

### SANITARY EFFLUENT COMPLIANCE

Existing toilet and staff welfare facilities will be available to site-based staff at Ballinclare Quarry for the duration of proposed future inert landfilling and C&D waste recovery / recycling activities. No new or upgraded wastewater treatment facilities are required.

Wastewater from the site offices and staff welfare facilities is piped to an existing on-site effluent treatment system. This system, which comprises an aeration treatment unit and two modular Puraflo system over a 300mm deep gravel bed, was previously approved by way of the 2016 quarry planning permission (Wicklow County Council 14/2118).

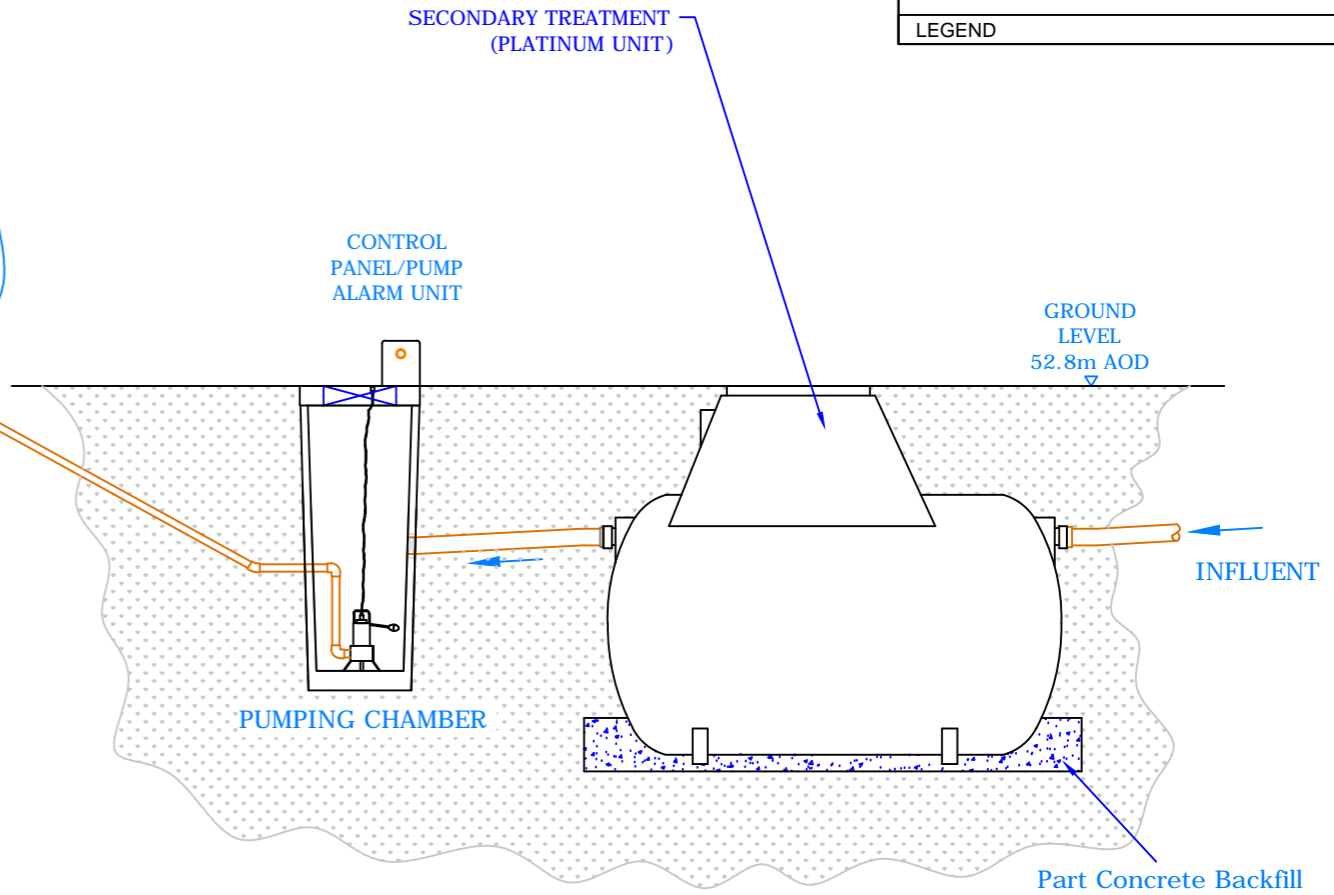
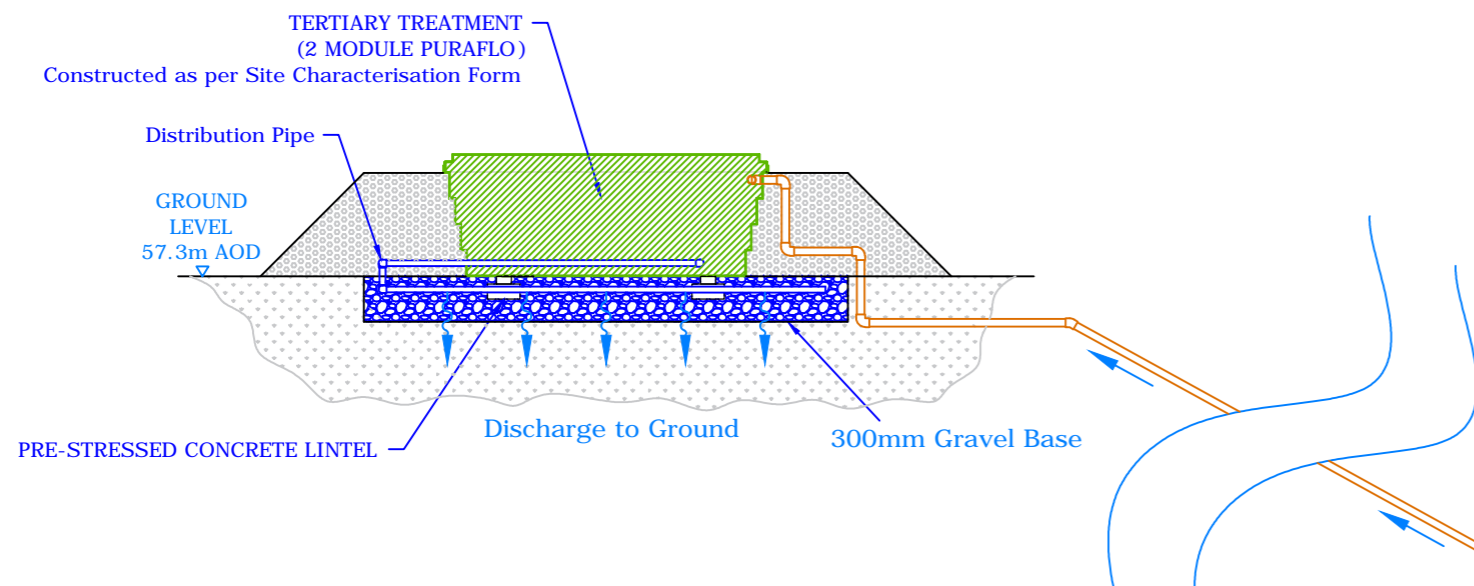
No percolation area is required for the OSWWTP. The tertiary treatment system provides a sufficient level of treatment that it can be discharged directly to groundwater. A 300mm deep 10m<sup>2</sup> gravel bed is constructed below the two modular Puraflo system to assist the infiltration of the highly treated wastewater to ground. This also ensures no back up occurs which could potentially cause problems for the Puraflo system. Proprietary details of the wastewater system are attached, together with details of the location and layout of the system

