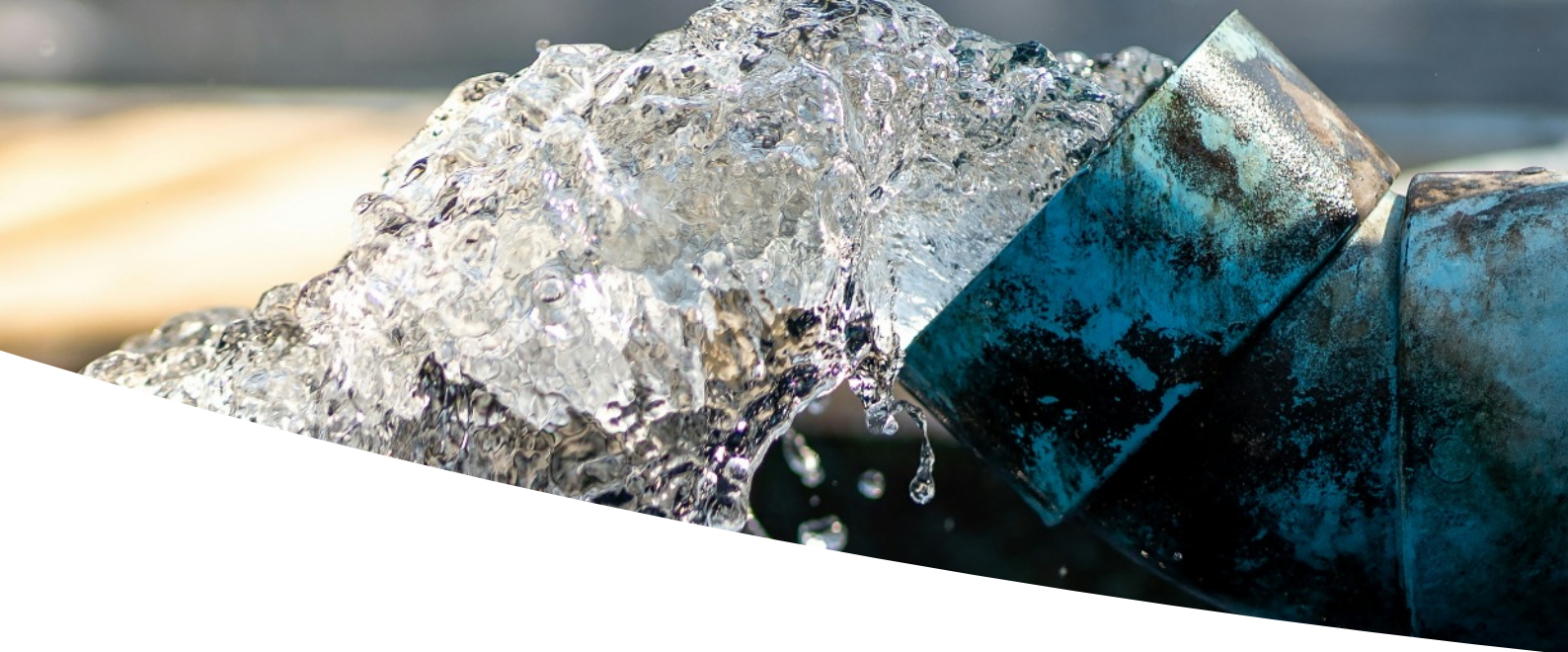


An Introduction to Plantwork Systems

Innovative, Sustainable Wastewater Treatment Solutions



PLANTWORK SYSTEMS
INNOVATION BY NATURE



Complex Challenges - Sustainable Solutions

When you are balancing environmental, social and economic challenges, it is good to know that you can work with one wastewater treatment specialist to help you grow, sustain and protect your business.

Our Passion

Plantwork Systems Ltd (PWS) is passionately committed to making a tangible, positive contribution to a sustainable, clean environment, offering our technical expertise and innovative design to create, supply and promote leading edge technological solutions for wastewater treatment.

