



Section A: Non-Technical Summary

Attachment A.1.1: Non-Technical Summary

Attachment A.1.2: Map 1 Area of Interest

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ATTACHMENT A.1.1 NON-TECHNICAL SUMMARY (NTS)

1. Introduction

The Cork Lower Harbour (CLH) Main Drainage Project is a project for the provision of collection systems and wastewater treatment facilities in the Cork Lower Harbour area. This project includes transferring the collected wastewater from Cobh (D0054-01), Passage West/Monkstown (including Glenbrook) (D0129-01), and Ringaskiddy Village (including Shanbally and Coolmore) (D0436-01) to the Cork Lower Harbour agglomeration (D0057). The CLH Project involves upgrading the existing sewerage network infrastructure together with the provision of a secondary Wastewater Treatment Plant (WwTP) (operational since December 2016) at a site located to the east of Carrigaline near the townland of Shanbally.

The current loading population equivalent to the Shanbally WwTP is 45,269 PE. This is based on loadings for the entire Cork Lower Harbour agglomeration. The nature of the emissions from the WwTP are predominantly domestic in nature. The Design population equivalent of the plant is 65,000 PE. The licence will be related to the combined PE of the treated industrial water directly into the outfall pipe (downstream of the Shanbally WwTP) and the treated urban wastewater loadings from the Shanbally WwTP of 259,250PE (based on current design capacity of WwTP (65,000PE) + 194,2501 p.e. from treated industrial loads discharging directly into IDA outfall (as per IW interim PE methodology)

A review of the D0057-01 Crosshaven, Carrigaline, Ringaskiddy (now known as Cork Lower Harbour) licence is required in order to amalgamate the agglomerations into one agglomeration which will be served by the Shanbally WwTP.

The review application is also proposing a new set of ELVs for the Shanbally WwTP and amended ELVs for the primary discharge (SW001) from the IDA outfall (included in below tables A1 & A2).

See **Attachment A.1.2: Map No. 01: Area of Interest.**

2. Description of the waste water discharges from the waste water works serving the agglomeration

Effluent from the Shanbally WwTP is discharged to the Cork Harbour, using an IDA owned outfall, at Dog Nose Point (181358E, 062521N). Several large industrial companies operating under individual licences, discharge directly to this IDA outfall downstream of the Shanbally WwTP discharge. These flows are not, or will not be treated, at the Shanbally WwTP and are not considered to be part of the agglomeration load entering the Shanbally WwTP.

For this reason, 2 licence monitoring points with different sets of ELVs are proposed as detailed below (monitoring points S1 from the WwTP & S2 for SW001 IDA outfall discharge).

The final effluent from the Shanbally WwTP has been designed to meet the quality standards for general components (BOD, COD and SS) specified in the Urban Waste Water Treatment Regulations 2001, as amended.

The treated effluent from the WwTP complies with the following discharge limit standards, which are the new proposed ELVs from the WwTP:

Parameter	Concentration (mg/l)
BOD ₅	25
COD	125
Total Suspended Solids	35
Dissolved Inorganic Nitrogen (DIN)	45
pH	6 – 9

Table A1 – Proposed ELVs for treated effluent from WwTP

Proposed ELVs for the combined effluent from the Primary Discharge (SW001):

Parameter	Concentration (mg/l)
BOD ₅	245
Dissolved Inorganic Nitrogen	95

Table A2 – Proposed ELVs from the IDA Outfall (primary discharge SW001)

Secondary Discharges:

There were no secondary discharge points from the agglomeration.

Storm Water Overflows/Emergency Overflows

There is a total of 24 no. overflows within the Cork Lower Harbour (including, Cobh, Passage West, Monkstown, Carrigaline, Ringaskiddy, Crosshaven and Shanbally catchments) foul/combined sewer network that discharge periodically (generally weather dependent) into receiving waterbodies.

Of the 24 no. overflows, 20 are Dual Function Overflows associated with pumping stations (*i.e.*, acts as a Storm Water or Emergency Overflow depending on the event), 3 no. are network Storm Water Overflows only and 1 no. is a Dual Function Overflow from the WwTP.

All Storm Water Overflows are designed in accordance with the DoEHLG '*Procedures and Criteria in relation to Storm Water Overflows*', 1995.

3. Description of the wastewater works and associated waste water treatment plant

The Project consists of:

- New Shanbally WwTP at Shanbally (constructed and currently operating)
- 14 new pumping stations and 5 upgraded pumping stations with Dual Function Overflows¹ and an attenuation tank with a Storm Water Overflow
- 30 km of new sewers Repair work on existing sewers
- A drilled crossing under the estuary

Operations commenced at the new Shanbally WwTP at the end of December 2016. Wastewater collected loads have been transferred from Cobh (D0054-01), Passage West/Monkstown (including Glenbrook) (D0129-01), and Ringaskiddy Village (including Shanbally and Coolmore) (D0436-01) to the Cork Lower Harbour agglomeration (D0057). The treatment plant is now providing full treatment of all urban wastewater.

