				12				
ASW7S		40067	(40067) Liffey City Heuston Stn u/s Camac	30/04/2015 14:00	996293	<5	1	1.3	2307	105	1.7	2.5	3.7	1420	10.6	2307
				28/05/2015 09:20	1006895	<5	<1	0.2	2100	101	0.2	7	0.8	2360	13.3	2100
				11/06/2015 09:10	1012849	11	2	8.0	2214	105	3.4	18	0.6	1480	15.4	2203
				01/07/2015 09:35	1021129	16	1	3.6	88	89	4.2	33	1.5	206	19.3	72
				12/08/2015 09:10	1038648	18	1	5.8	2285	92	3.7	32	6.6	1237	15.6	2267
				16/09/2015 10:55	1053043	69	1	2.9	2109	98	1.5	71	6.1	2347	14.6	2040
								3.3				25				
ASW8S		40072	(40072) Liffey City Winetav St Bridge	30/04/2015 14:10	996294	<5	2	5.6	2069	109	4.7	16	7.3	1460	11.2	2069
				28/05/2015 09:40	1006896	<5	1	1.5	2045	98	10.3	12	3.2	1740	13.3	2045
				11/06/2015 09:25	1012850	<5	5	22.4	1801	105	6.5	8	3.3	1450	15.1	1801
				01/07/2015 09:50	1021130	<5	<1	2.9	< 15	101	1.7	8	12.6	108	18.5	<10
				12/08/2015 09:20	1038649	7	1	6.6	817	103	3.7	26	24.6	539	15.5	810
				16/09/2015 11:00	1053044	125	<1	2.5	743	93	1.1	67	26.4	1366	15.2	618
								4.3				14				
ASW9S		40457	(40457) Liffey (S) D/S Toll Bridge	30/04/2015 14:25	996295	103	2	1.5	1562	104	1.4	12	11.4	1310	11.7	1459
				28/05/2015 09:50	1006897	<5	1	1.1	138	97	1.6	11	24.3	1190	12.3	138
				11/06/2015 09:45	1012851	22	1	1.2	964	109	2.3	20	7.7	1730	13.8	942
				01/07/2015 10:10	1021131	<5	<1	2.5	< 15	102	1.9	9	14.2	108	18.5	<10
				12/08/2015 09:40	1038650	24	<1	2.0	747	102	1.6	24	24.6	476	15.4	723
				16/09/2015 11:20	1053045	123	1	2.0	870	93	1.2	66	23.5	1015	14.6	747
								1.8				18				
ASW10S		45082	(45082) Tolka River D/S Annesley Bridge	28/05/2015 10:00	1006898	<5	3	4.1	888	121	0.4	<5	0.1	1210	11.4	888
				11/06/2015 10:30	1012852	17	2	5.5	1085	133	3.3	18	1.1	900	14.3	1068
				01/07/2015 10:50	1021132	<5	7	38.8	< 15	111	4.1	8	1.4	98	18.8	<10
				12/08/2015 10:10	1038651	285	4	16.2	1385	80	3.4	137	1.5	3894	14.5	1100
				16/09/2015 12:00	1053046	57	1	10.0	1633	114	4.3	97	0.5	7247	14.2	1576
								10				18				

Table 7.2.3 Transitional Monitoring - Water Quality Data: Points Agreed by the EPA

Appendix 7.2(3) Transitional Water Body Monitoring Data 2015

Report for Samples Taken During the Period: 01/01/2015 - 31/12/2015

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)	Silicate	Surface Temperature	Temperature	TON
					µg/l as N	mg/l	% Sat.	°C	mg/m3	ug/l as N	% Sat.	% Sat.	mg/m3	µg/l SRP as P	PSU	PSU	µg/l	°C	°C	µg/l as N
DCC		Surface Water Objectives for Transitional Water Bodies - SI 272 of 2009				< 4.0 mg/l	0% PSU		median		0% PSU	0% PSU		0-17% PSU						
		Compliant				(95%ile)	70%-130%				70%-130%	70%-130%		< 60 ug/l P (median)						
		Non-Compliant					35% PSU				35% PSU	35% PSU		35% PSU						
							80%-120%				80%-120%	80%-120%		< 40 ug/l P (median)						
EPA Code																				
DB 020	130870	(130870) Liffey Estuary Upper, Liffey at Matt Talbot Bridge - Surface Sample	30/04/2015 10:0	996257	2.5	1			1.6	1983	102		1.2	8	6.8		1516		10.4	1983
			28/05/2015 12:4	1006987	2.5	<1			2.7	204	101		0.3	21	10.52		664		13.8	204
			11/06/2015 12:0	1012920	38	2			6.7	204	115		7.2	50	14.46		269		15.4	106
			01/07/2015 08:5	1021194	37	2			27.8	1581	91		7.8	54	11.35		2440		18.5	1544
			12/08/2015 09:1	1038866	9	<1			6.8	359	96		4.6	19	26.2		296		15.8	350
			16/09/2015 10:0	1053021	114	1			1.1	1115	81		1.2	66	19.8		1932		14.5	1001
									4.7					36						
	130871	(130871) Liffey Estuary Upper, Liffey at Matt Talbot Bridge - Depth Sample	30/04/2015 10:0	996258	57	2			5.5	305	110		5.6	42	31.2		184		9.8	248
			28/05/2015 12:4	1006988	2.5	2			1.6	60	81		1.0	38	30.8		120		13.8	<10
			11/06/2015 12:0	1012921	2.5	3			8.4	1102	83		4.0	8	31.5		949		13.2	1102
			01/07/2015 09:0	1021195	193	1			1.7	305	70		3.3	69	31.0		337		15.3	112
			12/08/2015 09:1	1038867	71	1			2.8	133	82		1.3	29	33.2		187		15.3	62
			16/09/2015 10:0	1053022	180	<1			1.3	328	79		2.9	65	32.6		655		14.5	148
									2.3					40						
DB 120	130800	(130800) Liffey Estuary Lower, Dodder Grand Canal Basin- Surface Sample	30/04/2015 10:0	996259	22	2			7.3	936	119		2.3	22	6.92		2242		10.6	914
			28/05/2015 12:2	1006989	5	<1			1.3	324	114		2.6	12	11.61		1865		12.8	319
			11/06/2015 11:4	1012918	17	<1			0.7	802	101		1.7	21	9.79		1732		15.1	785
			01/07/2015 09:1	1021196	41	1			2.7	761	96		2.8	31	9.43		2236		18.3	720
			12/08/2015 09:2	1038868	42	<1			1.9	436	90		1.7	24	24.9		433		15.9	394
			16/09/2015 10:0	1053023	89	<1			0.8	652	86		1.7	53	13.0		4294		14.1	563
									1.6					23						
	130801	(130801) Liffey Estuary Lower, Dodder Grand Canal Basin- Depth Sample	30/04/2015 10:0	996260	44	3			1.6	191	122		1.3	22	30.3		164		10.1	147
			28/05/2015 12:3	1006990	20	1			1.6	141	97		2.2	16	19.6		317		13.0	121
			11/06/2015 11:5	1012919	21	1			2.0	627	115		3.0	27	11.31		1575		15.1	606
			01/07/2015 09:2	1021197	65	2			4.9	279	90		10.9	46	30.9		399		15.8	214
			12/08/2015 09:3	1038869	45	1			5.9	134	90		2.7	22	32.9		181		15.3	89
			16/09/2015 10:0	1053024	117	<1			2.8	293	88		1.6	51	30.8		682		14.3	176
									2.4					25						
DB 210	130810	(130810) Liffey Estuary Lower, East Link Toll Bridge - Surface Sample	30/04/2015 10:0	996261	15	<1			1.1	1587	103		1.0	44	10.9		1581		11.0	1572
			28/05/2015 13:0	1006991	14	<1			1.2	402	99		1.4	19	15.4		500		13.3	388
			11/06/2015 11:3	1012915	11	1			2.3	1379	116		2.7	13	11.29		1392		15.4	1368
			01/07/2015 09:3	1021198	20	1			1.7	1052	98		2.8	44	13.29		1963		18.1	1032
			12/08/2015 09:4	1038870	18	<1			1.5	625	93		1.2	24	25.3		411		15.6	607
			16/09/2015 10:0	1053025	111	<1			0.5	1025	82		1.0	63	18.8		3913		14.2	914
									1.4					34						
	130811	(130811) Liffey Estuary Lower, East Link Toll Bridge - Depth Sample	28/05/2015 13:0	1006992	88	2			4.8	475	82		2.4	42	31.0		113		12.1	387
			11/06/2015 11:3	1012916	97	1			6.0	189	86		2.7	55	32.0		134		12.9	92
			01/07/2015 09:3	1021199	48	1			3.5	116	94		3.4	34	32.7		164		15.3	68
			12/08/2015 09:4	1038871	34	<1			2.8	99	90		1.1	20	33.3		170		15.2	65
			16/09/2015 10:0	1053026	85	<1			1.7	191	91		1.5	45	33.0		747		14.2	106
									3.5					42	32.4					
DB 220	130820	(130820) Liffey Estuary Lower, RO RO Ramp No. 5 (Old TW Outfall) - Surface Sam	30/04/2015 10:0	996263	2.5	2			4.4	164	115		1.3	15	30.5		140		11.2	164
			28/05/2015 12:0	1006993	178	1			3.9	224	103		3.6	10	28.8		87		12.5	<10
			11/06/2015 11:2	1012914	56	1			3.3	165	112		0.7	45	32.5		104		16.5	109
			01/07/2015 09:5	1021200	20	<1			2.5	713	109		1.8	50	19.3		1223		17.7	693
			12/08/2015 10:0	1038872	20	<1			1.5	218	98		0.7	23	30.0		247		15.6	198
			16/09/2015 10:0	1053027	86	<1			1.7	315	95		1.0	50	29.5		770		14.3	229
									2.9					34						
	130821	(130821) Liffey Estuary Lower, RO RO Ramp No. 5 (Old TW Outfall) - Depth Samp	30/04/2015 10:0	996264	12	2			3.5	55	109		1.4	25	34.3		126		9.4	43
			28/05/2015 12:0	1006994	65	2			4.8	110	104		1.5	2.5	31.4		34		11.7	45
			11/06/2015 11:2	1012917	41	1			4.1	101	106		0.8	39	33.6		65		13.6	60
			01/07/2015 09:5	1021201	13	<1			5.3	71	99		<0.1	28	33.1		127		15.7	58
			12/08/2015 10:0	1038873	7	<1			1.6	27	94		0.6	11	34.1		131		14.6	20
			16/09/2015 10:0	1053028	63	<1			2.1	243	94		1.1	50	33.2		725		14.2	180
									3.8					27						

DB 410	130830	(130830) Liffey Estuary Lower, Ringsend Cascade - Surface Sample	30/04/2015 10:0	996265	201	3			0.7	258	113		0.8	52	26.3		103		11.0	57
			28/05/2015 10:4	1006995	2675	2			1.3	2101	103		3.2	536	24.4		799		13.1	94
			11/06/2015 10:1	1012904	730	2			2.4	1472	107		0.5	456	27.9		709		14.6	742
			01/07/2015 10:1	1021202	26	<1			1.9	393	106		0.9	57	25.5		857		17.3	367
			12/08/2015 10:2	1038874	572	1			2.0	1305	97		0.8	553	28.1		1055		16.4	733
			16/09/2015 10:0	1053029	1545	1			2.4	1966	96		0.8	390	30.7		1473		14.4	421
									2					423						
	130831	(130831) Liffey Estuary Lower, Ringsend Cascade - Depth Sample	30/04/2015 10:0	996266	447	3			4.4	575	110		1.0	56	31.6		96		9.6	128
			28/05/2015 10:4	1006996	55	1			0.9	265	103		3.7	23	30.5		99		12.4	210
			11/06/2015 10:1	1012905	224	2			2.5	570	105		0.4	211	33.9		293		13.4	346
			01/07/2015 10:1	1021203	8	<1			1.3	35	100		1.3	16	33.3		98		15.0	27
			12/08/2015 10:2	1038875	19	<1			1.6	37	95		0.6	15	34.1		140		14.8	18
			16/09/2015 10:0	1053030	23	<1			3.3	88	97		1.2	29	33.9		358		14.1	65
									2.1					26						
DB 420	130840	(130840) Liffey Estuary Lower, Poolbeg Lighthouse - Surface Sample	30/04/2015 10:0	996267	108	2			1.1	220	106		4.1	31	27.4		62		9.6	112
			28/05/2015 10:2	1006997	272	1			2.5	441	104		2.1	72	29.1		200		12.2	125
			11/06/2015 09:5	1012902	95	1			3.7	222	108		0.7	85	32.5		108		13.6	127
			12/08/2015 11:3	1038876	140	<1			1.7	267	96		0.7	94	33.4		268		15.2	127
									2.1					79						
	130841	(130841) Liffey Estuary Lower, Poolbeg Lighthouse - Depth Sample	30/04/2015 10:0	996268	12	2			2.8	12	113		0.9	8	32.1		47		9.3	<10
			28/05/2015 10:2	1006998	73	1			0.5	161	103		4.2	25	30.8		100		12.6	88
			11/06/2015 09:5	1012903	10	1			5.3	25	107		2.1	22	34.2		32		13.0	15
			12/08/2015 11:3	1038877	2.5	<1			1.6	< 15	95		0.7	7	34.3		132		14.5	<10
									2.2					15						
	130839	(130839) Liffey Estuary Lower, Poolbeg Lighthouse - Composite Sample	01/07/2015 11:2	1021204	10	<1	99.1	14.2	0.5	32		101.3	1.4	15		33.3	84	14.7		22
			16/09/2015 10:0	1053041	599	<1	96.9	14.1	2.5	769		97.5	1.0	171		33.9	824	14.0		170
									1.5					93						
DB 300	45076	(45076) Tolka River U/S Drumcondra Bridge	30/04/2015 15:1	996297	24	2			12.9	825	132		2.0	2.5	0.1		1320		11.1	801
			28/05/2015 10:2	1006899	2.5	>8			4.5	812	120		3.5	2.5	0.1		1600		11.9	812
			11/06/2015 10:5	1012853	2.5	2			19.2	1202	135		7.6	20	0.1		1930		14.3	1202
			01/07/2015 11:0	1021133	2.5	1			3.2	< 15	113		1.7	9	0.1		109		18.5	<10
			12/08/2015 10:2	1038652	17	1			10.1	1083	111		3.8	82	0.2		646		15.6	1066
			16/09/2015 12:1	1053047	17	1			2.7	1502	114		1.9	80	0.1		353		13.7	1485
									7.3					15	0.117					
DB 320	130900	(130900) Tolka Estuary at East Point Business Park Bridge - Surface Sample	30/04/2015 14:4	996298	107	2			4.2	1048	158		2.3	52	3.1		576		12.7	941
			28/05/2015 10:3	1006900	5	1			2.4	285	90		2.9	13	13.3		437		11.4	280
			11/06/2015 10:1	1012854	98	1			1.2	782	100		3.9	60	11.7				15.1	684
			01/07/2015 10:4	1021134	2.5	2			0.8	10	81		6.2	12	19.5		116		19.5	10
			12/08/2015 10:1	1038653	91	1			11.2	252	99		4.6	102	30.1		305		15.8	161
			16/09/2015 11:4	1053048	323	1			8.6	1572	98		4.7	132	11.3		369		13.8	1249
									3.3					56	14.8					
	130901	(130901) Tolka Estuary at East Point Business Park Bridge - Depth Sample	30/04/2015 14:5	996299	2.5	1			5.0	985	169		3.1	2.5	1.8		445		12.8	985
			28/05/2015 10:4	1006901	5	2			2.9	479	94		3.6	17	19.2		294		11.4	474
			11/06/2015 09:5	1012855	89	<1			1.5	888	96		2.5	53	7.2		1028		14.5	799
			01/07/2015 10:3	1021135	2.5	2			3.4	18	77		5.2	12	22.5		129		19.4	18
			12/08/2015 09:5	1038654	118	2			5.1	283	98		1.7	108	29.5		715		15.7	165
			16/09/2015 11:3	1053049	325	1			2.7	1607	105		2.3	145	9.6		373		14.0	1282
									3					35						
DB 330	130910	(130910) Tolka Estuary, Castle Ave. - Surface Sample	30/04/2015 10:0	996253	22	2			3.1	255	96		1.1	28	26.3		184		8.9	233
			28/05/2015 09:5	1006984	8	1			3.5	74	102		1.0	15	29.8		100		11.9	66
			01/07/2015 11:5	1021215	62	2			<0.1	346	99		10.4	162	29.1		475		17.7	284
			12/08/2015 12:1	1038863	48	<1			2.4	180	99		1.0	85	31.9		295		16.4	132
									2.7					57	29.3					
	130911	(130911) Tolka Estuary, Castle Ave. - Depth Sample	30/04/2015 10:0	996254	30	2			4.7	129	113		1.0	21	30.5		81		9.7	99
			28/05/2015 09:5	1006985	10	1			2.7	31	105		0.5	16	31.1		89		11.9	21
			01/07/2015 11:5	1021217	69	1			0.4	347	97		0.7	157	30.9		476		17.2	278
			12/08/2015 12:1	1038864	51	<1			3.1	149	106		1.1	69	32.6		241		15.9	98
									2.9					45	31.3					
	130912	(130912) Tolka Estuary, Castle Ave. - Composite Sample	11/06/2015 09:1	1012898	157	1	103.1	15.0	2.5	354		103.9	1.0	150		30.4	289	15.1		197
			16/09/2015 10:0	1053039	168	<1	97.0	14.2	2.7	367		97.6	1.3	78		31.1	1286	14.1		199
									2.6					114		30.8				