Our Process

PWS technology combines new wastewater treatment design with existing processes to offer **ground-breaking solutions** to all wastewater treatment needs. Combining biological engineering with mechanical and electrical design, our team delivers **first class results** in wastewater treatment.

Our Products

PWS has developed a range of proprietary products and processes which are PROVEN to produce **higher water quality at lower cost**.

Our range of unique proprietary products includes biological nutrient removal, filtration and sludge treatment. A strong synergy between our products enables solutions to be developed for various stages of wastewater treatment. We offer a powerful example of the kind of integrated solutions that are needed to help deliver net carbon savings **at the same time** as significantly higher quality discharges to meet today's tougher water quality limits, in an **economically viable** way.

Meeting Customers' Needs

Our Customers

- Water and Sewerage Companies (WaSCs)
- Developers and House Builders
- Commercial Enterprise
- Leisure Sector
- Food and Drink Processors

We would be pleased to give you further details of our [success stories](#) and to discuss how we can meet [YOUR](#) wastewater treatment needs.

Our company's USP is offering unrivalled expertise to deliver unique, integrated and sustainable solutions to a range of sectors

Water and Sewerage Companies (WaSCs)

With ever-stricter standards being imposed, we provide the water industry with the urgently needed better solutions for achieving both higher quality treatment and more efficient methods of dealing with the by-products created, such as sludge from wastewater treatment.

Developers and House Builders

Developers are currently facing two new and significant challenges relating to wastewater disposal which are delaying construction on new developments. PWS products provide a solution to tackle BOTH the lack of capacity in the UK's wastewater infrastructure AND the requirement for Nutrient Neutrality for discharges in sensitive areas.

Commercial Enterprise

The Commercial sector is also suffering the consequences of the inadequacies of the wastewater infrastructure to cope with expansion. PWS provides unique and compact on-site treatment plants to efficiently and economically treat wastewater before it is released into the environment.

Leisure and Food & Drink Sectors

Leisure facilities, such as golf courses, and food and drink processing facilities, including dairies, breweries and abattoirs, spend a lot of money on water and wastewater. Companies using PWS products to effectively and efficiently utilise high quality treated wastewater stand to reap a number of substantial rewards - financial, environmental and reputational.



OUR PRODUCTS

Your Problem:

Phosphorus and Nitrogen pollution is a serious environmental and economic problem. The Government and Regulators are responding with ever-stricter standards for removal and the water industry urgently needs a better solution.

Our Solutions:

NUTREM®

NUTREM® is a unique, compact and efficient Biological Nutrient Removal (BNR) process which has been developed specifically to overcome the current nutrient pollution issues being faced in the UK and around the world. The process provides **industry-leading levels** of Total Phosphorus (TP) removal with the added ability to remove Total Nitrogen (TN) in the same tanks, so avoiding significant cost.

As a **completely biological solution**, NUTREM® offers superior results in a much more environmentally sustainable way. It also offers WaSCs a number of **cost benefits**. With an innovative, modular construction, it requires a much smaller footprint and consumes less energy than more traditional BNR systems, with lower capital expenditure and lower operating costs.

NUTREM® Key Benefits

- Industry-leading level of Total Phosphorus (TP) removal (below 0.25 mg/l)
- Industry-leading level of Total Nitrogen (TN) removal (below 5 mg/l)
- Ability to meet 0.1mg/l TP with the addition of tertiary filters
- No dosing requirements
- Effective in all seasons (i.e. including weak sewage strengths).
- Lower capital expenditure.
- Lower operating costs.
- Smaller footprint, with resulting cost saving.
- Modular and scalable, allowing cost to be spread.
- High quality effluent capable of re-use without tertiary treatment.
- Virtually odour free process.
- No corrosive by-products.