Shanbally WwTP

The newly constructed Shanbally WwTP, providing secondary treatment with a design capacity of 65,000 PE (expandable to 80,000 PE), was completed in 2016. The treatment works consists of preliminary treatment and secondary treatment based on Nereda® Aerobic Granular Reactors technology prior to gravity discharge to the Cork Harbour near Dognose Bank via an existing IDA long sea outfall. The innovative Nereda® technology at the plant means that less sludge is produced, less chemicals are used, and less land is needed than for conventional treatment plants. This gives a more environmentally and economically sustainable wastewater treatment solution. The technology is based on aerobic granulation and is a modification of the activated sludge process. Nereda® treats the wastewater with aerobic granular biomass: purifying bacteria that create compact granules with superb settling properties. Nereda® granules settle much faster than flocs of sludge, and can do so in the same tank in which the treatment process takes place.

Design Parameters

The basic design parameters for the 65,000 PE Waste Water Treatment Plant are summarised as follows:

Parameter	m³/d	m³/h
DWF (Dry Weather Flow)	14,625	609
FFT (Flow to Full Treatment)	43,875	1,828
	l/s	m³/h
Outfall Max flow rate	988	3,556.8

¹ Dual Function Overflow is an Overflow which can function as a Storm Water Overflow or an Emergency Overflow, depending on the event.

Outfall Monitoring

The treated effluent flows by gravity and discharges at the Cork Lower Harbour *via* an outfall. The flow meter at the plant measures the outlet flow in tandem with a composite flow proportional sampler. Treated effluent is sampled at the WwTP (for UWWD & WFD purposes) and also at the current EPA licensed point which includes for IPC/IED licences contributing to the sewers between the WwTP and the official sampling point *i.e.* this is a combined effluent.

For further details on the Wastewater treatment plant and process flow refer to **attachment B.2.7 & B.2.8**

4. Description of the features and measures, if any, envisaged to avoid, prevent, or reduce and, if possible, offset the significant adverse effects on the environment

Irish Water are committed to ensuring that water services infrastructure operates in a manner that supports the achievement of the water body objectives under the Water Framework Directive, and their obligations under the Birds and Habitats Directives.

The WwTP has been designed to cater for a hydraulic and biological load of 65,00 p.e. (expandable to 80,000 PE). Secondary treatment is provided and will ensure that the treated effluent discharge does not have a significant adverse effect on the receiving aquatic environment, and that all relevant legislative requirements are complied with.

The proposed effluent standards from the new WwTP (SW100) and the ELVs proposed from of IDA outfall (primary discharge SW001), which have consideration for the combined industrial and treated municipal wastewater discharges, give effect to the principle of the Combined Approach as defined in Waste Water Discharge (Authorisation) Regulations, 2007 to 2020 in that the treated urban wastewater discharges ELVs from the WwTP will accommodate the requirements of the Urban Waste Water Regulations and the Water Framework Directive (WFD) e.g. the relevant status/designations of the receiving waterbody, while the ELVs for the combined discharge from the IDA outfall will accommodate the requirements of WFD.

The SWOs will operate in compliance with the definition of '*Storm Water Overflow*' as per Regulation 3 of the Waste Water Discharge (Authorisation) Regulations, 2007, as amended and the criteria as set out in the DoEHLG '*Procedures and Criteria in Relation to Storm Water Overflows*', 1995.

Under the DBO contract for the Shanbally WwTP, a Performance Management System is in place. The Contractor is required to comply with Irish Water Standards including procedures for dealing with plant operation, and in particular for dealing with emergencies or failure to meet treated effluent standards. Failure to meet the specified treated effluent standards may result in final penalties to the operating contractor. As a result, the risk of environmental pollution from the treatment plant is considered to be low.

All the overflows associated with the pumping stations within the agglomeration will serve two purposes; 1) To act as a storm water outfall to deal with major rainfall events and 2) To act as an emergency overflow to the sewer network in the case of power outage or pump failure.

In the event of either 1) or 2) above (*which would both be very rare*), sewage will pass through a 6mm screening device to remove solids before being discharged. Sewage will also be heavily diluted by the presence of surface water overflow in the network. To further reduce the likelihood of such overflow events, project design measures include for

a telemetry system which sends an alarm in a spill event, redundant pumps in case of pump failure and the provision of a connection point for a mobile generator in the event of power outage/failure. Monitoring of overflow events will also alert operators to any non-routine occurrences.