DB 340		130920	(130920) Tolka Estuary, Clontarf Boat Club - Surface Sample	30/04/2015 10:0	996251	69	2			2.8	165	108		3.4	26	30.2		101		9.6	96
				11/06/2015 09:2	1012899	150	1			4.0	333	106		0.2	142	31.1		219		14.5	183
				01/07/2015 12:1	1021218	57	<1			<0.1	342	104		2.4	160	31.0		431		16.9	285
				16/09/2015 10:0	1053019	102	<1			2.8	206	98		0.7	50	33.0		474		14.4	104
										2.8					96						
		130921	(130921) Tolka Estuary, Clontarf Boat Club - Depth Sample	30/04/2015 10:0	996252	7	2			4.5	46	111		1.2	16	31.4		60		9.5	39
				11/06/2015 09:3	1012900	143	<1			4.7	307	105		0.9	126	31.5		173		14.2	164
				01/07/2015 12:1	1021219	16	<1			<0.1	58	101		6.1	28	33.0		133		15.7	42
				16/09/2015 10:0	1053020	85	<1			2.4	163	98		2.0	42	33.5		387		14.2	78
										3.5					35						
		130922	(130922) Tolka Estuary, Clontarf Boat Club - Composite Sample	28/05/2015 09:3	1006982	43	2	106.6	11.9	1.5	251		105.6	5.6	50		30.8	258	11.9		208
				12/08/2015 12:2	1038862	26	<1	101.1	15.4	1.7	70		102.1	0.7	33		33.5	170	16.0		44
										1.6					42		32.2				
DB 350		130930	(130930) Tolka Estuary, S. Lagoon at Bull Wall Wooden Bridge - Surface Sample	30/04/2015 10:0	996255	113	2			3.1	221	109		1.1	35	30.0		103		9.8	108
				01/07/2015 12:2	1021220	36	<1			1.5	232	108		3.2	116	31.2		313		17.0	196
										2.3					76						
		130931	(130931) Tolka Estuary, S. Lagoon at Bull Wall Wooden Bridge - Depth Sample	30/04/2015 10:0	996256	93	1			4.9	171	110		0.7	33	30.4		86		9.8	78
				01/07/2015 12:3	1021221	33	<1			0.1	210	107		6.2	101	31.6		281		16.8	177
										2.5					66.5	31					
		130932	(130932) Tolka Estuary, S. Lagoon at Bull Wall Wooden Bridge - Composite Sam	28/05/2015 10:0	1006986	85	1	102.4	11.9	2.0	136		102.5	5.3	95		29.8	155	11.7		51
				11/06/2015 09:4	1012901	389	<1	107.7	14.7	1.9	643		105.3	1.1	387		30.7	297	14.5		254
				12/08/2015 11:5	1038865	90	<1	107.2	15.9	1.9	174		102.6	0.8	90		32.8	234	16.1		84
				16/09/2015 10:0	1053040	287	<1	100.1	14.4	2.7	475		99.0	0.9	100		32.6	1057	14.2		188
										2					98						

Table 7.2.4 Coastal Monitoring - Dublin Bay Water Quality Data: Points Agreed by the EPA

			Appendix 7.2 (4) Coastal Water Monitoring Data for Dublin Bay - 2015																					
Report for Samples Taken During the Period: 01/01/2015 - 31/12/2015																								
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 ug/l	DIN µg/l	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	Silicate µg/l	Surface Temperature °C	Temperature °C	TON µg/l as N
DCC	123_ESTUARY and		Surface Water Objectives for Coastal Water Bodies - SI 293 of 2007					0% PSU		High to Good	34.5 PSU	0% PSU	0% PSU		0-17% PSU						
	123A ESTUARY		Compliant					70%-130%		< 2.5 ug/l	High	70%-130%	70%-130%		< 60 ug/l P (median)						
			Non-Compliant					35% PSU		Good to Modera	< 170 ug/l	35% PSU	35% PSU		35% PSU						
EPA MAP								80%-120%		< 5.0 ug/l	0 to 34.5 PSU	80%-120%	80%-120%		< 40 ug/l P (median)						
Codes										(Cold Acetone)	Good										
										median	< 2,600 to < 250 ug/l N										
DB 610	123A ESTUARY	130602	(130602) Irish Sea Dublin, Bailey - Composite Sample	20/05/2015 10:00	1003405	<5	1	109.1	10.4	10.8	53		112.6	1.1	<5		31.6	39	10.6		53
				09/07/2015 09:08	1024533	<5	<1	96.3	14.2	0.9	< 15		101.1	3.5	9		33.4	109	14.0		<10
				06/08/2015 10:14	1036507	6	<1	97.4	14.1	1.6	6		99.5	1.0	8		34.3	92	14.2		<10
				17/09/2015 10:00	1053747	<5	<1	93.9	14.2	2.0	23		97.3	0.7	21		33.7	353	14.2		23
										1.8					9		33.6				
DB 430	123_ESTUAR	130700	(130700) Dublin Bay,1km NE Poolbeg Lighthouse - Surface Sample	09/07/2015 10:12	1024537	<5	1			1.9	35	101		6.6	22	33.1		136		14.4	35
				17/09/2015 10:00	1053742	47	<1			2.1	115	101		0.9	37	33.2		368		14.2	68
										2					30	33.2					
	123_ESTUAR	130701	(130701) Dublin Bay,1km NE Poolbeg Lighthouse - Depth Sample	09/07/2015 10:12	1024538	<5	1			2.3	< 15	100		3.9	10	33.4		109		14.4	<10
				17/09/2015 10:00	1053743	<5	1			2.5	30	97		1.1	18	33.8		352		14.2	30
										2.4					14	33.6					
	123A ESTUAR	130702	(130702) Dublin Bay,1km NE Poolbeg Lighthouse - Composite Sample	20/05/2015 10:00	1003402	<5	2	111.7	10.3	8.7	70		111.7	2.1	<5		31.6	27	10.3		70
				06/08/2015 09:21	1036503	9	<1	98.5	14.3	2.5	68		99.1	0.6	9		33.9	104	14.5		59
										5.6					6		32.8				
										?????											
DB 450	123_ESTUAR	130710	(130710) Dublin Bay, South Bull Bouy, 1km SE Poolbeg Lighthouse - Surface Sample	09/07/2015 08:12	1024529	16	<1			<0.1	88	101		2.7	33	32.9		206		14.1	72
										<0.1					33	32.9					
	123_ESTUAR	130711	(130711) Dublin Bay, South Bull Bouy, 1km SE Poolbeg Lighthouse - Depth Sample	09/07/2015 08:15	1024530	<5	<1			0.9	< 15	100		1.7	8	33.4		108		13.8	<10
										0.9					8	33.4					
	123A ESTUAR	130712	(130712) Dublin Bay, South Bull Bouy, 1km SE Poolbeg Lighthouse - Composite Sample	20/05/2015 10:00	1003411	<5	1	111.1	10.3	10.0	< 15		114.0	2.1	<5		31.6	20	10.4		<10
				06/08/2015 11:51	1036512	7	<1	99.9	14.2	1.9	22		100.3	1.1	6		34.4	82	14.3		15
				17/09/2015 10:00	1053752	<5	<1	95.6	14.2	1.6	13		97.5	0.6	19		33.8	357	14.3		13
										1.9					6		33.8				
DB 510	123_ESTUAR	130720	(130720) Dublin Bay, 2.5km ENE Poolbeg Lighthouse - Surface Sample	09/07/2015 09:57	1024535	<5	<1			1.2	18	102		0.9	12	33.0		129		14.1	18
				06/08/2015 09:42	1036504	29	<1			1.2	62	99		1.1	22	33.7		128		14.3	33
				17/09/2015 10:00	1053744	52	<1			2.0	131	99		0.6	40	33.4		371		14.2	79
										1.2					22	33.4					
	123_ESTUAR	130721	(130721) Dublin Bay, 2.5km ENE Poolbeg Lighthouse - Depth Sample	09/07/2015 09:59	1024536	<5	<1			2.3	12	99		2.7	11	33.4		115		14.1	12
				06/08/2015 09:43	1036505	8	<1			2.5	56	99		1.1	11	34.0		100		14.1	48
				17/09/2015 10:00	1053745	<5	<1			1.9	< 15	96		1.6	15	33.7		404		14.2	<10
										2.3					11	33.7					
	123A ESTUAR	130722	(130722) Dublin Bay, 2.5km ENE Poolbeg Lighthouse - Composite Sample	20/05/2015 10:00	1003403	<5	1	111.1	10.2	5.1	62		112.1	1.2	6		31.6	11	10.3		62
										8.1					6		31.6				
										??????											
DB 540	123A ESTUAR	130732	(130732) Dublin Bay, 2.5km SSE Poolbeg Lighthouse - Composite Sample	20/05/2015 10:00	1003410	<5	1	109.9	10.3	9.9	63		112.6	2.9	<5		31.6	25	10.4		63
				09/07/2015 08:29	1024531	<5	<1	98.4	13.6	1.7	< 15		101.1	1.5	9		33.4	108	13.9		<10
				06/08/2015 11:37	1036511	14	<1	98.5	14.0	1.5	30		101.2	1.0	5		34.4	95	14.3		16
				17/09/2015 10:00	1053751	<5	<1	95.3	14.2	1.7	14		97.4	0.9	20		33.7	360	14.3		14
										1.7					7		33.6				
DB 550	123A ESTUAR	130742	(130742) Dublin Bay, No. 4 Bouy, 2.5km E of S Poolbeg Lighthouse - Composite Sample	20/05/2015 10:00	1003409	<5	2	111.1	10.4	11.7	62		113.5	3.7	<5		31.6	25	10.4		62
				09/07/2015 07:51	1024528	<5	<1	99.1	13.6	1.1	< 15		101.2	1.8	7		33.4	108	13.7		<10
				06/08/2015 11:23	1036510	6	<1	97.8	14.2	1.7	6		98.7	0.9	5		34.4	120	14.2		<10
				17/09/2015 10:00	1053750	<5	<1	95.0	14.2	1.6	25		96.8	0.8	21		33.8	347	14.2		25
										2.1					6		33.6				

DB 560	123A ESTUAR	130752	(130752) Dublin Bay, Drumleck Point, 5km ENE Poolbeg Lighthouse - Composite Sample	20/05/2015 10:00	1003404	<5	2	110.6	10.3	7.9	61		112.3	1.7	<5		31.6	29	10.4		61
				09/07/2015 09:42	1024534	<5	<1	98.7	13.7	1.1	10		102.9	2.2	12		33.3	116	14.2		10
				06/08/2015 09:59	1036506	<5	<1	98.5	14.1	2.9	< 15		98.3	1.0	12		34.0	92	14.6		<10
				17/09/2015 10:00	1053746	<5	<1	95.0	14.2	1.3	26		97.8	0.6	20		33.6	392	14.2		26
										2.1					**12**		33.5				
DB 570	123A ESTUAR	130762	(130762) Dublin Bay, 5km ESE Poolbeg Lighthouse - Composite Sample	20/05/2015 10:00	1003407	<5	1	109.4	10.4	10.7	48		111.8	1.8	<5		31.6	29	10.4		48
				09/07/2015 08:45	1024532	<5	<1	97.6	14.1	1.9	< 15		100.3	1.1	8		33.4	98	14.0		<10
				06/08/2015 10:48	1036508	6	<1	97.7	14.1	2.4	6		100.6	1.1	7		34.3	96	14.4		<10
				17/09/2015 10:00	1053748	<5	<1	94.8	14.2	2.0	30		96.6	0.9	21		33.8	369	14.2		30
										2.2					**8**		33.6				
DB 580	123A ESTUAR	130772	(130772) Dublin Bay, Dún Laoghaire, 5km E of S Poolbeg Lighthouse - Composite Sample	20/05/2015 10:00	1003408	<5	1	110.2	10.3	8.9	47		111.9	1.7	2.5		31.6	35	10.4		47
				08/07/2015 10:07	1023911	9	<1	99.7	13.8	1.5	9		100.4	1.3	125		33.9	112	13.8		<10
				06/08/2015 11:08	1036509	<5	<1	99.1	13.9	1.9	< 15		100.8	1.2	7		34.4	1609	14.1		<10
				17/09/2015 10:00	1053749	<5	<1	94.8	14.2	1.5	< 15		96.8	1.0	17		33.8	373	14.2		<10
										1.7					**12**		33.9				
															37.9						