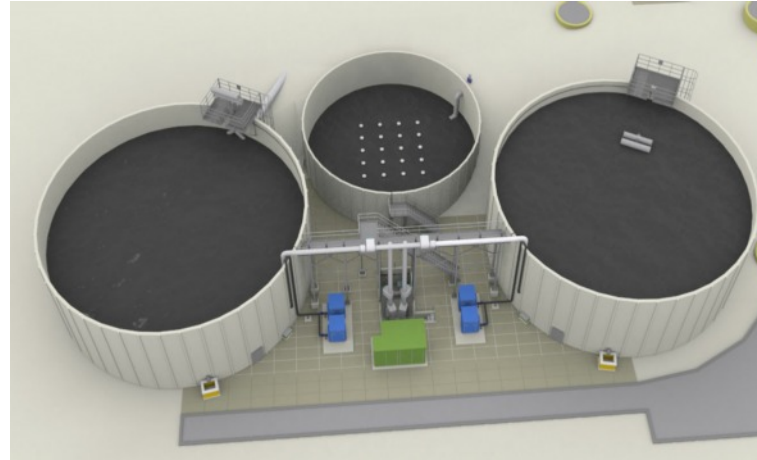
TN-REM

TN-REM is a compact, efficient, Biological Nutrient Removal process optimised to achieve **very low levels of Total Nitrogen** in treated water. The process offers a reliable and robust solution to nutrient removal, using **purely biological treatment** without the need to dose for an additional carbon source.

Key Advantages of the TN-REM Process

- Total Nitrogen (TN) of less than 5mg/l
- Effective in all seasons
- Lower capital expenditure
- Lower operating costs
- Smaller footprint, saving space and cost
- Modular and scalable allowing cost to be spread
- High quality effluent capable of re-use without tertiary treatment
- Virtually odour-free process

TN-REM is suitable for works serving from ten to tens of thousands of people. It is particularly suitable for **dedicated treatment** for new residential developments that are required to demonstrate **Nitrogen Neutrality**; and also where connection to mains would unacceptably delay the development or involve prohibitive cost.



A recent PWS installation where only the kiosk is visible above ground, the tanks having been buried.

Sensitive areas like the Solent have particular requirements for development to demonstrate that it is Nutrient Neutral.

Understanding that every site presents a different set of circumstances and requirements, PWS offers unique dedicated treatment solutions for new residential developments that are required to demonstrate Nutrient Neutrality. **Every one of our processes is bespoke for each installation.**

Your Problem:

Sludge Handling conventionally requires huge resources of land, buildings and equipment, as well as the enormous costs involved in transportation.

Our Solutions:

Static Sludge Thickener

PWS' Static Sludge Thickener (SST) is an ultra compact sludge thickening device developed specifically to meet the challenges of handling sludge, offering **significant transport cost savings** and **environmental benefits**.

The potential savings to be made by reducing liquid sludge volumes are huge. The SST offers that potential with a highly efficient means of gravity settlement, making it possible to achieve considerably thicker sludge which significantly reduces handling and transportation costs.

A truly innovative and sustainable solution, the SST at the same time helps companies reduce their carbon footprint to meet tougher sustainability targets.

Static Sludge Thickener Key Benefits

- Thick energy-rich sludge reducing transport costs.
- Significant contribution to meeting net zero carbon targets.
- By far lowest Totex cost solution.
- Small footprint.
- Lower energy consumption.
- Reduced installation time and lower civil engineering costs.

“The trial Static Sludge Thickener provided by PWS has been excellent. It fulfilled all our expectations in terms of dry solids and saved us over 60 % in tankering costs.”