When the proposed inert waste management facility is operational, an annual maintenance agreement will be put in place with Anua (Bord na Mona) for the OSWWTP.

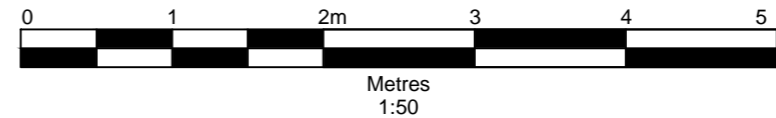
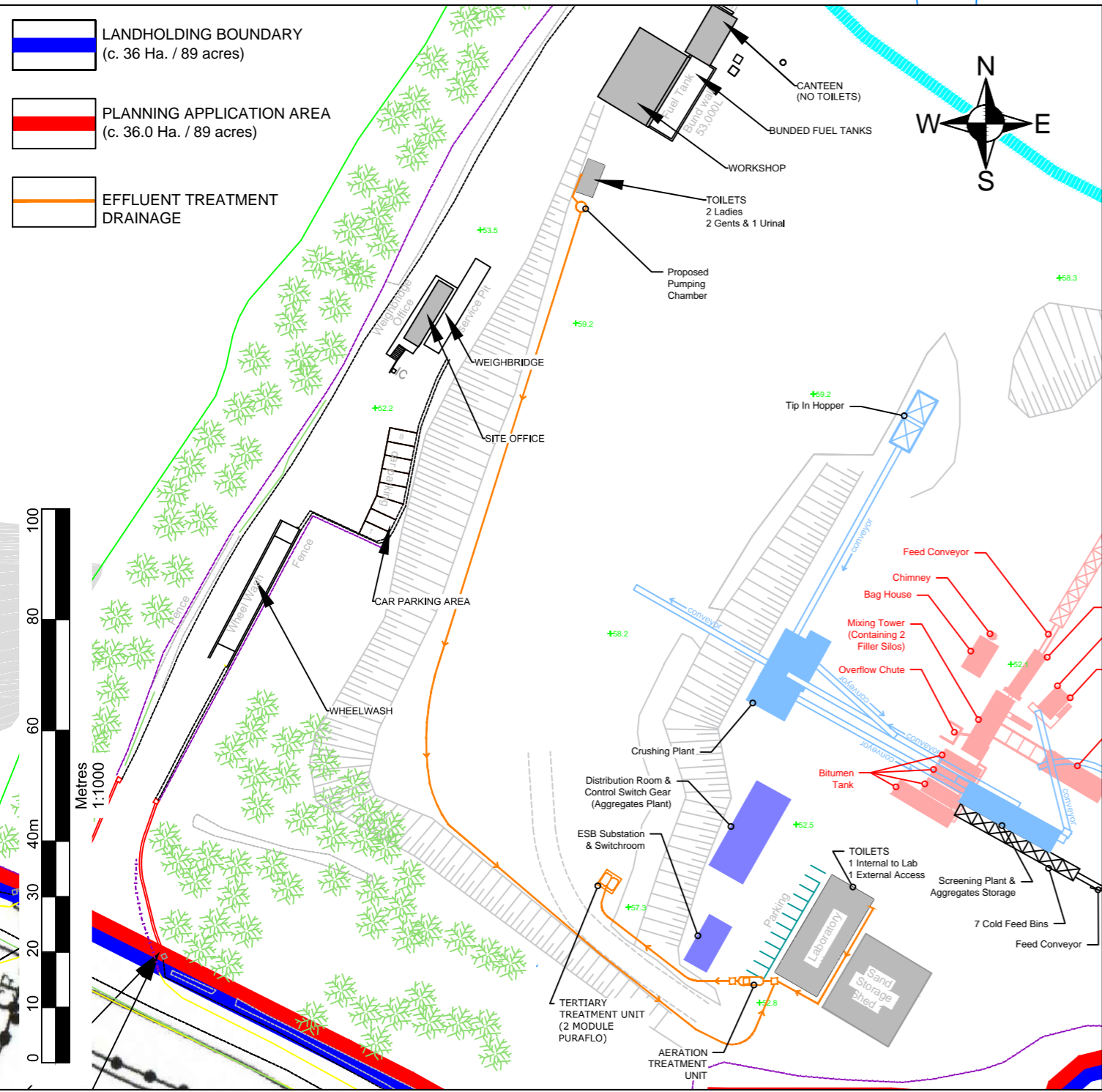
**NOTES**

- EXTRACT FROM ORDNANCE SURVEY DIGITAL MAP 4137 / 1:2,500 4137-B & 4137-D
- ORDNANCE SURVEY IRELAND LICENCE CO. SU 0000715 (c) ORDNANCE SURVEY IRELAND & GOVERNMENT OF IRELAND

**LEGEND**



- LANDHOLDING BOUNDARY (c. 36 Ha. / 89 acres)
- PLANNING APPLICATION AREA (c. 36.0 Ha. / 89 acres)
- EFFLUENT TREATMENT DRAINAGE