Table 7.2.5 Coastal Monitoring – Bathing Water Quality Data: ASW11 – ASW18

			Appendix 7.2(5) - Bathing Waters 2015 Season												
Report for Samples Taken During the Period: 01/01/2015 - 31/12/2015															
Customer	Test List	Sampling	Sampling Point Description	Sampled Date	Sample Number	E. coli MPN/100ml	Enterococci CFU/100ml	Enterococci (Confirmed) CFU/100ml	Floating Materials	Mineral Oil (visual)	pH pH	Phenols_Olfactory	Salinity PSU	Surfactants	Visual Inspection
DCC	121_BEACH	40520	(40520) Dollymount North	27/05/2015 07:20	1006128	<10	1		Absent	Absent	8.3	Absent	33.9	Absent	Normal
			ASW - 11												
			Bathing Season	02/06/2015 10:10	1008176	279		700	Absent	Absent	8.1	Absent	33.5	Absent	Normal
				08/06/2015 17:00	1010989	10	10		Absent	Absent	8.6	Absent	34	Absent	Normal
				15/06/2015 11:00	1014314	<10	5		Absent	Absent	8.3	Absent	33.8	Absent	Normal
				22/06/2015 17:00	1017477	10	<1		Absent	Absent	8.2	Absent	33.8	Absent	Normal
				28/06/2015 09:30	1019728	<10	11		Absent	Absent	8.1	Absent	32.4	Absent	Normal
				01/07/2015 11:55	1021123	20	28		Absent	Absent	8.4	Absent	33.3	Absent	Normal
				06/07/2015 15:40	1023217	52	63		Absent	Absent	8.1	Absent	33.4	Absent	Normal
				13/07/2015 10:40	1025717	10	2		Absent	Absent	8.2	Absent	33.1	Absent	Normal
				19/07/2015 14:30	1028185	20	12		Absent	Absent	8.6	Absent	34.1	Absent	Normal
				21/07/2015 15:30	1029044	<10	18	18	Absent	Absent	8.4	Absent	33.7	Absent	Normal
				27/07/2015 09:10	1032180	<10	4		Absent	Absent	8.1	Absent	33.5	Absent	Normal
				04/08/2015 15:20	1035907	10	72		Absent	Absent	8.2	Absent	33.9	Absent	Normal
				10/08/2015 09:00	1037533	31	8		Absent	Absent	8.3	Absent	33.8	Absent	Normal
				16/08/2015 13:40	1040317	20	23		Absent	Absent	8.3	Absent	33.7	Absent	Normal
				17/08/2015 14:00	1040669	10	4		Absent	Absent	8.4	Absent	33.9	Absent	Normal
				24/08/2015 07:00	1043405	31	21		Absent	Absent	8.1	Absent	32.8	Absent	Normal
				26/08/2015 09:20	1044313	98	6		Absent	Absent	8.2	Absent	33	Absent	Normal
				31/08/2015 13:10	1046086	20	15		Absent	Absent	8.4	Absent	33.5	Absent	Normal
				07/09/2015 07:00	1048717	<10	3		Absent	Absent	8.1	Absent	33.7	Absent	Normal
				14/09/2015 14:45	1052142	41	21		Absent	Absent	8.1	Absent	32.3	Absent	Normal
			N			21	21								
			2015 Bathing Season Status			Excellent	Excellent								
		40526	(40526) Dollymount Bathing Zone	27/05/2015 07:40	1006129	<10	<1		Absent	Absent	8.3	Absent	33.6	Absent	Normal
			ASW - 12												
			Bathing Season	02/06/2015 10:40	1008177	583		1130	Absent	Absent	8.1	Absent	33.4	Absent	Normal
				08/06/2015 17:35	1010990	<10	1		Absent	Absent	8.3	Absent	34.1	Absent	Normal
				15/06/2015 11:20	1014315	<10	15		Absent	Absent	8.2	Absent	33.9	Absent	Normal
				22/06/2015 17:25	1017478	<10	<1		Absent	Absent	8.2	Absent	33.8	Absent	Normal
				30/06/2015 12:15	1020595	311	21		Absent	Absent	8.3	Absent	32.6	Absent	Normal
				01/07/2015 12:15	1021124	52	21		Absent	Absent	8.5	Absent	33.2	Absent	Normal
				06/07/2015 16:00	1023218	120		117	Absent	Absent	8.2	Absent	32.6	Absent	Normal
				13/07/2015 11:00	1025718	31	5		Absent	Absent	8.2	Absent	32.8	Absent	Normal
				19/07/2015 14:50	1028186	<10	2		Absent	Absent	8.5	Absent	34.1	Absent	Normal
				21/07/2015 16:00	1029045	10	5		Absent	Absent	8.3	Absent	33.4	Absent	Normal
				27/07/2015 09:35	1032181	10	7		Absent	Absent	8.1	Absent	33.6	Absent	Normal
				04/08/2015 15:50	1035908	31		210	Absent	Absent	8.2	Absent	33.9	Absent	Normal
				10/08/2015 09:25	1037534	<10	5		Absent	Absent	8.2	Absent	33.9	Absent	Normal
				16/08/2015 13:25	1040318	537	32		Absent	Absent	8.5	Absent	33.9	Absent	Normal
				17/08/2015 13:40	1040670	52	10		Absent	Absent	8.7	Absent	33.9	Absent	Normal
				24/08/2015 07:30	1043406	495		280	Absent	Absent	8	Absent	33	Absent	Normal
				31/08/2015 13:20	1046087	98	26		Absent	Absent	8.3	Absent	33.4	Absent	Normal
				07/09/2015 07:30	1048718	10	5		Absent	Absent	8.1	Absent	33.9	Absent	Normal
				14/09/2015 14:30	1052143	31	37		Absent	Absent	8.1	Absent	32.1	Absent	Normal
			N			20	20								
			2015 Bathing Season Status			Sufficient	Poor								

40530	(40530) Dollymount South	27/05/2015 08:00	1006130	1046		420	Absent	Absent	8.2	Absent	29	Absent	Normal
	ASW-13												
		02/06/2015 11:05	1008178	882		240	Absent	Absent	8.1	Absent	29.5	Absent	Normal
		08/06/2015 18:10	1010991	52	15		Absent	Absent	8.6	Absent	34.5	Absent	Normal
		15/06/2015 11:50	1014316	20	5		Absent	Absent	8.2	Absent	32.4	Absent	Normal
		22/06/2015 17:50	1017479	<10	<1		Absent	Absent	8.3	Absent	32.9	Absent	Normal
		28/06/2015 10:30	1019730	41	13		Absent	Absent	8.1	Absent	31.8	Absent	Normal
		01/07/2015 12:35	1021125	41	9		Absent	Absent	8.2	Absent	32.8	Absent	Normal
		06/07/2015 16:25	1023219	31	11		Absent	Absent	8.2	Absent	33.8	Absent	Normal
		13/07/2015 11:20	1025719	158	28		Absent	Absent	8.1	Absent	33.3	Absent	Normal
		19/07/2015 15:15	1028187	135	72		Absent	Absent	8.2	Absent	31.4	Absent	Normal
		21/07/2015 16:30	1029046	10	2	2	Absent	Absent	8.2	Absent	32.8	Absent	Normal
		27/07/2015 10:00	1032182	379	63		Absent	Absent	8.1	Absent	31.5	Absent	Normal
		04/08/2015 16:20	1035909	10	15		Absent	Absent	8.2	Absent	33.4	Absent	Normal
		10/08/2015 09:50	1037535	86	25		Absent	Absent	8.1	Absent	32.7	Absent	Normal
		16/08/2015 14:15	1040319	110	74		Absent	Absent	8.2	Absent	33.8	Absent	Normal
		17/08/2015 14:25	1040671	<10	13		Absent	Absent	8.4	Absent	33.7	Absent	Normal
		24/08/2015 08:15	1043407	6131		2000	Absent	Absent	7.9	Absent	25.9	Absent	Normal
		26/08/2015 09:55	1044315	1597		410	Absent	Absent	8	Absent	29.3	Absent	Normal
		31/08/2015 14:00	1046088	10	8		Absent	Absent	8.1	Absent	33.4	Absent	Normal
		07/09/2015 07:50	1048719	331		200	Absent	Absent	8	Absent	31.1	Absent	Normal
		14/09/2015 13:40	1052144	146	28		Absent	Absent	8.1	Absent	33.1	Absent	Normal
	N			21	21								
	2015 Bathing Season Status			Poor	Poor								
40535	(40535) Bull Wall Wood Causeway	27/05/2015 08:20	1006131	<10		1550	Absent	Absent	8.3	Absent	33.5	Absent	Normal
	ASW-14												
		02/06/2015 11:20	1008179	52	79		Absent	Absent	8.2	Absent	32.9	Absent	Normal
		08/06/2015 18:35	1010992	<10	<1		Absent	Absent	8.2	Absent	33.6	Absent	Normal
		15/06/2015 12:00	1014317	<10	7		Absent	Absent	8.3	Absent	33.4	Absent	Normal
		22/06/2015 14:10	1017480	<10	1		Absent	Absent	8.4	Absent	34.1	Absent	Normal
		28/06/2015 11:00	1019731	10	2		Absent	Absent	8.2	Absent	33.8	Absent	Normal
		01/07/2015 12:45	1021127	110	24		Absent	Absent	8.3	Absent	32.9	Absent	Normal
		06/07/2015 16:40	1023220	<10	34		Absent	Absent	8.2	Absent	33.9	Absent	Normal
		13/07/2015 11:40	1025720	813	30		Absent	Absent	8	Absent	33.3	Absent	Normal
		19/07/2015 15:30	1028188	10	5		Absent	Absent	8.2	Absent	34	Absent	Normal
		21/07/2015 17:00	1029047	10	5	5	Absent	Absent	8.2	Absent	33.9	Absent	Normal
		27/07/2015 10:20	1032183	135	17		Absent	Absent	8.1	Absent	33.7	Absent	Normal
		04/08/2015 16:40	1035910	41	20		Absent	Absent	8.2	Absent	33.5	Absent	Normal
		10/08/2015 10:15	1037536	<10	14		Absent	Absent	8.2	Absent	33.9	Absent	Normal
		16/08/2015 14:00	1040320	10	41		Absent	Absent	8.3	Absent	33.3	Absent	Normal
		17/08/2015 14:10	1040672	<10	5		Absent	Absent	8.3	Absent	33.5	Absent	Normal
		24/08/2015 08:00	1043408	350		280	Absent	Absent	8	Absent	33.7	Absent	Normal
		26/08/2015 10:15	1044316	201	37		Absent	Absent	8.2	Absent	33.3	Absent	Normal
		31/08/2015 14:15	1046089	96	69		Absent	Absent	8.3	Absent	33.5	Absent	Normal
		07/09/2015 08:10	1048720	75	8		Absent	Absent	8.2	Absent	33.9	Absent	Normal
		14/09/2015 14:00	1052145	31	25		Absent	Absent	8.1	Absent	32.1	Absent	Normal
	N			21	21								
	2015 Bathing Season Status			Good	Good								

40538	(40538) Poolbeg Outfall Main Disc	27/05/2015 07:20	1006132	2489	3		Absent	Absent	7.9	Absent	24	Absent	Normal	
	Not a Bathing Area													
	ASW-15	02/06/2015 11:30	1008171	1050		290	Absent	Absent	7.9	Absent	26.6	Absent	Normal	
		08/06/2015 17:00	1011038	19863		2000	Absent	Absent	7.4	Absent	8.8	Absent	Normal	
		15/06/2015 11:35	1014181	556		270	Absent	Absent	8	Absent	27.8	Absent	Normal	
		22/06/2015 16:00	1017471	6131			Absent	Absent	7.9	Absent	26.2	Absent	Normal	
		28/06/2015 09:40	1019732	187		105	Absent	Absent	8	Absent	33.6	Absent	Normal	
		01/07/2015 11:00	1021110	749		119	Absent	Absent	8.1	Absent	28.7	Absent	Normal	
		06/07/2015 17:00	1023221	1722		690	Absent	Absent	8.1	Absent	32.7	Absent	Normal	
		13/07/2015 11:10	1025638	2187		670	Absent	Absent	7.9	Absent	30.3	Absent	Normal	
		19/07/2015 14:00	1028189	2700		1310	Absent	Absent	7.9	Absent	27.1	Absent	Normal	
		21/07/2015 14:30	1029037	450		118	Absent	Absent	8.1	Absent	30.1	Absent	Normal	
		27/07/2015 11:00	1032240	1664		370	Absent	Absent	8	Absent	28.1	Absent	Normal	
		04/08/2015 15:45	1035550	1597		320	Absent	Absent	8.1	Absent	31.4	Absent	Normal	
		10/08/2015 10:40	1037526	1281		300	Absent	Absent	7.9	Absent	27	Absent	Normal	
		16/08/2015 13:15	1040321	63	40		Absent	Absent	8.1	Absent	33.3	Absent	Normal	
		17/08/2015 13:40	1040677	282	97		Absent	Absent	8	Absent	31.8	Absent	Normal	
		24/08/2015 07:00	1043409	4884		2000	Absent	Absent	7.5	Absent	21.3	Absent	Normal	
		31/08/2015 15:20	1046201	24196		1890	Absent	Absent	7.5	Absent	19.6	Absent	Normal	
		07/09/2015 08:30	1048721	3076		950	Absent	Absent	7.7	Absent	24.2	Absent	Normal	
		14/09/2015 14:20	1052106	14136		2000	Absent	Absent	7.6	Absent	21.8	Absent	Normal	
	N			20	19									
40540	(40540) Half Moon Club S-Side Wa	27/05/2015 07:35	1006133	31	12		Absent	Absent	8.3	Absent	33.2	Absent	Normal	
	ASW-16													
		02/06/2015 11:00	1008172	20	21		Absent	Absent	8.1	Absent	33	Absent	Normal	
		08/06/2015 17:35	1011039	<10	<1		Absent	Absent	8.2	Absent	34	Absent	Normal	
		15/06/2015 11:20	1014182	20	1		Absent	Absent	8.2	Absent	33.7	Absent	Normal	
		22/06/2015 15:30	1017472	<10	<1		Absent	Absent	8.2	Absent	32	Absent	Normal	
		28/06/2015 09:30	1019733	10	<1		Absent	Absent	8.1	Absent	33.4	Absent	Normal	
		01/07/2015 11:30	1021111	959	32		Absent	Absent	8.2	Absent	33.2	Absent	Normal	
		06/07/2015 17:20	1023222	<10	13		Absent	Absent	8.1	Absent	32.8	Absent	Normal	
		13/07/2015 11:00	1025639	10	2		Absent	Absent	8	Absent	33.5	Absent	Normal	
		19/07/2015 14:10	1028190	<10	1		Absent	Absent	8.1	Absent	33.7	Absent	Normal	
		21/07/2015 14:45	1029038	<10	<1		Absent	Absent	8.1	Absent	33.4	Absent	Normal	
		27/07/2015 10:45	1032241	31	39		Absent	Absent	8.1	Absent	33.4	Absent	Normal	
		04/08/2015 00:00	1035551	20	5		Absent	Absent	8.1	Absent	33.7	Absent	Normal	
		10/08/2015 10:20	1037527	10	<1		Absent	Absent	8.1	Absent	33.8	Absent	Normal	
		16/08/2015 13:40	1040322	10	1		Absent	Absent	8.1	Absent	34.1	Absent	Normal	
		17/08/2015 14:00	1040678	<10	<1		Absent	Absent	8.1	Absent	34.2	Absent	Normal	
		24/08/2015 07:20	1043410	62	39		Absent	Absent	8	Absent	31.1	Absent	Normal	
		31/08/2015 15:10	1046202	109	29		Absent	Absent	8	Absent	33	Absent	Normal	
		07/09/2015 08:50	1048722	31	14		Absent	Absent	8	Absent	33.6	Absent	Normal	
		14/09/2015 14:40	1052107	110	12		Absent	Absent	8	Absent	33.6	Absent	Normal	
	N			20	20									
	2015 Bathing Season Status			Sufficient	Excellent									

		40542	(40542) Shelley Banks	08/06/2015 17:50	1011042	<10	1		Absent	Absent	8.2	Absent	34.1	Absent	Normal
				15/06/2015 11:45	1014185	20	4		Absent	Absent	8.1	Absent	34.5	Absent	Normal
				22/06/2015 16:10	1017475	10	2		Absent	Absent	8.4	Absent	35.7	Absent	Normal
				28/06/2015 10:00	1019736	<10	4		Absent	Absent	8.1	Absent	33.3	Absent	Normal
				01/07/2015 11:40	1021114	<10	14		Absent	Absent	8.2	Absent	33.9	Absent	Normal
				06/07/2015 16:40	1023225	20	51		Absent	Absent	8.2	Absent	32	Absent	Normal
				13/07/2015 10:55	1025642	275		330	Absent	Absent	8.1	Absent	31.8	Absent	Normal
				19/07/2015 14:20	1028193	<10	2		Absent	Absent	8.3	Absent	34.9	Absent	Normal
				21/07/2015 14:30	1029041	10	12	12	Absent	Absent	8.2	Absent	33.4	Absent	Normal
				27/07/2015 10:30	1032244	10	21		Absent	Absent	8.1	Absent	33.7	Absent	Normal
				04/08/2015 15:40	1035554	228		119	Absent	Absent	8.1	Absent	33	Absent	Normal
				10/08/2015 10:10	1037530	63	13		Absent	Absent	8.1	Absent	34.4	Absent	Normal
				16/08/2015 13:50	1040325	<10	15		Absent	Absent	8.1	Absent	34.4	Absent	Normal
				17/08/2015 14:15	1040681	20	26		Absent	Absent	8.3	Absent	34.8	Absent	Normal
				24/08/2015 07:30	1043414	85	49		Absent	Absent	8.1	Absent	32	Absent	Normal
				31/08/2015 15:00	1046794	<10	6		Absent	Absent		Absent	33.2	Absent	Normal
				07/09/2015 08:20	1048725	313	27		Absent	Absent	8	Absent	33.9	Absent	Normal
				14/09/2015 14:10	1052110	146	70		Absent	Absent	8.1	Absent	33.6	Absent	Normal
			N			18	18								
			2015 Bathing Season Status			Sufficient	Sufficient								
		40545	(40545) Sandymount	27/05/2015 08:00	1006134	75	9		Absent	Absent	8	Absent	34.2	Absent	Normal
			ASW-17												
				02/06/2015 12:00	1008173	161		163	Absent	Absent	8.1	Absent	32.5	Absent	Normal
				04/06/2015 12:35	1009328	20	7		Absent	Absent	8.1	Absent	33.8	Absent	Normal
				08/06/2015 18:20	1011040	<10	1		Absent	Absent	8.2	Absent	34.3	Absent	Normal
				15/06/2015 11:50	1014183	228	38		Absent	Absent	8.2	Absent	35.2	Absent	Normal
				22/06/2015 16:30	1017473	<10	4		Absent	Absent	8.2	Absent	34.5	Absent	Normal
				28/06/2015 10:30	1019734	<10	9		Absent	Absent	8.1	Absent	33	Absent	Normal
				01/07/2015 12:00	1021112	63	5		Absent	Absent	8.2	Absent	33.8	Absent	Normal
				06/07/2015 16:20	1023223	395		440	Absent	Absent	8.1	Absent	28.5	Absent	Normal
				13/07/2015 10:40	1025640	223	74		Absent	Absent	7.9	Absent	30.1	Absent	Normal
				19/07/2015 14:50	1028191	<10	2		Absent	Absent	8.2	Absent	33.6	Absent	Normal
				21/07/2015 15:50	1029039	10	8		Absent	Absent	8.2	Absent	33.4	Absent	Normal
				27/07/2015 09:40	1032242	238	40		Absent	Absent	8	Absent	32	Absent	Normal
				04/08/2015 15:20	1035552	20	31		Absent	Absent	8.2	Absent	34	Absent	Normal
				10/08/2015 09:10	1037528	86	41		Absent	Absent	8.1	Absent	34.2	Absent	Normal
				16/08/2015 14:20	1040323	10	8		Absent	Absent	8.1	Absent	34.9	Absent	Normal
				17/08/2015 14:40	1040679	10	<1		Absent	Absent	8.1	Absent	34.5	Absent	Normal
				24/08/2015 07:45	1043411	201		151	Absent	Absent	8	Absent	29.8	Absent	Normal
				31/08/2015 13:30	1046203	3654		2000	Absent	Absent	8.1	Absent	33.4	Absent	Normal
				07/09/2015 08:00	1048723	712	95		Absent	Absent	7.8	Absent	33.7	Absent	Normal
				14/09/2015 13:20	1052108	231	62		Absent	Absent	8.1	Absent	33.7	Absent	Normal
			N			21	21								
			2015 Bathing Season Status			Sufficient	Sufficient								