Craig Pearson, Severn Trent Water



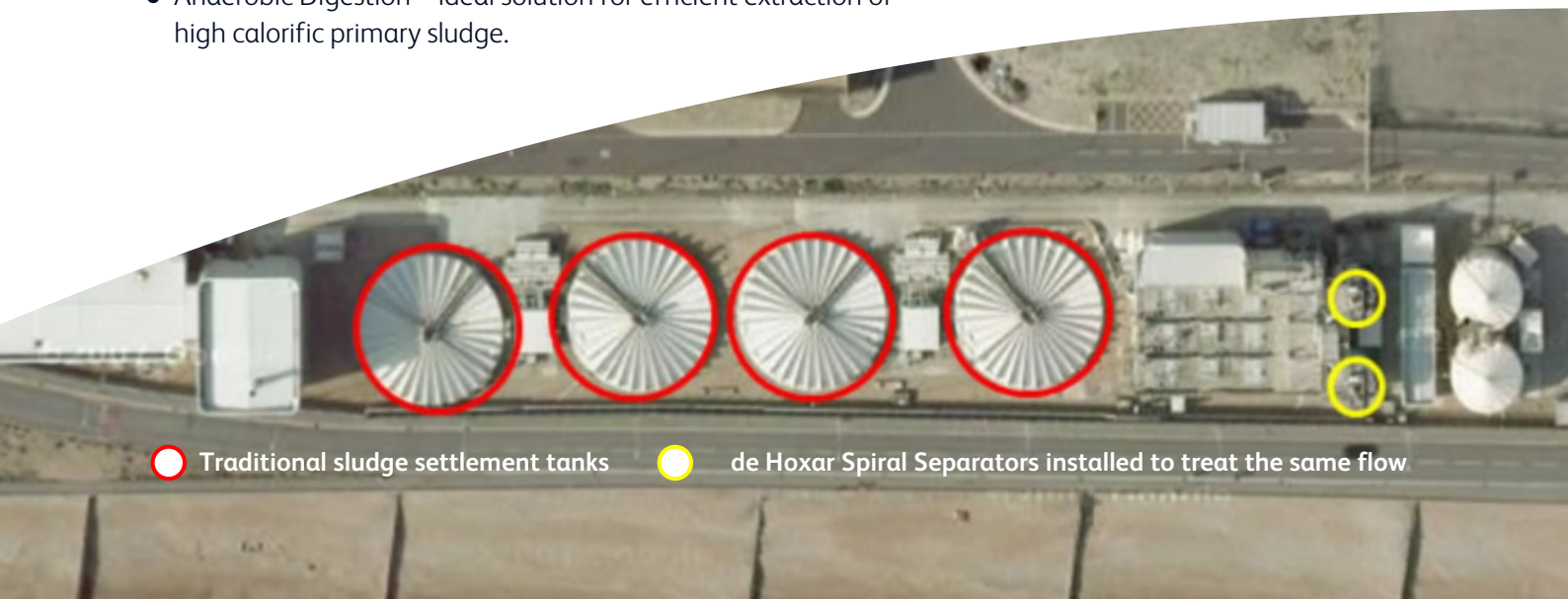
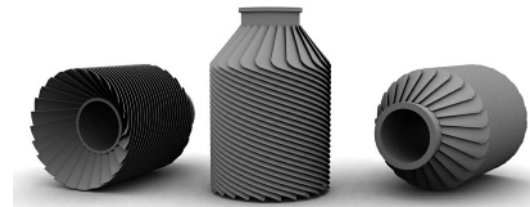
De Hoxar Spiral Separator

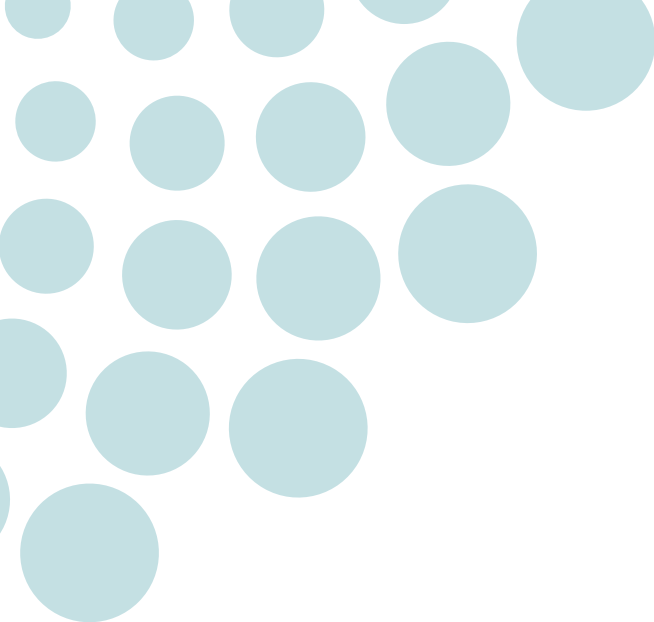
PWS' deHoxar Spiral Separator is a **very compact gravity settlement device** which requires as little as 3 % of the space of traditional settlement tanks. It also has the added advantage of producing thickened sludge which saves the requirement for additional thickening equipment and makes it an ideal solution for efficient extraction of high calorific primary sludge for anaerobic digestion.