**SLR**

SLR CONSULTING IRELAND  
7 DUNDRUM BUSINESS PARK  
WINDY ARBOUR  
DUBLIN 14  
T: +353-1-2964667  
F: +353-1-2964676  
www.slrconsulting.com

**KILSARAN CONCRETE RFI RESPONSE**

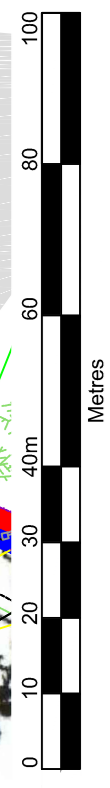
**BALLINCLARE QUARRY, KILBRIDE (N11), CO. WICKLOW**

**SITE LAYOUT PLAN & EFFLUENT TREATMENT SYSTEM**

**DRAWING RFI 4**

Scale 1:50 @ A3 Date JUNE 2015

00036.00026.0.Dwg RFI 4.Effluenttreatment Location.R0.dwg



## Site Specific Report

# Kilsaran Concrete, Ballinclare Quarry, Wicklow, Co. Wicklow

**Site Report no. 73**

### Site assessor

Dr. Eugene Bolton  
Clonfert  
maynooth  
Co. Kildare  
\* Address is the site address

### Planning applicant\*

Mr. Kilsaran Concrete  
Ballinclare Quarry  
Wicklow  
Co. Wicklow

### Specifier details

Dr. Eugene Bolton  
Clonfert  
maynooth  
Kildare

## Type of system

Based on the information provided for the above location by the customer's representative, the wastewater generated from the proposed dwelling will undergo primary, secondary & tertiary treatment as follows:

- Primary treatment and secondary treatment within a Anua Platinum Aeration Treatment Unit.
- Tertiary treatment through a two modular Puraflo Wastewater treatment System. This will reduce the BOD: TSS to a < 10:10 standard and will also allow for substantial reduction in micro organisms, 99.9 % removal of total coliforms and pathogenic bacteria absent.
- Final Polishing via gravity discharge through a soil polishing filter sized/ designed in accordance with the EPA's recent 'Clarification on disposal of effluent from Polishing Filters for Tertiary Treatment Systems'.

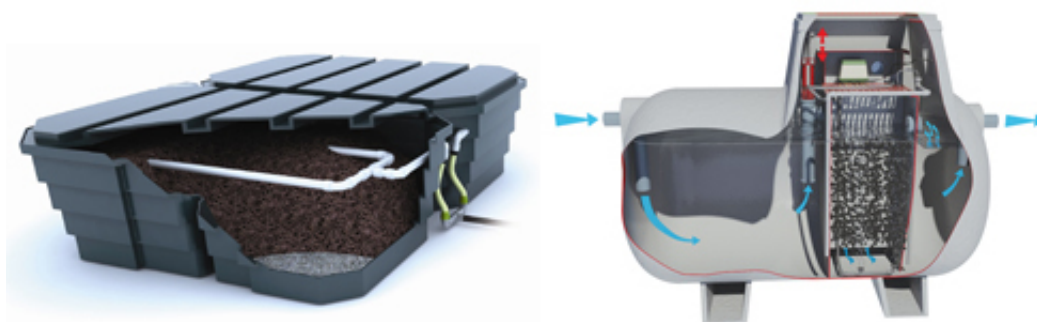
## System description

Tertiary Treatment System:

Tertiary wastewater treatment systems provide additional treatment to wastewater from secondary treatment systems. Essentially, an additional or 'tertiary treatment' stage is added to a standard wastewater treatment system which raises the effluent quality before it is discharged to the receiving environment.

Many sites are refused planning permission because they are deemed too 'environmentally sensitive', or the site is simply too small to build on, or the site is too small to accommodate a polishing filter/percolation area designed in accordance with Section 10.1 of the EPA CoP 2009.

However, in certain circumstances, proposing the installation of an Anua 'Tertiary Treatment System' i.e. the Platinum Aeration Treatment Unit followed by the Puraflo Peat Biofilter system can overcome certain 'planning hurdles' or 'site restrictions'.



