Treated Wastewater

Treated wastewater from the Greater Dublin Drainage project will be discharged to the Irish Sea. It will be treated to standards necessary to meet the requirements of National and European legislation such as the Water Framework Directive, Bathing Water Quality regulations and Urban Wastewater regulations.

Studies are also underway on marine life and fisheries as part of the Environmental Impact Statement (EIS) to identify any potential impacts at the outfall location. During normal operational conditions there will be no impacts on beaches or marine life.

We send regular updates on the project to approximately 700 people by email.

Sludge Management

The Sludge Management Plan (SMP) for the Fingal Region was reviewed in 2013. The Fingal SMP was completed in 2002 and considered how to manage all types of non-hazardous sludge arising in Fingal, including sludge from the wastewater treatment plants which were existing or planned in Fingal at that time. Fingal's SMP was reviewed in the current context, including consideration of the proposal for a new Regional Wastewater Treatment Plant as part of the Greater Dublin Drainage project.

The review of the SMP concluded that the preferred option to manage wastewater treatment sludges in Fingal is to locate the Sludge Hub Centre at the site of the proposed Regional Wastewater Treatment Plant.

Shanganagh Wastewater Treatment Plant

Other Wastewater Treatment Plants (WwTPs)

It was recommended by the Greater Dublin Strategic Drainage Study (GDSDS), 2005 that all existing wastewater treatment plants within the region be upgraded to their ultimate capacity. Recently completed upgrades include Shanganagh, Portrane and Barnageeragh. The Swords plant is currently being upgraded. The treatment plants at Ringsend, Leixlip and Osberstown are due to be upgraded in the near future. Available land and receiving water constraints at Dublin's existing plants limits their expansion potential and, as a result, a new regional plant is required.

Shanganagh-Bray Wastewater Treatment Plant:
The most modern wastewater treatment plant in Ireland is the Shanganagh-Bray WwTP, Co. Dublin, which opened in January 2013. This plant has a design capacity of 186,000 Population Equivalent (PE) and occupies a site area of approximately 3.25 hectares.

All units within this WwTP are covered and strict odour and noise controls exist at the boundary of the site. The area around the plant is landscaped and used by the local community for walking, playing pitches and a community garden.

By 2040, the proposed Regional WwTP will deal with approximately one third of the volume being treated at the expanded Ringsend plant.

The proposed Regional WwTP at Clonshagh will require a site area of approximately 23 hectares.

There are currently 4 wastewater treatment plants greater than 1,000 PE in the Fingal County Council study area:

- **Barnageeragh**
- **Portrane**
- **Swords**
- **Malahide**

Contact us:

For more information visit our website at **www.greaterdublindrainage.com**

You can also contact us directly:

Online Email us at **info@GreaterDublinDrainage.ie**

By phone Call us on **1890.44.55.67** (Monday-Friday, 9:00a.m. - 1.00p.m. and 2:00p.m. - 5:00p.m.)

In writing Greater Dublin Drainage, c/o RPS Group, West Pier Business Campus, Dun Laoghaire, Co. Dublin, Ireland.

Greater Dublin Drainage Project

The Wastewater Treatment Process:
How Does it Work?

June 2013

The Greater Dublin Drainage initiative aims to provide the drainage infrastructure needed to allow the Greater Dublin Area to continue to develop. It is required to protect the environment and to ensure compliance with EU and national legislative requirements.

Studies have identified that the best solution for the future development of wastewater treatment capacity in the Greater Dublin region comprises a 26km pipeline, a wastewater treatment plant at Clonshagh and an outfall pipe located 6km out to sea from Baldoyle Bay.

Greater Dublin Drainage

www.greaterdublindrainage.com

How wastewater and drainage arises

Wastewater is any water whose quality has been adversely affected by human activity or industry. It is liquid waste discharged by domestic residences, commercial properties, industry, or agriculture as well as storm water that enters the wastewater sewer network from our streets and roads

We all create wastewater through simple everyday activities like showering, washing clothes and dishes, cooking and using the toilet.

Why do we need to treat wastewater?

Wastewater can contain a wide range of contaminants. Some of these contaminants can be broken down easily in the environment but others are not so easily degraded.

The drainage system transports this wastewater to a plant for treatment before it is discharged as treated effluent into our rivers or seas.

Untreated wastewater poses a threat to public health and the environment and that is why treatment is required. All wastewater is ultimately discharged back into the aquatic environment and, if the treatment is inadequate, the receiving waters may be polluted.