All Storm Water Overflows have been designed in accordance with the DoEHLG 'Procedures and Criteria in relation to Storm Water Overflows', 1995.

5. The proposed technology and other techniques for preventing or, where this is not possible, reducing discharges from the wastewater works

The new WwTP has been designed to operate in compliance with existing legislative and regulatory standards (secondary treatment provided). The new WwTP and network works will end the practice of discharging untreated wastewater into the harbour which will improve the water quality of the harbour and ensure environmental compliance. This in turn will help protect the above-mentioned protected areas.

6. Description of the receiving waterbody

The Primary discharge from the IDA outfall is to the coastal waters of Cork Harbour, WFD Code IE_SW_060_0000. The latest WFD status (2013-2018) of the coastal water body in the vicinity of the discharge is classified as having 'moderate' (Cork Harbour) or 'good' (Outer Cork Harbour) water quality status.

The table below shows the latest WFD quality status for the receiving waterbody (Cork Harbour) along with other waterbodies in the Overall Cork Harbour System

Waterbody Name	WFD Code	Waterbody Type	WFD Status (2013-2018)
Cork Harbour	IW_SW_060_0000	Coastal	Moderate
Outer Cork Harbour	IE_SW_050_0000	Coastal	Good
Lough Mahon	IE_SW_060_0750	Transitional	Moderate
North Channel Great Island	IE_SW_060_0300	Transitional	Moderate
Owenboy Estuary	IE_SW_060_1200	Transitional	Unassigned
Owenacurra Estuary	IE_SW_060_0400	Transitional	Moderate

Nutrient Sensitive Areas

Lee Estuary/Lough Mahon is a nutrient sensitive area within greater Cork Harbour and is located ca. 4.7 km north west of the primary discharge outfall location.

Owenacurra Estuary/North Channel is a nutrient sensitive area within the greater Cork Harbour and is located ca. 6.4 km north east of the primary discharge location.

Based on modelling completed which supports this application review (see **Attachment D.2.2**) the discharges from the new Shanbally WwTP are unlikely to impact on the above nutrient sensitive areas.

European Sites

There are SACs and SPAs within a 15km radius of the discharge location from the IDA outfall. These are as follows:

- Great Island Channel SAC (8km).
- Cork Harbour SPA (1.6km).

The nearest hydrologically connected designated site is Cork Harbour SPA. The nearest subsite of this SPA (i.e., Lough Beg) is located ca. 1.6 km from the discharge location. The nearest SAC is the Great Channel Island which stretches from Little Island to Midleton, with its southern boundary being formed by Great Island and is located ca. 8 km from the primary discharge location.

Further information on the above SAC and SPAs is provided in Section D.1 of this application as well as in the AAS (**Attachment D.2.3**)

Bathing Waters

Fountainstown Beach is the only designated bathing beach within greater Cork Harbour and is located ca. 5.25 km south west of the primary discharge outfall. It has been classified as having "Excellent" water quality for the year 2020.

Shellfish

There are 4 designated shellfisheries in Cork Harbour; the Cork Great Island North Channel; Rostellan West, Rostellan North, Rostellan South. Rostellan West is the nearest shellfish area to the primary discharge point, ca. 5.5 km north east of the primary discharge point.

The modelling assessment has demonstrated that the combined discharge will meet all interim and regulatory bacterial water quality targets and that the combined discharge is compatible with the achievement of WFD objectives for the Designated Shellfish Waters in both Rostellan and the North Channel and the Designated Bathing Waters at Fountainstown Beach.

Drinking Water Designations

There are no drinking water designations in proximity to the discharges from the agglomeration

Proposed Natural Heritage Areas (pNHA)

There are six pNHAs within or adjacent to the Cork Harbour (Coastal Waterbody) and the Owenboy Estuary, namely, Lough Beg (Cork) pNHA (ca. 1.6 km west of the primary discharge), Monkstown Creek pNHA (ca. 5 km north west of the primary discharge), Owenboy River pNHA (ca. 4.8 km south west of the primary discharge), Whitegate Bay pNHA (ca. 1.8 km north east of the primary discharge), Rostellan Lough, Aghada Shore and Poul nabibe Inlet pNHA and Cuskinny Marsh pNHA (ca. 3.7 km north east of the primary discharge).

All the above sites apart from Cuskinny Marsh are also designated as part of the Cork Harbour SPA. As such, these pNHAs are covered as per the conservation objectives of the SPA.

Cuskinny Marsh is of interest because it contains a mix of habitats, within a small area, and supports locally important numbers of wildfowl.