Primary & Secondary Treatment using the Platinum Aeration Treatment system

The Anua Platinum Aeration Treatment system is in itself a three stage treatment unit incorporating a primary settlement phase, a submerged

biological aerated filter, and a final settlement phase.

The primary settlement phase provides for the initial settlement and separation of the gross solids. Once the solids have settled the liquid effluent passes forward for treatment in the submerged biological aerated filter (BAF).

The BAF phase is the treatment zone and it contains a set of inactive modules media blocks that provide a large surface area on which naturally occurring bacteria can develop. The bacteria require oxygen which is supplied by a linear low pressure compressor via porous membrane known as diffusers, beneath the media bed.

In the final settlement phase, as the bacteria in the submerged aerated filter dies off, it falls away from the media and is passed forward to the settlement chamber where it settles, further reducing the level of suspended solids in the final effluent.

The only moving part in the Platinum 6 is a small compressor unit which has a 50 watt power consumption and requires no lubrication whatsoever. This compact, highly efficient unit is housed on a separate enclosure above the water level of the system. The compressor works on the principle of electromagnetic oscillation. This means that it is completely oil free and has no sliding parts (it is the sliding parts which can give trouble in other types of compressor). It also means the compressor is very efficient and requires far less power to operate than other types. An added bonus is that this makes the unit virtually silent in operation.

The Platinum 6 has a continuous recycle system and secondary sludge return system (features normally only found on much larger and more expensive plants). These features ensure that the sewage liquor is passed through the filter media over and over again resulting in improved solids breakdown.

The system produces a final effluent of 20 mg/l:30mg/l BOD:TSS, which is normally suitable for discharge to an approved percolation area. However, given the marginal conditions of the site, it is proposed to further 'polish' the effluent with the Puraflo Peat Biofilter before final disposal.

#### Tertiary Treatment using the Puraflo Peat Biofilter system

The highly treated effluent from the Platinum Aeration System unit shall be evenly distributed over the surface of the Puraflo peat biofibrous media and will percolate through the media before emerging as a treated liquid at the base of the unit.

The Puraflo system consists of 700mm depth of a biofibrous media, thus providing additional vertical separation and added afforded protection to the subterranean environs and groundwaters.

The Puraflo technology is based on simple passive, biofiltration principles. The bio-filter is low maintenance and requires no desludging or backwashing. Provided that the primary/septic tank and sump unit are maintained by regular desludging, as required, the system will continue to operate efficiently

The expected level of treatment is a minimum of 10:10 BOD:TSS with 99.9% removal of faecal coliforms, with pathogenic bacteria absent.

The Puraflo Peat Biofilter is now recognised by most Local Authorities as the only system meeting strict requirements for the removal of pathogenic organisms for use in areas where the groundwater is at risk.

The Puraflo unit is installed by trained Anua installers. An electrical control panel and alarm warning system, essential elements of a wastewater treatment system, are included in the price. A sample chamber is provided to allow sampling of the highly treated effluent. The media is housed within containers that cannot be accessed easily by the general public thus safeguarding against unwarranted interference.

The system is ideally suited for intermittent or seasonal use, achieving consistently high treatment results even under variable and/or seasonal loading conditions.

The efficiency of the system does not diminish with time. In fact, the long life of the system coupled with the very low maintenance requirements ensures that the Puraflo® Peat Biofilter will be the most cost-effective solution for years to come.

## Site details

### Groundwater protection responses

**R2<sup>1</sup>**: The site has been categorized with a groundwater protection response of R2<sup>1</sup>.

Therefore, the site is deemed acceptable subject to normal good practice. Where domestic water supplies are located nearby, particular attention should be given to the depth of subsoil over bedrock such that the minimum depth required i.e. 0.9m (Table 6.2,

Section 6, EPA CoP 2009) is met and the likelihood of microbial pollution is minimised.

|                     |                                                          |
|---------------------|----------------------------------------------------------|
| Depth of trial hole | A trial hole was excavated to a depth of <b>1.6m</b> BGL |
| Depth to bedrock    | Bedrock was encountered at <b>1.6m</b> BGL               |
| Depth to watertable | No watertable was encountered.                           |
| Mottling            | No mottling was evident.                                 |
| P value             | No P value recorded.                                     |
| T value             | A T value of <b>6</b> was recorded                       |