		40550 (40550) Merrion Strand	27/05/2015 08:20	1006135	31	6		Absent	Absent	8.2	Absent	34.3	Absent	Normal
		ASW-18												
			02/06/2015 12:10	1008174	86	29		Absent	Absent	8.1	Absent	32.8	Absent	Normal
			08/06/2015 18:45	1011041	63	4		Absent	Absent	8.2	Absent	34.9	Absent	Normal
			15/06/2015 12:00	1014184	288		139	Absent	Absent	8.3	Absent	33.1	Absent	Normal
			22/06/2015 17:00	1017474	31	6		Absent	Absent	8.2	Absent	33.6	Absent	Normal
			28/06/2015 10:50	1019735	6488		1090	Absent	Absent	8.2	Absent	27.6	Absent	Normal
			01/07/2015 12:20	1021113	504		105	Absent	Absent	8.2	Absent	33.6	Absent	Normal
			06/07/2015 15:30	1023224	1112		870	Absent	Absent	8.1	Absent	28.5	Absent	Normal
			13/07/2015 10:30	1025641	20	26		Absent	Absent	8.1	Absent	32.8	Absent	Normal
			19/07/2015 14:30	1028192	10	20		Absent	Absent	8.2	Absent	33.8	Absent	Normal
			21/07/2015 15:30	1029040	203		111	Absent	Absent	8.2	Absent	34.2	Absent	Normal
			27/07/2015 09:10	1032243	332	39		Absent	Absent	8.1	Absent	32.5	Absent	Normal
			04/08/2015 15:00	1035553	8664		1320	Absent	Absent	8.3	Absent	34.1	Absent	Normal
			10/08/2015 09:20	1037529	1872		250	Absent	Absent	8.1	Absent	34.3	Absent	Normal
			16/08/2015 14:45	1040324	31	25		Absent	Absent	8	Absent	35	Absent	Normal
			17/08/2015 15:25	1040680	63	16		Absent	Absent	8.1	Absent	34.6	Absent	Normal
			24/08/2015 08:00	1043412	243		141	Absent	Absent	8	Absent	31.3	Absent	Normal
			31/08/2015 14:00	1046204	369		540	Absent	Absent	8.2	Absent	30.3	Absent	Normal
			07/09/2015 07:30	1048724	473	44		Absent	Absent	8.1	Absent	34.3	Absent	Normal
			14/09/2015 13:30	1052109	175	97		Absent	Absent	8.1	Absent	32.9	Absent	Normal
		N			20	20								
		2015 Bathing Season Status			Poor	Poor								

Appendix 7.3

Pollutant Release and Transfer Register (PRTR) Summary Sheets

Guidance to completing the PRTR workbook

PRTR Returns Workbook

Version 1.1.19

REFERENCE YEAR	2015

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	55
User Feedback/Comments	Total Annual flow (m^3/annum): EP1 - 165,638,393 (2014), 151,824,372 (2015) down 8%. Fugitive - 2,549,327 (2014), 2,781,020 (2015) up 9%. Average concentration of Ammonia at EP1: 8.947mg/l (2014), 14.144mg/l (2015) up 58% therefore Annual Mass Emissions up 45%. Average concentration of BOD at EP1: 16.772mg/l (2014), 20.331mg/l (2015) up 21% therefore Annual Mass Emissions up 11%. Average conc. of SS at EP1: 31.15mg/l (2014), 38.065mg/l (2015) up 22% therefore Annual Mass Emissions up 12%. Average conc. of Total Nitrogen at EP1: 14.834mg/l (2014), 20.424mg/l (2015) up 38% therefore Annual Mass Emissions up 26%.
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

PRINT THIS SHEET

HELP

CREATE AER XML RETURN & UPLOAD

4.1 RELEASES TO AIR Link to previous years emissions data | PRTR# : D0034 | Facility Name : Ringsend Waste Water Treatment Plant | Filename : D0034_2015.xlsm | Return Year : 2015 | 10/02/2016 13:51

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	13.0	0.0	13.0
02	Carbon monoxide (CO)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	11305.0	13878.0	0.0	2573.0
03	Carbon dioxide (CO2)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	3331944.0	40224583.0	0.0	36892639.0
05	Nitrous oxide (N2O)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	234.0	0.0	234.0
07	Non-methane volatile organic compounds (NMVOC)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	812.0	0.0	812.0
08	Nitrogen oxides (NOx/NO2)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	34576.0	42446.0	0.0	7870.0
11	Sulphur oxides (SOx/SO2)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	768.0	0.0	768.0
					0.0	0.0	0.0	0.0
					0.0	0.0	0.0	0.0
					0.0	0.0	0.0	0.0
					0.0	0.0	0.0	0.0
					0.0	0.0	0.0	0.0
					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

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_2015.xlsm | Return Year : 2015 | 10/02/2016 13:51

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	0.421	0.427	0.0	0.006
17	Arsenic and compounds (as As)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	336.544	340.298	0.0	3.754
27	Atrazine	E	ESTIMATE	EPA UWWTP Tool Version 5.0	1.587	1.619	0.0	0.032
62	Benzene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	2.553	3.015	0.0	0.462
91	Benzo(g,h,i)perylene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.304	0.31	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	7.844	8.609	0.0	0.765
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	133301798.616	133301798.616	0.0	0.0
31	Chloro-alkanes, C10-C13	E	ESTIMATE	EPA UWWTP Tool Version 5.0	31.887	32.471	0.0	0.584
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	46.813	47.091	0.0	0.278
20	Copper and compounds (as Cu)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	1854.788	1870.501	0.0	15.713
82	Cyanides (as total CN)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	445.121	452.908	0.0	7.787
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	139.264	147.496	0.0	8.232
35	Dichloromethane (DCM)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	6.901	7.235	0.0	0.334
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	4.003	4.003	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	2.519	2.837	0.0	0.318
88	Fluoranthene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.355	0.39	0.0	0.035
83	Fluorides (as total F)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	83503.405	84421.142	0.0	917.737
40	Halogenated organic compounds (as AOX)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	362.382	369.02	0.0	6.638
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	1.139	1.181	0.0	0.042
23	Lead and compounds (as Pb)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	461.454	491.489	0.0	30.035
45	Lindane	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.069	0.072	0.0	0.003
21	Mercury and compounds (as Hg)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.278	0.0	0.278
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	0.607	1.009	0.0	0.402
22	Nickel and compounds (as Ni)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	646.404	656.416	0.0	10.012
64	Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	12.595	15.623	0.0	3.028
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	138.127	363.017	0.0	224.89
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	1.883	2.481	0.0	0.598
51	Simazine	E	ESTIMATE	EPA UWWTP Tool Version 5.0	2.139	2.178	0.0	0.039
52	Tetrachloroethylene (PER)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	8.971	8.971	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	74.887	113.607	0.0	38.72
12	Total nitrogen	M	OTH	Digestion & Colorimetry	3100860.974	3205574.72	0.0	104713.746
76	Total organic carbon (TOC) (as total C or COD/3)	M	OTH	Potassium Dichromate Method	4325324.534	4857959.39	0.0	532634.856
13	Total phosphorus	M	OTH	Digestion & Colorimetry	596517.958	613234.669	0.0	16716.711
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	17.598	22.014	0.0	4.416
24	Zinc and compounds (as Zn)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	7494.603	7833.609	0.0	339.006

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	721.166	723.02	0.0	1.854
205	Antimony (as Sb)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	23.464	24.799	0.0	1.335
368	Molybdenum	E	ESTIMATE	EPA UWWTP Tool Version 5.0	230.267	234.16	0.0	3.893
358	Tin	E	ESTIMATE	EPA UWWTP Tool Version 5.0	459.269	459.269	0.0	0.0
373	Barium	E	ESTIMATE	EPA UWWTP Tool Version 5.0	3488.165	3587.262	0.0	99.097
374	Boron	E	ESTIMATE	EPA UWWTP Tool Version 5.0	44560.453	45465.212	0.0	904.759
356	Cobalt	E	ESTIMATE	EPA UWWTP Tool Version 5.0	26.684	27.574	0.0	0.89
386	Vanadium	E	ESTIMATE	EPA UWWTP Tool Version 5.0	414.066	428.527	0.0	14.461
388	Dichlobenil	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.652	0.659	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	16.252	16.583	0.0	0.331
380	2,4 Dichlorophenol (2,4 D)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	7.746	7.845	0.0	0.099
384	MCPA	E	ESTIMATE	EPA UWWTP Tool Version 5.0	13.457	13.485	0.0	0.028
382	Glyphosate	E	ESTIMATE	EPA UWWTP Tool Version 5.0	232.705	233.801	0.0	1.096
389	Benzo[a]pyrene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.304	0.31	0.0	0.006
390	Benzo[b]fluoranthene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.304	0.31	0.0	0.006
391	Benzo[k]fluoranthene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.304	0.31	0.0	0.006
392	Indeno[1,2,3-c,d]pyrene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.335	0.341	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	12.215	12.382	0.0	0.167
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	0.074	0.074	0.0	0.0
238	Ammonia (as N)	M	OTH	Colorimetric Analysis	2147403.918	2222794.589	0.0	75390.671
303	BOD	M	OTH	5 Day BOD Test	3086741.307	3880505.597	0.0	793764.29
306	COD	M	OTH	Potassium Dichromate Method	12976429.075	14574330.86	0.0	1597901.785
362	Kjeldahl Nitrogen	M	OTH	Digestion & Colorimetry	2570386.618	2674733.269	0.0	104346.651
327	Nitrate (as N)	M	OTH	Colorimetric Analysis	494188.331	494433.061	0.0	244.73
372	Nitrite (as N)	M	OTH	Colorimetric Analysis	50102.043	50188.255	0.0	86.212
332	Ortho-phosphate (as PO4)	M	OTH	Colorimetric Analysis	1241467.89	1264681.064	0.0	23213.174
240	Suspended Solids	M	OTH	Gravimetric Analysis	5779194.72	6537678.991	0.0	758484.271
					0.0	0.0	0.0	0.0
					0.0	0.0	0.0	0.0
					0.0	0.0	0.0	0.0
					0.0	0.0	0.0	0.0
					0.0	0.0	0.0	0.0
					0.0	0.0	0.0	0.0
					0.0	0.0	0.0	0.0
					0.0	0.0	0.0	0.0

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

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 | PRTR# : D0034 | Facility Name : Ringsend Waste Water Treatment Plant | Filename : D0034_2015.xlsm | Return Year : 2015 | 10/02/2016 13:51

Please enter all quantities on this sheet in Tonnes 3

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	809.0	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	653.0	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	18682.0	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

Stormwater Overflow Assessment

7.4.1 Stormwater Overflow SW2 at Ringsend WWTP

Storm water overflows occurred from SW2 in the Ringsend WWTP on 30 dates in 2015. These are tabulated below. These overflows are compliant and have been screened and settled in the storm water holding tanks before discharge, the majority of these occurred during December with the exceptionally high rainfall. See Section 4 of main report.

2015	TOTAL Influent	Effluent	Storm Discharge	Rank
	m^3/day	m^3/day	m^3/day	> 200,000 m^3/day
02/05/2015	873474.4	848755.4	24719	
03/05/2015	792900.4	763407.4	29493	
08/05/2015	773424.7	738622.7	34802	
09/05/2015	606688	606605	83	
23/08/2015	835878	737087	98791	
31/08/2015	464767	459523	5244	
07/11/2015	559247	537057	22190	
08/11/2015	660555	571371	89184	
09/11/2015	540430	540164	266	
11/11/2015	567571	556852	10719	
14/11/2015	774474.5	629966.5	144508	
15/11/2015	655488.8	619441.8	36047	
18/11/2015	705992.7	698204.7	7788	
03/12/2015	1119766	834739	285027	4
04/12/2015	884871	830856	54015	
05/12/2015	822235	785457	36778	
10/12/2015	616276	598849	17427	
12/12/2015	1179832	704079	475753	1
13/12/2015	669859	649827	20032	
14/12/2015	833046	707202	125844	
15/12/2015	764839	752731	12108	
16/12/2015	675130	674275	855	
24/12/2015	653595	647316	6279	
25/12/2015	1055356	845023	210333	5
26/12/2015	1139710	850228	289482	3
27/12/2015	781187	751314	29873	
28/12/2015	819435	770589	48846	
29/12/2015	810193	666456	143737	
30/12/2015	1081366	703773	377593	2
31/12/2015	906193	762989	143204	
		N	**30**	
		Total	**2,781,020**	
		Max	**475753**	
		Min	**83**	

South Dublin County Council Functional Area

The Storm Water Overflows (SWO) and Emergency Overflows (EO) that are maintained by South Dublin County Council on behalf of Irish Water. One such overflow is located Milltown CSO at Patrick Doyle Road. This overflow is located in the administrative area of Dún Laoghaire Rathdown County Council and is included in the area of agglomeration of that Local Authority.

Storm water overflows have been assessed as to their compliance to the criteria as contained in section 4 of the DoEHLG guidance document 'Procedures and Criteria in relation to Storm Water Overflows':-

1. Causes significant visual or aesthetic impact and public complaints
2. Causes deterioration in water quality in the receiving water
3. Gives rise to failure in meeting the requirements of national regulations on foot of EU Directives (Bathing Waters, etc.)
4. Dry weather operation

The Milltown CSO located at Patrick Doyle Road (which is denoted DLRCC_B5_R_05 in licence application and located 316783E, 230085N) has been noted to cause aesthetic impact following an overflow. This CSO is deemed not to be in compliance with the criteria as set out above.

All other overflows meet the criteria.

Dún Laoghaire Rathdown County Council Functional Area

A very comprehensive stormwater overflow identification report was submitted with the AER for 2011. Works to the SWOs carried out were listed in the subsequent AERs. In 2015, four of the CSOs were monitored, namely Maretimo Gardens, DLRCC/B5/R25, The Beeches Monkstown Valley DLRCC/B5/R27, Millmount Grove DLRCC/B5/R/013, Windsor Terrace DLRCC/B5/R28. In October 2015 a monitor was installed at St Thomas Meade DLRCC/B5/R/004 to assess the contribution of overflows into the Trimbleston stream on water quality at Merrion Strand. Early indication are that this overflow may not meet the DOEHLG criteria for CSOS but an assessment will be made in October 2016. Based on the observations of very experienced staff members and some monitoring, only 2 of the overflows do not meet all the DoEHLG Guidance criteria, Landscape Rd DLRCC/B5/R/009 and Seafort Parade DLRCC/B5/R/017. Both CSOs operate due to insufficient capacity in the network downstream of their locations. Until a drainage study is carried out very little can be done to limit the number of spills or indeed their impacts.

Appendix 7.5

Programme of Improvements

Dublin City Council Functional Area

No specified improvement report for this functional area. See Section 4.4.2 for improvement details.

