



KEE CASE STUDY

KEE collaborate with Northern Ireland Water on a £5m investment to construct one of the largest RBC sites in Europe.

KEE's expertise in design, manufacture, installation, servicing maintenance and operation of equipment for all types of wastewater treatment plants is backed by over 60 years of experience and over 350,000 installations worldwide.

Background

KEE have been working with Northern Ireland Water (NIW) for over 15 years, providing treatment plants for many of their water infrastructure projects. The most recent collaboration involved KEE Group working on a new £5 million wastewater system for 5,800 people at Keady, Co Armagh. The new Keady Wastewater Treatment Works was to deliver improvements in process efficiency, discharge quality and increase the capacity of the plant to encompass the neighbouring population in Armagh.

KEE technical experts worked closely with NIW consultants throughout the term of the project, providing the following:

- Support and guidance in selecting the correct treatment process and technology
- Detailed 3D plant designs and specifications

- Manufacture and supply of wastewater treatment equipment
- On-site training for NIW Services Staff, to ensure optimum plant process performance and extended life
- On-going site maintenance and back up support

The Challenge

The new plant was to meet the following requirements:

- To be constructed within the existing site of the old plant
- Achieve current and future NI Environment Agency discharge standards and EU regulations.
- Provide additional capacity to meet the future needs of the growing local population



10 KEE RBCs at the new Keady Wastewater Treatment Works.

The Solution

The consistent performance of KEE's RBC technology installed in Derrylin back in 2010 gave Northern Ireland Water the confidence to proceed with the Keady project.

The new plant was installed in the Autumn of 2012 and consisted of a Tertiary Slow Gravity Sand filter and 10 RBCs (Rotating Biological Contactors).

Each RBC was housed in a precast concrete chamber with GRP top covers to protect the equipment from the weather and enable easy access for maintenance. The upgrade in technology achieved NIW's current and future consent and capacity requirements and delivered the following additional benefits:

New RBC Plant Performance at Keady

Final effluent	Target	Actual
BOD	<5.00mg/l	4.96mg/l
SS	<10.00mg/l	10.00mg/l
NH ₄ -N	<1.50mg/l	0.23mg/l

95% ile compliance basis.

Design Features

- Robust and consistent performance during Winter and Summer periods, ensuring discharge consents are met all year round.
- Substantial underground installation to minimise the visual and environmental impact on the landscape.
- Thermostatic temperature control system inside each RBC unit to mitigate sub zero ambient temperatures.
- Innovative KEE 'flow control' mechanism fitted to each RBC to enhance process stability.

Cost Savings

- 30 years design life, 20 years warranty on structural components.
- £812,520 energy saving and associated carbon footprint over 20 years.
- £947,200 OPEX saving due to reduced operational, maintenance, labour, spares and sludge disposal costs over 20 years.
- 30% saving in CAPEX costs when compared to an equivalent sized ASP (MBR) system.



Keady WWT Works, Large diameter RBCs under construction



Keady Wastewater Treatment Works is just one example of the many projects being undertaken by NI Water and KEE to improve infrastructure in Northern Ireland. These projects represent part of a £490 million investment by NIW in wastewater services throughout the North over the past three years.

For more information on KEE's latest NuDisc® RBC, please visit our website or call KEE Process on:

01296 634500

paulao@keeprocess.com



Specialists in Domestic & Industrial Wastewater Treatment

KEE Process Ltd, College Road North, Aston Clinton, Aylesbury, Buckinghamshire HP22 5EZ, U.K.

T: +44 (0)1296 634500 **E:** sales@keeprocess.com **W:** <http://www.keeprocess.com>

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