## Polishing filter details

### Polishing filter

Tertiary wastewater treatment systems provide additional treatment to wastewater from secondary treatment systems. Essentially, an additional or 'tertiary treatment' stage is added to a standard wastewater treatment system which raises the effluent quality before it is discharged to the receiving environment. Many sites are refused planning permission because they are deemed too 'environmentally sensitive', or the site is simply too small to build on, or the site is too small to accommodate a polishing filter/percolation area designed in accordance with Section 10.1 of the EPA CoP 2009. However, in certain circumstances, proposing the installation of an Anua 'Tertiary Treatment System' i.e. the Platinum Aeration Treatment Unit followed by the Puraflo Peat Biofilter system can overcome certain 'planning hurdles' or 'site restrictions'. Given the area restrictions of the site, the treated effluent from the Puraflo Tertiary Treatment System will be discharged via gravity through a soil polishing filter sized/designed in accordance with the EPA's 2012 Clarification on disposal of effluent from Polishing Filters for Tertiary Treatment Systems. Recent EPA Clarification: The EPA has recently provided clarification on the disposal of effluent from Tertiary Treatment Systems. The reason for the clarification was that up until now, the EPA's 2009 Code of Practice provided no guidance on what to do with the effluent discharging from tertiary treatment systems (sand filters, reed beds, peat filters or package treatment systems). According to the under-riding principles of the Code, the tertiary treated effluent has been treated to a high enough standard such that it can discharge to the groundwater. However, the hydraulic issue still needs to be accounted for such that the effluent does not back up and create problems to the tertiary treatment process itself. Hence, some calculations have been carried out to discharge an appropriate percolation area for the discharge of such clean effluent depending on the T-value of the subsoil into which it is being discharged.

### Size of Polishing Filter/Percolation Area

These calculations (which include a safety factor of 3.5) show that the area of subsoil required for the discharge of tertiary treated effluent, A, is as follows:-  $A = 0.125 \times T$  (M2 per P.E.)

Polishing Filter Area Calculation:

|                                    |                                                                                            |
|------------------------------------|--------------------------------------------------------------------------------------------|
| Maximum Occupancy:                 | 4 people (P.E.)                                                                            |
| 1 Person:                          | 150 litres/wastewater/day                                                                  |
| Percolation Values (T) value:      | 6                                                                                          |
| Soil Disposal Method:              | Direct Discharge                                                                           |
| Size of Polishing filter required: | $A = 0.125 \times T$ (M2 per P.E.)<br>$A = 0.125 \times 6$ (M2 x 4)<br>$A = 3 \text{ m}^2$ |

The highly treated wastewater from the Puraflo system will be discharged by gravity via distribution gravel to the 3 m<sup>2</sup> soil polishing filter situated adjacent to/underneath the modules.

### Invert level

The invert level to percolation shall be located such that there is at least 0.9m of suitable unsaturated soil above the watertable or bedrock in accordance with a groundwater protection response of R2<sup>1</sup>.

### Minimum separation distance

Precise siting of the effluent treatment system and subsequent percolation area should be such that the appropriate setback distances are maintained.

| Receptor                            | Septic Tank, intermittent filters, packaged systems, percolation area, polishing filters (m) |
|-------------------------------------|----------------------------------------------------------------------------------------------|
| Wells <sup>1</sup>                  | -                                                                                            |
| Surface water soakaway <sup>2</sup> | 5                                                                                            |
| Watercourse/stream <sup>3</sup>     | 10                                                                                           |
| Open drain                          | 10                                                                                           |
| Heritage features                   | -                                                                                            |
| NHA/SAC <sup>3</sup>                | 50                                                                                           |
| Lake or foreshore                   | 7 septic tank; 10 percolation area                                                           |
| Any dwelling house                  | 3                                                                                            |
| Site boundary                       | 3                                                                                            |
| Trees <sup>4</sup>                  | 4                                                                                            |
| Road                                | 4                                                                                            |
| Slope/break cuts                    | -                                                                                            |

<sup>1</sup>See Annex B: Groundwater Protection Response.