South Dublin County Council Functional Area

Updated Improvement Programme 2015

Pumping Station	Description of Works	Benefits
Lucan Low Level PS	Replacement Pump 2 with new improved design	Help prevent clogging and improve reliability of Lucan Low Level PS
Newcastle PS	Installation of Pump 4 in station	Help prevent pump clogging at Newcastle
Whitehall Road PS	Installation of Odour Control Unit	Reduce/Eliminate Odour coming from wet-well reaching nearby residential properties.
Tobbermaclug PS	Macerator installed in lieu of rotating bar interceptor in inlet channel	To help prevent clogging
Tobbermaclug PS	SCADA upgrade	Enhance telemetry reliability and pumping station monitoring
Esker Drainage PS	Back-up generator replacement	Enhance facility reliability, maintain pumping during power outages
Peamount PS	Replacement of 2 No. pumps	To improve reliability

Planned Improvement works in 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
Arthur Griffith Park	Repair and relay foul sewer	To prevent chokes and flooding
Esker PS	Replacement of Pumps 5 & 6	To improve station throughput
Dodder Valley Trunk sewer CSO	Installation overflow monitoring and data recording equipment	Monitoring capacity difficulties in the Dodder Valley Trunk Sewer
Lucan Low Level PS	Replacement Pump 1 with new improved design	Help prevent clogging and improve reliability of Lucan Low Level PS

Fingal County Council Functional Area

No specified improvement report for this functional area. See Section 4.4.2 for improvement details.

Dún Laoghaire Rathdown County Council Functional Area

A. Continue in Construction

Dún Laoghaire Sewerage Scheme Phase 1	2D Foul Sewer Upgrade as part of Leopardstown Roundabout Upgrade	A. Continue in Construction

B. Review Scope and Commence Construction

Dún Laoghaire Sewerage Scheme	Phase 1 Contract 2e - Moreen Environs Foul Sewer Upgrade, Phase 4	B. Review Scope and commence Construction
Dún Laoghaire Sewerage Scheme Phase 1	Contract 2 - Network Upgrade Sandyford/Stillorgan Improvement-Tunnel	B. Review Scope and commence Construction
Wastewater	Windsor Terrace Overflow Extension	B. Review Scope and commence Construction

C. Continue Planning and Business

Wastewater	DLR SS Ph1 C2 Nwk Upgrade Tunnel	Continue Planning and Business Case Review
Wastewater	Goatstown Rd Local Network Reinforcement	Continue Planning and Business Case Review
Wastewater	Johnstown Rd Cabinteely Local Network Reinforcement	Continue Planning and Business Case Review
Wastewater	Landscape Rd, Churchtown Local Network Reinforcement	Continue Planning and Business Case Review

Meath County Council Functional Area

No specified improvement report for this functional area.

Appendix 7.6

Sewer Integrity Tool Output

Appendix 7.6 (a) – Sewer Integrity Tool Output: North Fringe Sewer Catchment

Section 2.1 Hydraulic Risk Assessment

Query	Description	Prompt	Risk Score	Short Commentary by the Local Authority	Comment or Action to be Taken
2.1	Has a Hydraulic Performance Assessment been undertaken for the Sewer Network (e.g., Computer Model or other Engineering Design or Design Review)?	Yes	0		If the answer is **No** assess the need and cost benefit of developing a computer model or engineering design assessment of the Sewer Network and complete Query 2.12. If the answer is **Yes** proceed to Queries 2.1.1 to 2.1.4 inclusive
2.1.1	If Answer to Query 2.1 is Yes, what % of the Network is covered by the hydraulic assessment?	20%	20		The % coverage of the Network by the Hydraulic Assessment can be estimated by the area assessed against the area served by the Network. ENTER "N/A" IF COMPUTER MODEL or DESIGN DOES NOT EXIST. DO NOT LEAVE BLANK OR ENTER "0".
2.1.2	How many years has it been since the completion of the hydraulic assessment?	more than 10	5		Select N/A response if no design assessment or design exists.
2.1.3	Are the outcomes of the Hydraulic Assessment being implemented?	Yes	0		Select N/A response if no design assessment or design exists.
2.1.4	How many years has it been since the outcomes of the hydraulic assessment have been implemented?	more than 10	5		Select N/A response if no hydraulic performance assessment or design exists. For ongoing works select "less than 5".
2.2	Has a Dynamic Computer Model been used to Assess the Hydraulic Performance of the Sewer Network?	Yes	0		Computer Model means a Hydroworks/Infoworks Model, Micro-Drainage Model or equivalent.
2.3	Has a Manhole Survey been undertaken in accordance with WRc Documentation "Model Contract Document for Manhole Location Surveys and the Production of	No	10		If the answer is **No** assess the need and cost benefit of undertaking a Manhole Survey and complete Query 2.12. If the answer is **Yes** proceed to Query 2.3.1
2.3.1	If yes, how many years has it been since the survey was undertaken or updated?	more than 10	0		Select N/A if no Manhole Survey has been undertaken. Enter N/A value for Confidence Grade if Prompt Box is "N/A"
2.4	Has a Flow Survey been undertaken in accordance with WRc Documentation "A Guide to Short Term Flow Surveys of Sewer Systems" and "Contract Documents	No	20		If the answer is **No** assess the need and cost benefit of undertaking a Flow Monitoring Survey and complete Query 2.12. . If answer is **Yes** Proceed to Query 2.5
2.5	What was this Flow Survey Information Used for?				
2.5.1	To Determine the extent of Problematic Sewer Catchments	Yes	0		Select N/A if no Flow Survey has been undertaken.
2.5.2	To Verify a Computer or Mathematical Model of the Network	N/A	0		Select N/A if no Flow Survey has been undertaken.
2.6	Have performance criteria been developed to determine the short, medium or long term capacity of the sewer	No	10		If the answer is **No** assess the Future Needs of the Sewer Network and complete Query 2.12. If the answer is **Yes** proceed to Query 2.8
2.7	How many flood events resulting from surcharge in the network have occurred in the past 3 years?	more than 6	10		Flood events in this context means waterfrom sewage backing up from the Network causing flooding of properties or causing disruption of traffic
2.8	Are there deficiencies in performance criteria within the sewer network?	Yes	20		If the answer is **No**, Proceed to Query 2.10 and complete Query 2.12. If the answer is **Yes** proceed to Query 2.9
2.9	Have the causes of these deficiencies in the Performance Criteria been identified and rectified?	No	10		If the answer is **No**, consider further examination of the hydraulic model (if available) and complete Query 2.12. If the answer is **Yes** proceed to Query 2.10
2.10	Can the Hydraulic Assessment carried out in Query 2.1 above) be used to determine the benefit of reducing the contributory Impermeable Areas or extent of surface	No	10		If the answer is **No**, consider further development of the Hydraulic Assessment (or model if available) and complete Query 2.12. If the answer is **Yes** proceed to Query 2.11
2.11	Has an Impermeable Area Survey been carried out for the agglomerations or parts of the agglomerations?	No	10		If the answer is **No**, consider the need and cost benefit of undertaking an Impermeable Survey for parts of the agglomeration which are under hydraulic pressure and complete Query 2.12. .
	Total Risk Assessment Score (RAS)		130		
2.12	Prepare Assessment of Needs & Sewer Upgrade Implementation Plan	In the AER Attach Assessment of Needs and Rehabilitation Implementation Plan as separate documents			

Section 3.1 Environmental Risk Assessment

Query	Description	Prompt	Risk Score	Short Commentary by the Local	Comment or Action to be Taken
3.1	What Environmental or Discharge Quality Data is available with regard to the sewer network?	largely anecdotal	20		Select N/A if no discharges, secondary discharges or overflows from network; if discharges do exist complete Query 3.12
3.1.1	Do trade effluents discharge to the sewer network?	Yes	20		If the answer is **No**, proceed to Query 3.1.2. If the answer is **Yes**, Proceed to Query 3.2
3.1.2	Are there Storm Water Overflows within the network?	Yes	20		If the answer is **No**, proceed to Query 3.1.3. If the answer is **Yes**, Proceed to Query 3.3
3.1.3	Are there Secondary Discharges within the network (excluding Emergency Overflows at Pump	No	0		If the answer is **No**, proceed to Query 3.1.4.
3.1.4	Is there any evidence that exfiltration is occurring from the network?	No	0		If the answer is **No**, does all wastewater enter a wastewater treatment plant (insert summary details in the AER)? If **Yes**, Proceed to Query 3.6
3.2	If Answer to Query 3.1.1 is "Yes", what % of trade effluents have a licence to Discharge to the Public Sewer?	>90%	0		Select N/A if answer to Query 3.1.1 is **No**. If not all trade effluents are licenced, Local Authority should consider issuing and controlling such discharges under the appropriate Legislation.
3.2.1	Are all licenced trade Discharges compliant with their relevant licence and associated conditions	Yes	0		Answer N/A if none of the trade effluents are licenced. Answer No if this information is unknown. If the answer is **Unknown** or **No**, consider issuing a direction to the relevant Licensee. If the answer
3.2.2	If Answer to Query 3.2.1 is "No", state what % of Trade Discharges are NOT compliant with their relevant licence and associated conditions (where that	0 - 10%	0		Select **N/A** if answer to Query 3.2.1 is Yes. If N/A is selected or answer to Query 3.2.2
3.3	In accordance with the DoEHLG paper "Procedures & Criteria in relation to Storm Water Overflows", what % of storm water overflows in the system have been classified for their	75 - 100%	10		If the answer is **No**, consider a review of each discharge within the sewer network complete and Query 3.11. If the answer is **Yes**, proceed to Query 3.6
3.4	Have samples from any Secondary Discharges within the system been analysed?	No	30		Select N/A if no secondary discharges in system. If the answer to Query 3.4 is **No**, consider examining the quality of each secondary discharge within the sewer network complete Query 3.11. If the
3.5	What percentage of discharges from the system are known to cause environmental pollution of the receiving waters?	11 - 20%	20		If the answer is greater than 50% then detail, in the AER, the Improvement Programme necessary to reduce this percentage.
3.6	In relation to possible exfiltration has a risk analysis of ground water contamination or pollution been	No	20		Select N/A if answer to Query 3.1.4 is NO. If the answer is **No**, consider undertaking ground water risk analysis and complete Query 3.12
3.6.1	If Answer to Query 3.6 is "Yes", have any groundwater aquifers been identified in the area of the Network and/or Discharge Points?	N/A	0		Select **N/A** if no risk analysis of groundwater contamination has been undertaken.
3.6.2	If Answer to Query 3.6.1 is "Yes", state the classifications of groundwater aquifer identified in the area?	N/A	0		Select **N/A** if no risk analysis of groundwater contamination has been undertaken.
3.6.3	In relation to Query 3.6.1, is the aquifer used as a source for Public, Private or Group Water Supply	No	0		Select **N/A** if no risk analysis of groundwater contamination has been undertaken.
3.7	Has an Impact Assessment of each Storm Water Overflow been undertaken in accordance with the DoEHLG paper "Procedures & Criteria in relation to Storm Water Overflows"	Yes	0		If the answer is **No**, consider assessing the risk category of the receiving waters. If the answer is **Yes**, proceed to Query 3.8 and provide summary details of the assessment in the AER.
3.8	What percentage of storm water overflows comply with the performance criteria referred to in Query 3.7?	10 - 50%	40		Select N/A if answer to Query 3.7 is **No** or if there are no SWOs in system. **(Risk Score is locked at 0 if no SWOs in system is stated in Assessment Details)**
3.9	Have the sewers of these Capacity Deficiencies (storm water overflows & Secondary Discharges) been	Yes	0		Select N/A if answer to Query 3.7 is NO or if there are no SWOs in system. If the answer to Query 3.9 is **No**, consider further examination of the
	Total Risk Assessment Score (RAS)		**180**		
3.10	Prepare Assessment of Needs & Sewer Upgrade Implementation Plan	In the AER Attach Assessment of Needs and Rehabilitation Implementation Plan as separate documents			

Section 4.1 Structural Risk Assessment					
Query	**Description**	**Prompt**	**Risk Score**	**Short Commentary by the Local Authority**	**Comment or Action to be Taken**
4.1	Has a CCTV Survey been undertaken in accordance with WRc Documentation "Model Contract Document for Sewer Condition Inspections" and "Manual of Sewer Condition Classification" ?	No	10		If the answer is **No** assess the need and benefit of undertaking CCTV Survey. If **Yes** Proceed to Query 4.2
4.1.1	How many years has it been since the **completion** of the CCTV Survey?	N/A	0		If no CCTV has been undertaken, select "N/A" response
4.2	What was this CCTV Survey Information Used for?	N/A	10		Select N/A if answer to Query 4.1 is NO.
4.3	Has the CCTV Survey been used to Assess the Structural Condition of the Sewer Network or targeted sections of the Sewer Network?	No	5		If no CCTV has been undertaken, select "No" response. If the answer is **No** assess the need and benefit of undertaking an assessment of the Structural Condition of the Sewer Network. If the answer is **Yes** proceed to Q
4.4	Have Performance Criteria been developed to determine the short, medium or long term structural condition of the sewer network ?	No	5		If the answer is **No**, enter "unknown" in response to Queries 4.4.1 to 4.4.5; consider assessing the Future Needs of the Sewer Network. If the answer is **Yes** proceed to Queries 4
4.4.1	What % of the Total Sewer Length contains Collapsed or Imminent Collapse of Sewers (Grade 5)	unknown	30		Insert Percentage of Overall Network Length; If a sewer length contains a Grade 5 collapse, include the total length of that sewer in calcuating the %. If information is not available type "Unknown" into Prompt Box
4.4.2	What % of Total Sewer Length contains Sewers Likely to Collapse (Grade 4)	unknown	25		Insert Percentage of Overall Network Length; If a sewer length contains a Grade 4 condition, include the total length of that sewer in calcuating the %. If information is not available type "Unknown" into Prompt Box
4.4.3	What % of Total Sewer Length contains sewers with Further Possible Deterioration (Grade 3)	unknown	10		Insert Percentage of Overall Network Length; If a sewer length contains a Grade 3 deterioration, include the total length of that sewer in calcuating the %. If information is not available type "Unknown" into Prompt Box
4.4.4	What % of Total Sewer Length contains sewers with Minimal Collapse (Grade 2)	unknown	5		Insert Percentage of Overall Network Length; If a sewer length contains a Grade 2 feature, include the total length of that sewer in calcuating the %. If information is not available type "Unknown" into Prompt Box
4.4.5	What % of Total Sewer Length contains sewers of Acceptable Structural Condition (Grade 1)	unknown	5		Insert Percentage of Overall Network Length. If information is not available type "Unknown" into Prompt Box
If all % lengths are known, Check Total Length = 100%			**75**		If answers to Queries 4.4.1, 4.4.2 or 4.4.3 are above a set level, the RAS for Query 4 is automitically set at the maximum of 140.
4.5	What % of the deficiencies, as detailed in Items 4.4.1, 4.4.2 and 4.4.3, have been rectified ?	N/A	35		Select N/A if answer to Query 4.4 is **No**. If the answer is **No**, Proceed to Query 4.6 If the answer is **Yes**, what monitoring is in place to ensure continued acceptance of structural condition? Proceed to Query 4.7
4.6	Have the causes of the Structural Deficiencies (Grades 3, 4 and 5) been identified or is there a Preventative Maintenance Programme in place?	No	10		If the answer is **No**, consider further examination of the sewer network, the structural loading conditions, gradients and possible H_2S Formation. If Yes completed Query 4.7
	Total Risk Assessment Score (RAS)		**150**		
4.7	Prepare Assessment of Needs & Sewer Rehabilitation Implementation Plan	In the AER Attach Assessment of Needs and Rehabilitation Implementation Plan as separate documents			