Invented by PWS Chief Engineer, David de Hoxar, and developed in conjunction with Southern Water, our proprietary spiral separator is a well-established and proven technology which is in operational use in various regions across the UK and Japan, with multiple applications able to cater for a wide range of populations and purposes.

Key Benefits for Primary Sludge Treatment

- 3 % of the site area is required compared to conventional tanks and only about 25 % compared to lamella separators.
- Far cheaper TOTEX solution compared to conventional processes with significantly reduced construction and operational costs.
- Significant contribution to achieving net zero carbon through reduced sludge volumes, lower treatment and transportation cost and enhanced energy recovery.
- Thicker sludge is produced in many cases saving one stage of sludge treatment.
- Low cost to cover for odour control – the volume of air needed to be treated is typically 1 % compared to conventional tanks.
- Reduced visual impact makes it suitable for urban sites and sites next to areas with public access.
- Anaerobic Digestion – ideal solution for efficient extraction of high calorific primary sludge.





Your Problem:

The need for flexible, scalable and sustainable wastewater treatment for a range of municipal, commercial and industrial developments, enabling recycling of grey or black water.

Our Solution:

Pure SBR

The PWS Pure SBR is a more efficient, reliable and robust improvement on continuous flow systems, with proven benefits that make for a greener and simpler solution to a number of different wastewater challenges. It is suitable for all biologically treatable waters, occupies comparatively little space and can recycle grey or black water without significant additional treatment. All this translates into a more environmentally and financially beneficial system.

The Pure SBR is easily installed, easily operated and maintained and is virtually odour free, which makes it ideal for new developments, country estates and commercial sites. It is also capable of growing as the development grows, with the reactors being installed in stages as and when they are required to treat additional flow. Furthermore, the Pure SBR still averages significantly lower energy consumption rates than alternative technologies, translating into further operating savings.



Applications

- All biologically treatable wastewaters.
- Grey or black water recycling.
- Application as a 'side stream' technology.
- Phased developments.
- Treatment works likely to be subjected to contaminant and hydraulic shock loading.

Key Benefits

- Small footprint.
- Competitive whole-life costs.
- Odour control.
- Easy to install.
- Easy to maintain.
- Easy to operate with minimal training.
- Low energy use.

Your Problem:

The need for add-on treatment to meet water quality consents and extend the life of existing and failing wastewater treatment works.

Our Solution:

Filtration+

PWS' Filtration+ unit is a 'plug and play' filtration unit which provides an effective additional treatment step for the reduction of Suspended Solids in final effluent. A Filtration+ unit is easily installed within an existing plant to ensure the final effluent quality remains within consent, and can achieve solids removal levels in excess of 70% with no moving parts. It represents an ideal solution to extend the life of failing works and delay the need for significant capital investment.

Key Benefits of Filtration+

- Easy installation.
- Lightweight and easy to transport.
- No moving parts.
- Easy maintenance and servicing.
- Peak flow treatment up to 3 litres per second. (Bespoke units available for higher flows)
- Optimal solids removal.
- Scalable - multiple units can be installed.
- Affordable and Flexible - can be moved between WwTPs.



YOUR ONE-STOP-SHOP FOR ADVICE, DEVELOPMENT & DELIVERY

As well as the supply of our unique and innovative technology, we offer unrivalled experience and technical expertise in the wastewater industry. We can advise and support you from beginning to end, *both* in planning and developing new wastewater treatment facilities *and* with the successful improvement and development of existing works.

GET IN TOUCH TODAY
for an initial 'no obligation' assessment of the options available
for your treatment plants



PLANTWORK SYSTEMS

INNOVATION BY NATURE

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