The improvement in the effluent discharges from the proposed project will have a positive impact on Cork Harbour aquatic environment. Any improvement in the aquatic environment will have a beneficial impact on the water dependent interests of the above pNHAs

Details of the relevant designations in relation to the receiving water are contained in **Attachment D.2.5 & D.2.6**

7. Description of the likely significant effects of the discharges on the environment

It is not expected that the proposed discharges will have any impact on surface water quality. The Discharges are to a coastal waterbody only. There is no *source-pathway-receptor* link to any groundwater body from the discharges within the agglomeration.

Refer to **Attachment D.2.1 & D.2.2:** Impact Assessment Report & Water Quality Modelling Report addressing the potential impacts of the Cork Lower Harbour/Shanbally WwTP discharges on the water quality of the Cork Harbour system

Based on the proposed effluent discharge standards (see **Table A.1 and A.2** above) and the Water Quality Modelling report and AA Screening report, it is considered that the proposed discharges from the CLH agglomeration would have no real likelihood of significant effects on the receiving aquatic environment, alone or in combination with other plans and projects. The effluent discharge standards will ensure that the discharges from the agglomeration will support the achievement of the water body objectives under the Water Framework Directive and our obligations under the birds and habitats Directive, and will ensure that there is no environmental risk posed to the receiving water environment as a result of the discharges from the agglomeration.

8. Measures planned to monitor discharges into the environment

The DBO Contractor/Irish Water monitor the wastewater treatment plant assets and operations, which includes undertaking sampling, safe access, monitoring and analysis of the wastewater in accordance with Licence requirements.

Irish Water proposes monitoring the wastewater treatment plant at S1 (SW100) to demonstrate compliance with the Urban Wastewater Treatment Regulations, 2001, as amended as well as the WFD requirements, and at S2 for SW001 primary discharge as per below tables. The ELVs at S2 will have consideration for the combined treated industrial discharges directly into the IDA outfall and the treated urban wastewater discharges from Shanbally WwTP in order to comply with relevant regulations such as the Environmental Objectives Surface Water Regulations 2009.

Monitoring & Sampling Locations

Influent Sampling Point at WWTP	Coordinates (NGR)
SW001(I1) EDEN Code; TPINF0500D0057SW001	175225E, 063771N

Effluent Sampling Points	Coordinates (NGR)
SW001(S1); at WwTP EDEN Code; TPEFF0500D0057SW100	175167E, 063788N
SW001(S2); at combined effluent point d/s of WwTP EDEN Code; TPEFF0500D0057SW001	178882E, 063448N

9. Hours during which the wastewater works is supervised or manned and days per week of this supervision

The WwTP at Shanbally is operated by EPS Group on behalf of Irish Water and is manned from 8 am to 5 pm Monday to Thursday and 4pm on Friday with on-call outside of these hours. The WwTP is capable of being monitored remotely on a daily basis via the SCADA system.

10. In the event of a review application, state the grounds for which this review application is being made

A review of D0057-01 Crosshaven, Carrigaline, Ringaskiddy (to be called Cork Lower Harbour Agglomeration going forward) licence is required in order to amalgamate a number of agglomerations (as per below) into one licenced agglomeration which will be served by the Shanbally WwTP;

- D0057-01 Crosshaven, Carrigaline, Ringaskiddy
- D0054-1 Cobh
- D0129-01 Passage/Monkstown
- D0436-01 Ringaskiddy Village

The review application is also proposing a new set of ELVs for the treated effluent from the Shanbally WwTP and amendment and removal of certain ELVs for the primary discharge from the IDA outfall as per point 2 above of this NTS. Due to the amalgamation of agglomerations into 1 licence, agglomeration boundaries are to be revised also along with additional Storm Water Overflows to be included. It may then be possible for the EPA to revoke the above amalgamated licences once the new licence for Cork Lower Harbour is granted.

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NOTES

SIGNED: _____

PRINT NAME: _____

POSITION: _____

DATE: _____

FOR IRISH WATER

REV	DATE	DESCRIPTION	D	C	A

WASTE WATER DISCHARGE LICENCE TECHNICAL REVIEW

CLIENT: **IRISH WATER**
 Colvill House,
 24-26 Talbot Street,
 Dublin 1.

PROJECT: **CORK LOWER HARBOUR WASTE WATER DISCHARGE LICENCE TECHNICAL REVIEW**

TITLE: **AREA OF INTEREST**

SCALES: 1:50,000	DRAWN: D. Smithers
CAD REFERENCE: A.1 20506-DL-01	DATE: 04.05.2018
SECTION: A.1.2	DRAWING No: 01
REV: -	REV: -

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