Section 5.1 O&M Risk Assessment					
Query	Description	Prompt	Risk Score	Short Commentary by the Local Authority	Comment or Action to be Taken
5.1	Are complaints of an environmental nature recorded and held in a central database?	Yes	0		Consider setting up Central Database for Complaints
5.2	Is there an emergency response procedure in place?	Yes	0		Consider setting up target response times for dealing with Complaints
5.3	What has been the highest frequency of flooding in the network due to hydraulic inadequacy, over the past 5 years?	More than 5 times/yr	20		Refers to flooding from the Network only, not natural flooding from rivers/streams/high tides. Select the highest number of events in any 12 month period.
5.4	What has been the highest frequency of flooding in the network due to operational causes over the past 5 years?	Twice/yr	8		Refers to flooding from the Network only, not natural flooding from rivers/streams/high tides. Select the highest number of events in any 12 month period.
5.5	What has been the highest frequency of surcharging of critical sewers in the network, over the past 5 years?	More than 5 times/yr	20		Select the highest number of events in any 12 month period.
5.6	What has been the highest frequency of reportable incidents in the network, over the past 5 years?	More than 5 times/yr	20		Select the highest number of events in any 12 month period.
5.7	What has been the highest frequency of reportable incidents due to discharges, for whatever reason, from Pumping Station Emergency Overflows in the network, over the past 5 years?	More than 5 times/yr	20		Select the highest number of events at any given Pumping Station in any 12 month period.
5.8	What has been the highest frequency of blockages in sewers in the network over the past 5 years?	unknown	20		Select the highest number of events per km of sewer network in any 12 month period.
5.9	What has been the highest frequency of collapses in sewers in the network over the past 5 years?	None	0		Select the highest number of events in any 12 month period.
5.10	What has been the highest frequency of bursts in rising mains in the network over the past 5 years?	Once/yr	4		Select the highest number of events in any 12 month period.
	Total Risk Assessment Score (RAS)		112		
5.11	Prepare Up Dated Operational and Maintenance Plan				

Section 6.1 Summary of Risk Assessment Scores				
Element	Risk Assessment Score	Risk Category	% Risk Score	Maximum Risk Score
Section 2.1 Hydraulic Risk Assessment	130	High Risk	87%	150
Section 3.1 Environmental Risk Assessment	180	Low Risk	36%	500
Section 4.1 Structural Risk Assessment	150	High Risk	100%	150
Section 5.1 O&M Risk Assessment	112	Medium Risk	56%	200
Total RAS for Network	572	High Risk	57%	1000

Appendix 7.6 (b) – Sewer Integrity Tool Output: 9C Catchment

Section 2.1 Hydraulic Risk Assessment

Query	Description	Prompt	Risk Score	Short Commentary by the Local Authority	Comment or Action to be Taken
2.1	Has a Hydraulic Performance Assessment been undertaken for the Sewer Network (e.g., Computer Model or other Engineering Design or Design Review)?	Yes	0		If the answer is **No** answer the need and cost benefit of developing a computer model or engineering design assessment of the Sewer Network and complete Query 2.12. If the answer is **Yes** proceed to Queries 2.1.1 to 2.1.4 inclusive.
2.1.1	If Answer to Query 2.1 is Yes, what % of the Network is covered by the hydraulic assessment?	80%	5		The % coverage of the Network by the Hydraulic Assessment can be estimated by the area assessed against the area served by the Network. ENTER "N/A" IF COMPUTER MODEL or DESIGN DOES NOT EXIST. DO NOT LEAVE BLANK OR ENTER
2.1.2	How many years has it been since the completion of the hydraulic assessment?	5 to 10	3		Select N/A response if no design assessment or design exists.
2.1.3	Are the outcomes of the Hydraulic Assessment being implemented?	Yes	0		Select N/A response if no design assessment or design exists.
2.1.4	How many years has it been since the outcomes of the hydraulic assessment have been implemented?	Never	5		Select N/A response if no hydraulic performance assessment or design exists. For ongoing works select "less than 5".
2.2	Has a Dynamic Computer Model been used to Assess the Hydraulic Performance of the Sewer Network?	Yes	0		Computer Model means a Hydroworks/Infoworks Model, Micro-Drainage Model or equivalent.
2.3	Has a Manhole Survey been undertaken in accordance with WRc Documentation "Model Contract Document for Manhole Location	Yes	0		If the answer is **No** answer the need and cost benefit of undertaking a Manhole Survey and complete Query 2.12. If the answer is **Yes** proceed to Query 2.3.1
2.3.1	If yes, how many years has it been since the survey was undertaken or updated?	5 to 10	7		Select N/A if no Manhole Survey has been undertaken. Enter N/A value for Confidence Grade if Prompt Box is "N/A"
2.4	Has a Flow Survey been undertaken in accordance with WRc Documentation "A Guide to Short Term Flow Surveys of Sewer Systems" and "Contract	Yes	0		If the answer is **No** answer the need and cost benefit of undertaking a Flow Monitoring Survey and complete Query 2.12. . If answer is **Yes** Proceed to Query 2.5
2.5	What was this Flow Survey Information Used for?				
2.5.1	To Determine the extent of Problematic Sewer Catchments	Yes	0		Select N/A if no Flow Survey has been undertaken.
2.5.2	To Verify a Computer or Mathematical Model of the Network	Yes	0		Select N/A if no Flow Survey has been undertaken.
2.6	Have Performance Criteria been developed to determine the short, medium or long term capacity of the	Yes	0		If the answer is **No** answer the Future Needs of the Sewer Network and complete Query 2.12. If the
2.7	How many flood events resulting from surcharge in the network have occurred in the past 3 years?	3 to 6	7		Flood events in this context means waterfrom sewage backing up from the Network causing flooding of properties or causing disruption of traffic
2.8	Are there deficiencies in performance criteria within the sewer network?	Yes	20		If the answer is **No**, Proceed to Query 2.10 and complete Query 2.12. If the answer is **Yes** proceed to Query 2.9
2.9	Have the causes of these deficiencies in the Performance Criteria been identified and rectified?	Yes	0		If the answer is **No**, consider further examination of the hydraulic model (if available) and complete Query 2.12. If the answer is **Yes** proceed to Query 2.10
2.10	Can the Hydraulic Assessment (defined in Query 2.1 above) be used to determine the benefit of reducing the contributory Impermeable Areas	Yes	0		If the answer is **No**, consider further development of the Hydraulic Assessment (or model if available) and complete Query 2.12. If the
2.11	Has an Impermeable Area Survey been carried out for the agglomeration or parts of the agglomeration?	No	10		If the answer is **No**, consider the need and cost benefit of undertaking an Impermeable Survey for parts of the agglomeration which are under hydraulic pressure and complete Query 2.12. .
	Total Risk Assessment Score (RAS)		**57**		
2.12	Pressure Assessment of Needs & Sewer Upgrade Implementation Plan	In the AER Attach Assessment of Needs and Rehabilitation Implementation Plan or separate documents			
2.13	In the AER provide Summary of Prepared Works or Direction to be taken to improve hydraulic efficiency				

Section 3.1 Environmental Risk Assessment

Query	Description	Prompt	Risk Score	Short Commentary by the Local	Comment or Action to be Taken
3.1	What Environmental or Discharge Quality Data is available with regard to the sewer network?	electronic or paper records exist but are > 10 years old.	0		Select N/A if no discharges, secondary discharges or overflows from network; if discharges do exist complete Query 3.12
3.1.1	Do trade effluents discharge to the sewer network?	Yes	20		If the answer is **No**, proceed to Query 3.1.2. If the answer is **Yes**, Proceed to Query 3.2
3.1.2	Are there Storm Water Overflows within the network?	No	0		If the answer is **No**, proceed to Query 3.1.3. If the answer is **Yes**, Proceed to Query 3.3
3.1.3	Are there Secondary Discharges within the network (excluding Emergency Overflows at Pump Stations)?	No	0		If the answer is **No**, proceed to Query 3.1.4.
3.1.4	Is there any evidence that exfiltration is occurring from the network?	No	0		If the answer is **No**, does all wastewater enter a wastewater treatment plant (insert summary details in the AER)? If **Yes**, Proceed to Query 3.6
3.2	If Answer to Query 3.1.1 is "Yes", what % of trade effluents have a licence to Discharge to the Public Sewer?	>90%	0		Select N/A if answer to Query 3.1.1 is **No**. If not all trade effluents are licenced, Local Authority should consider issuing and controlling such discharges under the appropriate Legislation.
3.2.1	Are all licenced trade Discharges compliant with their relevant licence and associated conditions	Yes	0		Answer N/A if none of the trade effluents are licenced. Answer No if this information is unknown. If the answer is **Unknown** or **No**, consider issuing a direction to the relevant Licensee. If the answer is
3.2.2	If Answer to Query 3.2.1 is "No", state what % of Trade Discharges are NOT compliant with their relevant licence and associated conditions (where that	0 - 10%	0		Select **N/A** if answer to Query 3.2.1 is Yes. If N/A is selected or answer to Query 3.2.2
3.3	In accordance with the DoEHLG paper "Procedures & Criteria in relation to Storm Water Overflows", what % of storm water overflows in the system have been classified for their	75 - 100%	10		If the answer is **No**, consider a review of each discharge within the sewer network complete and Query 3.11. If the answer is **Yes**, proceed to Query 3.6
3.4	Have samples from any Secondary Discharges within the system been analysed?	N/A	0		Select N/A if no secondary discharges in system. If the answer to Query 3.4 is **No**, consider examining the quality of each secondary discharge within the sewer network complete Query 3.11. If the
3.5	What percentage of discharges from the system are known to cause environmental pollution of the receiving waters?	None	0		If the answer is greater than 50% then detail, in the AER, the Improvement Programme necessary to reduce this percentage.
3.6	In relation to previous exfiltrations was a risk analysis of ground water contamination or pollution been	No	20		Select N/A if answer to Query 3.1.4 is NO. If the answer is **No**, consider undertaking ground water risk analysis and complete Query 3.12
3.6.1	If Answer to Query 3.6 is "Yes", have any groundwater aquifers been identified in the area of the Network and/or Discharge Points?	N/A	0		Select **N/A** if no risk analysis of groundwater contamination has been undertaken.
3.6.2	If Answer to Query 3.6.1 is "Yes", state the classifications of groundwater aquifer identified in the area?	N/A	0		Select **N/A** if no risk analysis of groundwater contamination has been undertaken.
3.6.3	In relation to Query 3.6.1, is the aquifer used or a source for Public, Private or Group Water Supply Schemes?	No	0		Select **N/A** if no risk analysis of groundwater contamination has been undertaken.
3.7	Has an Impact Assessment of each Storm Water Overflow been undertaken in accordance with the DoEHLG paper "Procedures & Criteria in relation to Storm Water Overflows" including	Yes	0		If the answer is **No**, consider assessing the risk category of the receiving waters. If the answer is **Yes**, proceed to Query 3.8 and provide summary details of the assessment in the AER.
3.8	What percentage of storm water overflows comply with the performance criteria referred to in Query 3.7?	N/A	0		Select N/A if answer to Query 3.7 is **No** or if there are no SWOs in system. **(Risk Score is locked at 0 if no SWOs in system is stated in Assessment Details)**
3.9	Have the causes of these Capacity Deficiencies (storm water overflows & Secondary Discharges) been identified	Yes	0		Select N/A if answer to Query 3.7 is NO or if there are no SWOs in system. If the answer to Query 3.9 is **No**, consider further examination of the
	Total Risk Assessment Score (RAS)		**50**		
3.10	Prepare Assessment of Needs & Sewer Upgrade Implementation Plan	In the AER Attach Assessment of Needs and Rehabilitation Implementation Plan as separate documents			

Section 4.1 Structural Risk Assessment

Query	Description	Prompt	Risk Score	Short Commentary by the Local Authority	Comment or Action to be Taken
4.1	Has a CCTV Survey been undertaken in accordance with WRc Documentation "Model Contract Document for Sewer Condition Inspections" and "Manual of Sewer Condition Classification" ?	Yes	0		If the answer is **No** assess the need and benefit of undertaking CCTV Survey. If **Yes** Proceed to Query 4.2
4.1.1	How many years has it been since the **completion** of the CCTV Survey?	less than 5	0		If no CCTV has been undertaken, select "N/A" response
4.2	What was this CCTV Survey Information Used for?	Determine full extent of Sewer Rehab Works to be undertaken within Network	0		Select N/A if answer to Query 4.1 is NO.
4.3	Has the CCTV Survey been used to Assess the Structural Condition of the Sewer Network or targeted sections of the Sewer Network?	Yes	0		If no CCTV has been undertaken, select "No" response. If the answer is **No** assess the need and benefit of undertaking an assessment of the Structural Condition of the Sewer Network. If the answer is **Yes** proceed to Q
4.4	Have Performance Criteria been developed to determine the short, medium or long term structural condition of the sewer network ?	Yes	0		If the answer is **No**, enter "unknown" in response to Queries 4.4.1 to 4.4.5; consider assessing the Future Needs of the Sewer Network. If the answer is **Yes** proceed to Queries 4
4.4.1	What % of the Total Sewer Length contains Collapsed or Imminent Collapse of Sewers (Grade 5)	4%	8	0	Insert Percentage of Overall Network Length; If a sewer length contains a Grade 5 collapse, include the total length of that sewer in calcuating the %. If information is not available type "Unknown" into Prompt Box
4.4.2	What % of Total Sewer Length contains Sewers Likely to Collapse (Grade 4)	14%	17		Insert Percentage of Overall Network Length; If a sewer length contains a Grade 4 condition, include the total length of that sewer in calcuating the %. If information is not available type "Unknown" into Prompt Box
4.4.3	What % of Total Sewer Length contains sewers with Further Possible Deterioration (Grade 3)	2%	1		Insert Percentage of Overall Network Length; If a sewer length contains a Grade 3 deterioration, include the total length of that sewer in calcuating the %. If information is not available type "Unknown" into Prompt Box
4.4.4	What % of Total Sewer Length contains sewers with Minimal Collapse (Grade 2)	4%	5		Insert Percentage of Overall Network Length; If a sewer length contains a Grade 2 feature, include the total length of that sewer in calcuating the %. If information is not available type "Unknown" into Prompt Box
4.4.5	What % of Total Sewer Length contains sewers of Acceptable Structural Condition (Grade 1)	76%	0		Insert Percentage of Overall Network Length. If information is not available type "Unknown" into Prompt Box
If all % lengths are known, Check Total Length = 100%		**100%**	**30**		If answers to Queries 4.4.1, 4.4.2 or 4.4.3 are above a set level, the RAS for Query 4 is automitically set at the maximum of 140.
4.5	What % of the deficiencies, as detailed in Items 4.4.1, 4.4.2 and 4.4.3, have been rectified ?	0 - 10%	35		Select N/A if answer to Query 4.4 is **No**. If the answer is **No**, Proceed to Query 4.6 If the answer is **Yes**, what monitoring is in place to ensure continued acceptance of structural condition? Proceed to Query 4.7
4.6	Have the causes of the Structural Deficiencies (Grades 3, 4 and 5) been identified or is there a Preventative Maintenance Programme in place?	Yes	0		If the answer is **No**, consider further examination of the sewer network, the structural loading conditions, gradients and possible H_2S Formation. If Yes completed Query 4.7
	Total Risk Assessment Score (RAS)		**65**		

4.7	Prepare Assessment of Needs & Sewer Rehabilitation Implementation Plan	In the AER Attach Assessment of Needs and Rehabilitation Implementation Plan as separate documents

Section 5.1 O&M Risk Assessment					
Query	Description	Prompt	Risk Score	Short Commentary by the Local Authority	Comment or Action to be Taken
5.1	Are complaints of an environmental nature recorded and held in a central database?	Yes	0		Consider setting up Central Database for Complaints
5.2	Is there an emergency response procedure in place?	Yes	0		Consider setting up target response times for dealing with Complaints
5.3	What has been the highest frequency of flooding in the network due to hydraulic inadequacy, over the past 5 years?	Once/yr	4		Refers to flooding from the Network only, not natural flooding from rivers/streams/high tides. Select the highest number of events in any 12 month period.
5.4	What has been the highest frequency of flooding in the network due to operational causes over the past 5 years?	Once/yr	4		Refers to flooding from the Network only, not natural flooding from rivers/streams/high tides. Select the highest number of events in any 12 month period.
5.5	What has been the highest frequency of surcharging of critical sewers in the network, over the past 5 years?	More than 5 times/yr	20		Select the highest number of events in any 12 month period.
5.6	What has been the highest frequency of reportable incidents in the network, over the past 5 years?	More than 5 times/yr	20		Select the highest number of events in any 12 month period.
5.7	What has been the highest frequency of reportable incidents due to discharges, for whatever reason, from Pumping Station Emergency Overflows in the network, over the past 5 years?	More than 5 times/yr	20		Select the highest number of events at any given Pumping Station in any 12 month period.
5.8	What has been the highest frequency of blockages in sewers in the network over the past 5 years?	unknown	20		Select the highest number of events per km of sewer network in any 12 month period.
5.9	What has been the highest frequency of collapses in sewers in the network over the past 5 years?	None	0		Select the highest number of events in any 12 month period.
5.10	What has been the highest frequency of bursts in rising mains in the network over the past 5 years?	None	0		Select the highest number of events in any 12 month period.
	Total Risk Assessment Score (RAS)		88		
5.11	Prepare Up Dated Operational and Maintenance Plan				

Section 6.1 Summary of Risk Assessment Scores				
Element	Risk Assessment Score	Risk Category	% Risk Score	Maximum Risk Score
Section 2.1 Hydraulic Risk Assessment	57	Medium Risk	38%	150
Section 3.1 Environmental Risk Assessment	50	Low Risk	10%	500
Section 4.1 Structural Risk Assessment	65.29166667	Medium Risk	44%	150
Section 5.1 O&M Risk Assessment	88	Medium Risk	44%	200
Total RAS for Network	260.2916667	Low Risk	26%	1000

Appendix 7.7

Priority Substances Assessment

Ringsend Influent and Effluent Priority Substances Screening, 2015.