Furthermore, proper wastewater treatment systems are essential for sustaining modern livelihoods and facilitating development. Not only householders but also businesses, industries, schools and hospitals, for example, rely on a robust wastewater treatment system to maintain daily activities.

One large Regional WwTP will have less impact on the environment than many smaller plants discharging into local rivers and streams.

Approximately 70% of the wastewater flow from Fingal is currently being treated at Ringsend WwTP.

Journey to the treatment plant

Wastewater is transported from homes and businesses to a wastewater treatment plant through an underground drainage network. The Greater Dublin Drainage project therefore also involves the provision of approximately 26km of underground pipeline which will transport wastewater collected from the surrounding load centres to the WwTP at Clonshagh and transport treated wastewater from the WwTP before being discharged approximately 6km out to sea from Baldoyle Bay.

The treatment process

Wastewater treatment is the process of removing contaminants, including physical, chemical and biological contaminants from wastewater. Treatment is carried out in order to produce an environmentally safe liquid waste stream that is suitable for disposal.

Stages of treatment

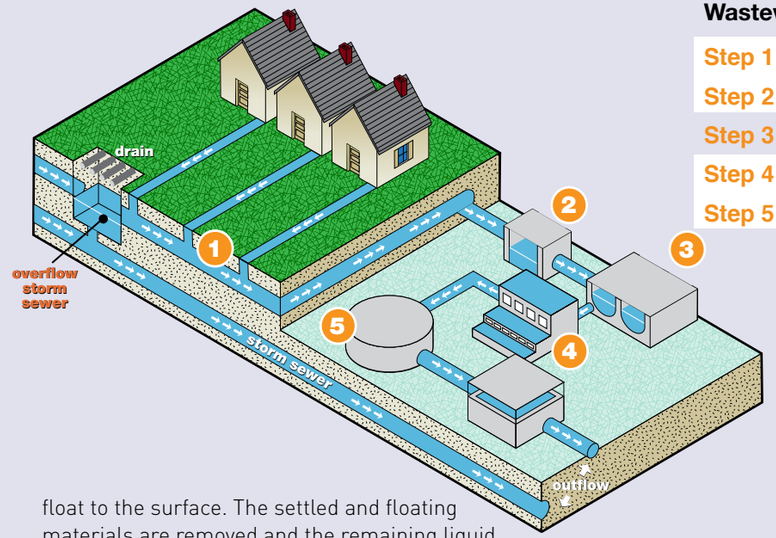
There are three main phases of treatment undertaken in Wastewater Treatment Plants:

Preliminary treatment (Pre-treatment) consists of putting the raw sewage through mechanically raked screens to break up the sewage and remove large solids, oily scums and floating material. Following this the grit, sand or gravel particles and heavy solids are allowed to settle before being removed.

Primary treatment consists of temporarily holding the pre-treated sewage in a tank where heavy solids can settle to the bottom while oil, grease, and lighter solids float to the surface. The settled and floating materials are removed and the remaining liquid may be discharged or subjected to further secondary treatment.

Secondary treatment is a biological treatment phase where dissolved and suspended biological matter is removed by the action of water-borne micro-organisms in a managed environment such as aeration tanks. The secondary treated wastewater is suitable to discharge to receiving waters in the majority of circumstances.

In certain circumstances, due to the sensitivity of the receiving environment a further treatment stage may be required. This fourth stage is commonly referred to as **'tertiary'** treatment.



Urban Wastewater Management

Wastewater treatment process

Step 1: sewerage system
Step 2: grit chamber — **Preliminary treatment**

Step 3: primary treatment

Step 4: aeration tanks
Step 5: secondary treatment tank — **Secondary treatment**

This illustration shows the layout of a typical treatment works. Ideally, wastewater treatment in a municipal treatment works involves three main stages: Preliminary, primary and secondary treatment. There are two products from the treatment process; sludge and liquid effluents. The process of wastewater treatment removes physical, chemical and biological contaminants, producing an environmentally safe fluid waste stream or sludge that is suitable for disposal or reuse.

Modern wastewater treatment plants are operated to strict odour and noise controls. Such controls will be detailed in the Environmental Impact Statement (EIS) prepared for the Greater Dublin Drainage project and will be implemented during the construction, commissioning and operational phases of the plant.

In addition, appropriate separation distances between the wastewater treatment plant and sensitive receptors such as residences, schools and nursing homes will be ensured. For the purposes of identifying an appropriate site for the wastewater treatment plant as part of the Greater Dublin Drainage project, a minimum distance of 300 metres was established from existing sensitive receptors.