To comply with condition 4.11.1 of Licence D0034-01, 2 sub-samples of the Ringsend composite influent and effluent were analysed during 2015 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 1080617 taken 24/11/15.

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

(sub-microgram per litre) concentrations of the herbicides Mecoprop, MCPA and Diazinon, microgram per litre concentrations of the metals Arsenic, Copper, Zinc, Chromium, Selenium, Antimony, Barium, and Nickel (see highlighted parameters in **Table 7.7.1**). The PAH's Fluoranthene, Benzo(a)pyrene, Acenaphthene, Pyrene, Anthracene, Fluorene, Phenanthrene and Benz(a)anthracene survived the treatment process at sub-microgram per litre concentrations. Low (microgram per litre) concentrations of Dichloromethane,Trichloromethane and Toluene were also detected. Low concentrations of m,p – Methylphenol (0.49 µg/l) and o-Methylphenol (0.12 µg/l) were detected.

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

Table 7.7.1. EPA Appendix 1 – Ringsend Effluent Sample 1080617 - 2015 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	< 1.0 µg/l	
3	1,2-Dichloroethane	< 1.0 µg/l	
4	Dichloromethane	**1.2 µg/l**	
5	Tetrachloroethylene	< 1.0 µg/l	
6	Trichloroethylene	< 1.0 µg/l	
7	Trichlorobenzenes (sum)	< 1.0 µg/l	1,2,4
8	Trichloromethane	**2.7 µg/l**	
9	Xylenes (all isomers)	< 0.30 µg/l	
10	Ethyl Benzene	< 0.10 µg/l	
11	Toluene	**2.08 µg/l**	
12	Naphthalene	< 0.01 µg/l	**PAH's**
13	Fluoranthene	**0.101 µg/l**	
14	Benzo(k)fluoranthene	< 0.01 µg/l	
15	Benzo(ghi)perylene	< 0.01 µg/l	
16	Indeno(1,2,3-c,d)pyrene	< 0.01 µg/l	
17	Benzo(b)fluoranthene	< 0.01 µg/l	
18	Benzo(a)pyrene	**0.014 µg/l**	
	Acenaphthene	**0.071 µg/l**	
	Pyrene	**0.17 µg/l**	
	Anthracene	**0.011 µg/l**	
	Fluorene	**0.021 µg/l**	
	Phenanthrene	**0.027 µg/l**	
	Benz(a)anthracene	**0.021 µg/l**	
		0.449 µg/l	**Total PAH's**
19	Di(2-ethylhexyl)phthalate (DEHP)	< 5.0 µg/l	**Plasticisers**
	Diethyl Phthalate	<1.0 µg/l	
20	Isodrin	< 4 ng/l	**Pesticides**
21	Dieldrin	< 4 ng/l	
22	Diuron	< 2.00 µg/l	
23	Isoproturon	< 2.00 µg/l	
24	Atrazine	< 0.02 µg/l	
25	Simazine	< 0.02 µg/l	
26	Glyphosate	< 20.00 µg/l	
27	Mecoprop	**0.15 µg/l**	
28	2,4-D	< 0.05 µg/l	
29	MCPA	**0.12 µg/l**	
30	Linuron	< 2.00 µg/l	
31	Dichlobenil	< 2 ng/l	
32	2,6-Dichlorobenzamide	N/A*	
	Diazinon	**0.011 µg/l**	

33	PCB's (Sum of 7)	< 16 ng/l	**PCB's**
34	Phenols	< 1.0 µg/l	**Phenols**
	m,p- Methylphenol	**0.49 µg/l**	**Cresols**
	o- Methylphenol	**0.12 µg/l**	
35	Lead (Total as Pb)	< 6 µg/l	**Metals**
36	Arsenic (Total as As))	**3.5 µg/l**	
37	Copper (Total as Cu)	**15.0 µg/l**	
38	Zinc (Total as Zn)	**64 µg/l**	
39	Cadmium (Total as Cd)	< 0.60 µg/l	
40	Mercury (Total as Hg)	< 0.1 µg/l	
41	Chromium (Total as Cr)	**3 µg/l**	
42	Selenium (Total as Se)	**1.75 µg/l**	
43	Antimony (Total as Sb)	**1.2 µg/l**	
44	Molybdenum (Total as Mo)	<3.00 µg/l	
45	Tin (Total as Sn)	<7.00 µg/l	
	Organo-Tin	<0.03 µg/l	
46	Barium (Total as Ba)	**17.2 µg/l**	
47	Boron (Total as B)	<0.20 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)	**9.1 µg/l**	
51	Fluoride (as F)	0.5 mg/l	**General**
52	Chloride (as Cl)	380 mg/l	
53	TOC (as C)	-	
54	Cyanide (Total as CN)	**9 µg/l**	
55	Conductivity	1399 uS/cm (20 degrees C)	**Additional Tests (Sample 1080608)**
56	Hardness (mg/l CaCO3)	N/A	
57	pH	7.8	

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 7.7.2 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 1080617 24/11/15**
		SW1
Arsenic	20	3.5
Chromium VI	0.6	3*
Copper	5	15.0
Cyanide	10	9
Diazinon	0.01	0.011
Dimethoate	0.8	< 0.020
Fluoride	1,500	500
Glyphosate	-	< 20.00
Linuron	0.7	< 2.00
Mancozeb	2	-
Monochlorobenzene	25	< 1.0
Phenols	8	< 1.0
Toluene	10	2.08
Xylenes	10	< 0.30
Zinc	40	64.0

*= Total Chromium which is > Chromium VI

Ringsend Influent Screening, 2015

To comply with condition 4.11.2 of Licence D0034-01, a sub-sample of the Ringsend composite influent was analysed during 2015 (on the same date – 24/11/15 - 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 the same date (24/11/15).

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 Licenses) issued on 17/01/11.

Summary of Influent Screening Results:

2015– Influent Sample Reference 1080616 of 24/11/15.

See Table 7.7.3. 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 and sub-microgram per litre) levels of Benzene, Dichloromethane, Trichloromethane, Xylenes, Ethyl Benzene and Toluene.

6 of the 7 PAH's listed (Naphthalene, Fluoranthene, Benzo(ghi)perylene, Indeno(1,2,3-c,d)pyrene, Benzo(b)fluoranthene, Benzo(a)pyrene and a further 4 unlisted PAH's (Acenaphthene, Pyrene, Anthracene, Fluorene and Phenanthrene) were detected.

No pesticides or PCB's were detected in the Influent sample.

Phenol (6.9 µg/l) and the cresol m,p-Methylphenol (34.5 µg/l) were detected.

The metals Arsenic, Copper, Zinc, Chromium, Selenium, Barium and Nickel 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 7.7.3 EPA Appendix 1 – Ringsend Influent Sample 1080616 – 2015 PRTR Screening EPA Parameters Screened for in Waste Water Discharges

No.	Compound	Result	Group of Compounds
1.	Benzene	**0.17 µg/l**	**VOC's**
2.	Carbon Tetrachloride	< 1.0 µg/l	
3	1,2-Dichloroethane	< 1.0 µg/l	
4	Dichloromethane	**11.2 µg/l**	
5	Tetrachloroethylene	< 1.0 µg/l	
6	Trichloroethylene	< 1.0 µg/l	
7	Trichlorobenzenes (sum)	< 2.0 µg/l	1,2,4
8	Trichloromethane	**4.7 µg/l**	
9	Xylenes (all isomers)	**0.82 µg/l**	
10	Ethyl Benzene	**0.19 µg/l**	
11	Toluene	**1.96 µg/l**	
12	Naphthalene	**0.955 µg/l**	**PAH's**
13	Fluoranthene	**1.48 µg/l**	
14	Benzo(k)fluoranthene	< 0.10 µg/l	
15	Benzo(ghi)perylene	**0.143 µg/l**	
16	Indeno(1,2,3-c,d)pyrene	**0.109 µg/l**	
17	Benzo(b)fluoranthene	**0.165 µg/l**	
18	Benzo(a)pyrene	**0.212 µg/l**	
	Acenaphthene	**1.56 µg/l**	
	Pyrene	**1.34 µg/l**	
	Anthracene	**0.508 µg/l**	
	Fluorene	**0.645 µg/l**	
	Phenanthrene	**4.07 µg/l**	
		12 µg/l	**Total PAH's***
19	Di(2-ethylhexyl)phthalate (DEHP)	< 10.0 µg/l	**Plasticisers**
	Diethyl Phthalate	< 2.0	
20	Isodrin	< 26 ng/l	**Pesticides**
21	Dieldrin	< 22 ng/l	
22	Diuron	< 2 µg/l	
23	Isoproturon	< 2 µg/l	
24	Atrazine	< 0.09 µg/l	
25	Simazine	< 0.11 µg/l	
26	Glyphosate	< 20.00 µg/l	
27	Mecoprop	< 0.08 µg/l	
28	2,4-D	< 0.10 µg/l	
29	MCPA	< 0.10 µg/l	
30	Linuron	< 2.00 µg/l	
31	Dichlobenil	< 17 ng/l	
32	2,6-Dichlorobenzamide	N/A	
	Diazinon	< 0.023 µg/l	
33	PCB's (Sum of 7)	< 136 ng/l	**PCB's**

34	Phenols	**6.9 µg/l**	**Phenols**
	m,p- Methylphenol	**34.5 µg/l**	**Cresols**
	o- Methylphenol	< 2.0 µg/l	
35	Lead (Total as Pb)	< 6 µg/l	**Metals**
36	Arsenic (Total as As)	**2.9 µg/l**	
37	Copper (Total as Cu)	**22 µg/l**	
38	Zinc (Total as Zn)	**67 µg/l**	
39	Cadmium (Total as Cd)	< 0.6 µg/l	
40	Mercury (Total as Hg)	< 0.1 µg/l	
41	Chromium (Total as Cr)	**5 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	
46	Barium (Total as Ba)	**26.6 µg/l**	
47	Boron (Total as B)	< 0.20 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)	**12 µg/l**	
51	Fluoride (as F)	0.5 mg/l	**General**
52	Chloride	354 mg/l	
53	TOC	-	
54	Cyanide	< 9 µg/l	
55	Conductivity	1,793 uS/cm (20 degrees C)	**Additional Tests (sample 1080607)**
56	Hardness (mg/l CaCO3)	N/A	
57	pH	7.4	

Summary of Influent Lines Screening Results

2015 – Influent Lines - Sample References 1080720, 1080721, 1080722 and 1080723 of 24/11/2015.

To isolate the source of parameters detected in the Influent, samples were taken from the 4 main influent feeder lines on 24/11/2015 as follows:

1080720: Dún Laoghaire – West Pier

1080721: Dodder Valley Sewer - UCD FM-10

1080722: North Dublin Drainage System – Sutton Sump

1080723: 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 taken on the same date (see Table 7.7.3 above).

1080720: Dún Laoghaire – West Pier

Parameters detected in this sample included Tri-chloromethane (3.4 µg/l) and Toluene (0.3 µg/l). The plasticizer di-ethyl phthalate was detected at 67.1 µg/l. Phenol (8.6 µg/l) and m,p-Methyl Phenol (32 µg/l) were detected in this sample. The metals Lead (41 µg/l), Arsenic (1.6 µg/l), Copper (38 µg/l), Zinc (78 µg/l), Chromium (3.0 µg/l), Tin (7.1 µg/l), Barium (39.1 µg/l) and Nickel (8.9 µg/l). See highlighted parameters in Table 7.7.4.

1080721: Dodder Valley Sewer - UCD FM-10

Parameters detected in this sample included Tri-chloromethane (5.4 µg/l), Xylenes (0.41 µg/l) and Toluene (0.33 µg/l). The plasticizer di-ethyl phthalate was detected at 143 µg/l. Diazinon was detected at 0.159 µg/l. Phenol was detected at 54.2 µg/l and m,p- Methyl Phenol at 85.2 µg/l. The metals Arsenic (1.3 µg/l), Copper (30 µg/l), Zinc (84 µg/l), Chromium (2.0 µg/l), Selenium (0.8 µg/l), Barium (22.1 µg/l) and Nickel (7.7 µg/l) were detected. See highlighted parameters in Table 7.7.4).

1080722: North Dublin Drainage System – Sutton Sump

Parameters detected in this sample included Tri-chloromethane (6.1 µg/l), Xylenes (0.45 µg/l), Toluene (0.76 µg/l). Naphthalene was detected at 0.198 µg/l in this sample. The plasticizer di-ethyl phthalate was detected at 42.6 µg/l. Phenol was detected at 69 µg/l with the cresol m,p- Methyl Phenol at 181 µg/l. The metals Copper (54 µg/l), Zinc (207 µg/l), Chromium (4.0 µg/l), Selenium (1.33 µg/l), Molybdenum (7.6 µg/l), Tin (7.5 µg/l), Barium (42.4 µg/l) and Nickel (9.6 µg/l) were detected in this sample. See highlighted parameters in Table 7.7.4.

1080723: Ringsend – Main Lift Pumping Station

Parameters detected in this sample included Benzene (0.19 µg/l), Dichloromethane (3.5 µg/l), Tetrachloroethylene (9.6 µg/l), Trichloromethane (5.1 µg/l), Xylenes (1.21 µg/l), Ethyl Benzene (0.24 µg/l) and Toluene (2.35 µg/l).

Naphthalene (1.12 µg/l), Fluoranthene (0.544 µg/l), Benzo (a) pyrene (0.107 µg/l), Acenaphthene (1.37 µg/l), Pyrene (0.587 µg/l), Anthracene (0.237 µg/l), Fluorene (0.0.244 µg/l) and Phenanthrene (1.46 µg/l) were detected in this sample. The plasticizers DEHP (11.7 µg/l) and Di-ethylphthalate (19.8 µg/l) were detected in this sample. The herbicide Mecoprop was detected at 0.12 µg/l. Phenol (89.1 µg/l) and the cresol m,p-Methylphenol (209 µg/l) were detected in this sample. The metals Lead (8.0 µg/l), Arsenic (3.6 µg/l), Copper (42 µg/l), Zinc (116 µg/l), Chromium (5.0 µg/l), Selenium (1.96 µg/l), Barium (29.7 µg/l) and Nickel (9.6 µg/l).

See highlighted parameters in Table 7.7.4

Measures to Reduce Detected Priority Substances

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

Table 7.7.4. EPA Appendix 1 – Ringsend Influent Inflows - 2015 PRTR Screening. EPA Parameters Screened for in 4 Waste Water Influent Lines to the Ringsend WWTP

No.	Compound	1080720 Dún Laoire West Pier	1080721 UCD FM 10 (Dodder)	1080722 Sutton Sump	1080723 Ringsend Main Lift
1.	Benzene	<0.10 µg/l	< 0.10 µg/l	< 0.10 µg/l	**0.19 µg/l**
2.	Carbon Tetrachloride	<1.0 µg/l	< 1.0 µg/l	< 1.0 µg/l	< 1.0 µg/l
3	1,2-Dichloroethane	<1.0 µg/l	< 1.0 µg/l	< 1.0 µg/l	< 1.0 µg/l
4	Dichloromethane	<1.0 µg/l	< 1.0 µg/l	<1.0 µg/l	**3.5 µg/l**
5	Tetrachloroethylene	<1.0 µg/l	< 1.0 µg/l	< 1.0 µg/l	**9.6 µg/l**
6	Trichloroethylene	<1.0 µg/l	< 1.0 µg/l	< 1.0 µg/l	< 1.0 µg/l
7	Trichlorobenzenes (sum)	<2.0 µg/l	< 2.0 µg/l	< 4.0 µg/l	< 2.0 µg/l
8	Trichloromethane	**3.4 µg/l**	**5.4 µg/l**	**6.1 µg/l**	**5.1 µg/l**
9	Xylenes (all isomers)	<0.30 µg/l	**0.41 µg/l**	**0.45 µg/l**	**1.21 µg/l**
10	Ethyl Benzene	<0.10 µg/l	< 0.10 µg/l	< 0.10 µg/l	**0.24 µg/l**
11	Toluene	**0.3 µg/l**	**0.33 µg/l**	**0.76 µg/l**	**2.35 µg/l**
12	Naphthalene	<0.1 µg/l	<0.1 µg/l	**0.198 µg/l**	**1.12 µg/l**
13	Fluoranthene	<0.1 µg/l	<0.1 µg/l	< 0.1 µg/l	**0.544 µg/l**
14	Benzo(k)fluoranthene	<0.10 µg/l	<0.10 µg/l	< 0.10 µg/l	< 0.10 µg/l
15	Benzo(ghi)perylene	<0.10 µg/l	<0.10 µg/l	< 0.10 µg/l	< 0.10 µg/l
16	Indeno(1,2,3-c,d)pyrene	<0.10 µg/l	<0.10 µg/l	< 0.10 µg/l	< 0.10 µg/l
17	Benzo(b)fluoranthene	<0.10 µg/l	<0.10 µg/l	< 0.10 µg/l	<0.10 µg/l
18	Benzo(a)pyrene	<0.10 µg/l	<0.10 µg/l	< 0.10 µg/l	**0.107 µg/l**
	Acenaphthene	<0.10 µg/l	<0.10 µg/l	< 0.10 µg/l	**1.37 µg/l**
	Pyrene	<0.10 µg/l	<0.10 µg/l	<0.10 µg/l	**0.587 µg/l**
	Anthracene	<0.10 µg/l	<0.10 µg/l	<0.10 µg/l	**0.237 µg/l**
	Fluorene	<0.10 µg/l	<0.10 µg/l	<0.10 µg/l	**0.244 µg/l**
	Phenanthrene	<0.10 µg/l	<0.10 µg/l	<0.10 µg/l	**1.46 µg/l**
	Total PAH's	<0.10 µg/l	<0.10 µg/l	**0.198 µg/l**	**5.88 µg/l**
19	Di(2-ethylhexyl)phthalate (DEHP)	<10 µg/l	< 10 µg/l	< 20.0 µg/l	**11.7 µg/l**
	Di-ethylphthalate	**67.1 µg/l**	**143 µg/l**	**42.6 µg/l**	**19.8 µg/l**
20	Isodrin	<26 ng/l	<26 ng/l	< 26 ng/l	< 26 ng/l
21	Dieldrin	<22 ng/l	< 22 ng/l	< 22 ng/l	< 22 ng/l
22	Diuron	<2.00 µg/l	< 2.00 µg/l	< 2.00 µg/l	< 2.00 µg/l
23	Isoproturon	<2.00 µg/l	< 2.00 µg/l	< 2.00 µg/l	< 2.00 µg/l
24	Atrazine	<0.09 µg/l	< 0.09 µg/l	< 0.09 µg/l	< 0.09 µg/l
25	Simazine	<0.11 µg/l	< 0.11 µg/l	< 0.11 µg/l	< 0.11 µg/l
26	Glyphosate	<20.00 µg/l	< 20.0 µg/l	< 20.00 µg/l	< 20.00 µg/l
27	Mecoprop	<0.04 µg/l	< 0.08 µg/l	< 0.08 µg/l	**0.12 µg/l**
28	2,4-D	<0.05 µg/l	< 0.10 µg/l	< 0.10 µg/l	< 0.10 µg/l
29	MCPA	<0.05 µg/l	< 0.10 µg/l	< 010 µg/l	< 0.10 µg/l
30	Linuron	<2.00 µg/l	< 2.00 µg/l	< 2.00 µg/l	< 2.00 µg/l
31	Dichlobenil	< 17 ng/l	< 17 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	**0.159 µg/l**	<0.023 µg/l	<0.023 µg/l

33	PCB's (Sum of 7)	< 136 ng/l	< 136 ng/l	< 136 ng/l	< 136 ng/l
34	Phenols	**8.6 µg/l**	**54.2 µg/l**	**69 µg/l**	**89.1 µg/l**
34	m,p- Methylphenol	**32 µg/l**	**85.2 µg/l**	**181 µg/l**	**209 µg/l**
	o- Methylphenol	< 2.0 µg/l	< 2.0 µg/l	< 4.0 µg/l	< 2.0 µg/l
35	Lead	**41 µg/l**	< 6.0 µg/l	< 6.0 µg/l	**8.0 µg/l**
36	Arsenic	**1.6 µg/l**	**1.3 µg/l**	< 1.0 µg/l	**3.6 µg/l**
37	Copper	**38 µg/l**	**30 µg/l**	**54 µg/l**	**42 µg/l**
38	Zinc	**78 µg/l**	**84 µg/l**	**207 µg/l**	**116 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	< 0.1 µg/l
41	Chromium	**3.0 µg/l**	**2.0 µg/l**	**4.0 µg/l**	**5.0 µg/l**
42	Selenium	< 0.80 µg/l	**0.8 µg/l**	**1.33 µg/l**	**1.96 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	**7.6 µg/l**	<.3.0 µg/l
45	Tin (Total)	**7.1 µg/l**	< 7.00 µg/l	**7.5 µg/l**	< 7.00 µg/l
46	Barium	**39.1 µg/l**	**22.1 µg/l**	**42.4 µg/l**	**29.7 µg/l**
47	Boron	< 0.2 mg/l	< 0.2 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	**8.9 µg/l**	**7.7 µg/l**	**9.6 µg/l**	**9.6 µg/l**
51	Fluoride	0.5 mg/l	0.4 mg/l	0.5 mg/l	0.5 mg/l
52	Chloride	115 mg/l	84 mg/l	125 mg/l	491 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 7.8

Toxicity/Leachate Management Report

Leachate is managed using a system of application forms, consignment notes, monitoring and invoicing.

A total volume of tankered leachate of 23,273 cubic metres was received at the Ringsend WWTP during 2015. Leachate was delivered from 5 separate sources as tabled below:

Source	**Annual Volume 2015**
	(cubic metres)
Kerdiffstown	11,508
Ballynagran	10,892
Knockharley	401
Fingal	357
Rampere	115
Total	23,273

A total volume of tankered waste of 70,407 cubic metres was received in the Ringsend WWTP in 2015. This equated to **0.046% of the annual total influent volume**.

Leachate volumes of 23,273 cubic metres accounted for 33% of the total tanker waste. This equated to **0.015% of the annual total influent volume.**

Appendix 7.9

Final Effluent Toxicity Assessment

City Analysts Limited,
Pigeon House Road,
Ringsend,
Dublin 4.

Tel: (01) 613 6003
Fax: (01) 613 6008

Email:
reports@cityanalysts.ie

www.cityanalysts.ie

Customer
Imelda Averill

Dublin City Council
To be confirmed
Dublin

Certificate Of Analysis

Job Number: 15-12884
Issue Number: 1
Report Date: 12 January 2016

Site: Not Applicable
PO Number: JOHN RAHILL
Date Samples Received: 17/12/2015

Please find attached the results for the samples received at our laboratory on 17/12/2015.

Should you have any queries regarding the report or require any further services, we would be happy to discuss your requirements. For additional information about the company please log-on to our website at the above address.

Thank you for choosing City Analysts Limited. We look forward to assisting you again.

Authorised By: Shane Wilmoth
Chemistry Technical Manager

Authorised Date: 12 January 2016

Notes:

Results relate only to the items tested.
Information on methods of analysis and performance characteristics is available on request.
Any opinions or interpretations indicated are outside the scope of our INAB accreditation.
This test report shall not be reproduced except in full or with written approval of City Analysts Limited.

Template: 1146 Revision: 018

City Analysts Limited
Environmental Laboratories

City Analysts Limited,
Pigeon House Road,
Ringsend
Dublin 4.

Tel: (01) 613 6033
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www.cityanalysts.ie

Certificate Of Analysis

Customer

Imelda Averill

Dublin City Council
To be confirmed
Dublin

Report Reference: 15 19834
Report Version: 1

Site: Not Applicable
Sample Description: Dublin City Council Water Sample
Sample Type: Effluent (Final)
Lab Reference Number: 307533
Date of Sampling: 17/12/2015
Time of Sampling: 09:00
Date Sample Received: 17/12/2015

Site / Method Ref.	Analysis Start Date	Parameter	Result	Units	PV Value (Drinking Water Only)
S/SS238	18/01/2016	Inhibitory effect to Vibrio fischeri	>45	%v/v	-
S/SS240	17/12/2015	96 h LC50 to Psetta maxima	>32	%v/v	-
S/SS238	04/01/2016	48 h LC50 to Tisbe battagliai	>32	%v/v	-
S/SS237	06.01.16	Inhibitory effect to Skeletonema costatum	>32	%v/v	-

A = INAB Accredited, U = UKAS Accredited, * = Subcontracted

Note
PV Value is the parameter value, taken from European Communities (Drinking Water) Regulations, 2014, S.I. No. 122 of 2014 and relates only to drinking water samples.
For queries on results, please contact us within two weeks of the report date to ensure that we can accommodate your query. As samples cannot be stored indefinitely.
NAC & ATC - Not Abnormal Change and Acceptable to Customers.
TNC - Total viable count.
Site D = Analysed at City Analysis Dublin. Site S = Analysed at City Analysis Shannon

City Analysts Limited
Environmental Laboratories

Report Reference: 15-12894
Report Version: 1

Raw Data

Raw data has been provided with this Certificate of Analysis as it has been specifically requested by you. Please note that raw data results are Not Accredited. Raw data can be provided only for analysis carried out in-house.

Lab Reference Number:	Parameter	Result	Units	Site / Method Ref.

TOXICOLOGICAL ANALYSIS REPORT

TEST RESULTS

Customer: Dublin City Council

Customer sample description: Dublin City Council Water

Tox. Ref. No.: 307600

Test Date: 17.12.15 – *Psetta maxima*
4.1.16 - *Tisbe battagliai*
6.1.16 – *Skeletonema costatum*
6.1.16 - *Vibrio fischeri*

Test Parameter	Test Results: Concentration % vol./vol.	Test Results: Toxic Units	95% Confidence Limits % vol./vol.	Method of Calculation
96 h LC_{50} to *Psetta maxima*	>32	<3.1	N/A	N/A
48 h LC_{50} to *Tisbe battagliai*	>32	<3.1	N/A	N/A
72 h E_rC_{50} to *Skeletonema costatum*	>32	<3.1	N/A	N/A
30 min EC_{50} to *Vibrio fischeri*	>45	<2.2	N/A	N/A

Comments:
96 h LC_{50} to *Psetta maxima*
No mortality occurred at 32 %vol./vol.

48 h LC_{50} to *Tisbe battagliai*
No mortality occurred at 32 %vol./vol.

72 h E_rC_{50} to *Skeletonema costatum*
No inhibition occurred at 32 %vol/vol.
- compared to the control.

30 min EC_{50} to *Vibrio fischeri*
No light inhibition occurred at 45 %vol./vol.
- compared to the control.

Test Method(s): (see page 4)
Method 7: Marine fish, *Psetta maxima*
Method 3: Marine copepod, *Tisbe battagliai*
Method 4: Marine Algae, Skeletonema costatum
Method 2: Marine Bacterium, *Vibrio fischeri*

TOXICOLOGICAL ANALYSIS REPORT

SAMPLE INFORMATION

	CA	Customer	Other
Sampled by:	☐	☑	☐
Collected by:	☑	☐	☐

Tox Ref. No.	307600
Sampling procedure	n/a
Date of analysis	17.12.15
Storage conditions (°C)	3±3 - *P. Maxima* ≤-20 - *T. battagliai, S. costatum, V. fischeri*
pH	7.1
Dissolved oxygen (mg/l)	3.22
Conductivity (µS/cm at 20°C)	1406
Salinity (ppt at 20°C)	<1

Toxicity Test Methods and Procedures

1. Freshwater Crustacean
Method 3235 based on ISO 6341:2012: 'Water quality – Determination of the inhibition of the mobility of *Daphnia magna* Straus (Cladocera, Crustacea) – Acute toxicity test'

2. Marine Bacterium
Method 3239 based on ISO 11348-3:2007: 'Water quality - Determination of the inhibitory effect of water samples on the light emission of *Vibrio fischeri* (Luminescent bacteria test) – Part 3: Method using freeze-dried bacteria'

3. Marine Copepod
Method 3238 based on ISO 14669:1999: 'Water quality – Determination of acute lethal toxicity to marine copepods (*Copepoda, Crustacea*)'

4. Marine Algae
Method 3237 based on ISO 10253:2006: 'Water quality - Marine algal growth inhibition test with *Skeletonema costatum* and *Phaeodactylum tricornutum*'

5. Freshwater Algae
Method 3236 based on ISO 8692:2012: 'Water quality – Freshwater algal growth inhibition test with unicellular green algae'

6. Freshwater Plant
Based on ISO 20079:2005: 'Water quality – Determination of the toxic effect of water constituents and waste water to duckweed (*Lemna minor*) – Duckweed growth inhibition test'

7. Marine Fish
Method based on OECD 1992: Guideline 203: - 'Fish, acute toxicity test'

8. Freshwater Fish
Based on OECD 1992: Guideline 203: - 'Fish, acute toxicity test'

9. Estuarine Crustacean
Based on MAFF SOP No. BEG/030:1996: 'Brown Shrimp (*Crangon crangon*) 96 h acute toxicity for liquid effluents and wastes'

10. Sampling
Based on ISO 5667-16:1998: 'Water quality – Sampling - Part 16: Guidance on biotesting of samples'

11. Eluate Generation
Based on DIN 38 414 part 4, 1984: – 'Sludge and Sediments (Group S) – Determination of leachability by water (S4)

Toxicity Test Methods and Procedures

1. Freshwater Crustacean
Method 3235 based on ISO 6341:2012: 'Water quality – Determination of the inhibition of the mobility of *Daphnia magna* Straus (Cladocera, Crustacea) – Acute toxicity test'

2. Marine Bacterium
Method 3239 based on ISO 11348-3:2007: 'Water quality - Determination of the inhibitory effect of water samples on the light emission of *Vibrio fischeri* (Luminescent bacteria test) – Part 3: Method using freeze-dried bacteria'

3. Marine Copepod
Method 3238 based on ISO 14669:1999: 'Water quality – Determination of acute lethal toxicity to marine copepods (*Copepoda, Crustacea*)'

4. Marine Algae
Method 3237 based on ISO 10253:2006: 'Water quality - Marine algal growth inhibition test with *Skeletonema costatum* and *Phaeodactylum tricornutum*'

5. Freshwater Algae
Method 3236 based on ISO 8692:2012: 'Water quality – Freshwater algal growth inhibition test with unicellular green algae'

6. Freshwater Plant
Based on ISO 20079:2005: 'Water quality – Determination of the toxic effect of water constituents and waste water to duckweed (*Lemna minor*) – Duckweed growth inhibition test'

7. Marine Fish
Method based on OECD 1992: Guideline 203: - 'Fish, acute toxicity test'

8. Freshwater Fish
Based on OECD 1992: Guideline 203: - 'Fish, acute toxicity test'

9. Estuarine Crustacean
Based on MAFF SOP No. BEG/030:1996: 'Brown Shrimp (*Crangon crangon*) 96 h acute toxicity for liquid effluents and wastes'

10. Sampling
Based on ISO 5667-16:1998: 'Water quality – Sampling - Part 16: Guidance on biotesting of samples'

11. Eluate Generation
Based on DIN 38 414 part 4, 1984: – 'Sludge and Sediments (Group S) – Determination of leachability by water (S4)

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Sample Information:

Sampled By:	Customer
Sampling Procedure	N/A
Lab ID	181/50/15
Date of Analysis	11/12/15
Storage Conditions	3 ± 3 °C
Temperature	19.7 °C
PH (at 25°C)	7.53
Dissolved Oxygen (mg/l)	8.36
Dissolved Oxygen (% Saturation)	90.9
Conductivity (µs/cm at 25°C)	1267
Salinity (ppt at 20°C)	<1

Reported By: ______________
Claire Foley
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