<sup>2</sup>The soakaway for surface water drainage should be located down gradient of the percolation area or polishing filter and also ensure that this distance is maintained from neighbouring storm water disposal areas or soakaways.

<sup>3</sup>The distances required are dependent on the importance of the feature.

<sup>4</sup>Tree roots may lead to the generation of preferential flow paths. The canopy spread indicates potential root coverage.

## Conclusion

The treated effluent from the Tertiary (EPA Clarification) system will permeate through the polishing filter for tertiary polishing before discharge to the insitu subsoil. Any remaining residual contaminants will be depleted by attenuation before reaching the groundwater.

It is contended that this treatment and disposal method will work satisfactorily at the above site, and conforms to all EPA guidelines.

Please note that the recommendations outlined in this site report are subject to the installation of the specified Anua system only. Any deviation from the specified system renders the recommendations of this report null and void.

Compiled by the Anua Sales Team.

Ph: 1850 381136

Email: [irlinfo@anuainternational.com](mailto:irlinfo@anuainternational.com)

Web: [www.anuainternational.com](http://www.anuainternational.com)

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THE FACT THAT INFORMATION PROVIDED BY THE SPECIFIER IS INCLUDED IN THIS REPORT DOES NOT MEAN THAT ANUA AGREES WITH ITS CONTENT. ANUA HAS NOT CARRIED OUT ANY ASSESSMENT TO VALIDATE THE ACCURACY OR COMPLETENESS OF THIS INFORMATION.

THE INFORMATION CONTAINED IN THIS REPORT IS NOT INTENDED TO AMOUNT TO OR REPLACE THE ADVICES OF A SUITABLY QUALIFIED ENGINEER EMPLOYED BY THE PLANNING APPLICANT OR SPECIFIER. FOR THE AVOIDANCE OF DOUBT IT IS THE SOLE RESPONSIBILITY OF THE PLANNING



APPLICANT TO ENSURE COMPLIANCE WITH THE EPA'S CODE OF PRACTICE AND THE PLANNING AUTHORITY'S REQUIREMENTS.

THIS REPORT IS FOLLOWED OR ACTED UPON ENTIRELY AT THE RISK OF THE SPECIFIER AND ACCORDINGLY ANUA WILL NOT, UNDER ANY CIRCUMSTANCES BE LIABLE TO THE PLANNING APPLICANT FOR ANY LOSS, DAMAGE OR EXPENSE INCURRED IN RESPECT OF RELIANCE ON THIS REPORT AND THE SPECIFIER ACCEPTS FULL RESPONSIBILITY FOR THE CONSEQUENCES OF ANY INACCURACIES THEREIN.

# Puraflo

## Wastewater Treatment System for the Residential Market



### Technology That Serves Customers and the Environment

Anua means 'to renew'. It describes our renewed contract with nature and our renewed focus on the development of innovative environmental solutions. We continue to develop and produce the sustainable technologies that our customers demand. Anua is part of Bord na Móna, a highly successful organisation and Ireland's leading resources company for over 75 years, which has a unique heritage and understanding of the natural environment. Bord na Móna has used its expert insights into natural processes, allied to its excellent in-house research facilities, to develop sustainable solutions across a wide range of environmental challenges – wastewater treatment, odour abatement, land reclamation, power generation, resource recovery and renewable energy. This is both Anua's history and our mission for the future. Our customers range from homeowners to major commercial, municipal and utility clients, united in seeking cost-effective solutions based on environmentally sound principles. Anua exists to serve both our customers and the natural environment. Across a broad range of sectors in countries around the world, our customers trust us to deliver the best sustainable solutions, backed by superior customer service. That is why we work with our clients throughout every project to achieve the best possible result, one that will build both our reputations. Anua enjoys the benefit of the support of a highly respected parent company with over 20 years experience in developing sustainable clean air and clean water solutions. As part of this wider organisation, we adhere to their world-class standards and values for both the technology we provide and the service we give our customers.

### Complete Solutions

We don't just sell technologies. With our extensive laboratories and Innovation Centres located in Europe and the USA, we understand new challenges, pioneer research and create new processes. We work with you to create the systems you require, ensure correct installation and offer the full services of our nationwide network of support agents and technicians. From pre-planning to installation, service and maintenance, as well as the offer of monitoring and laboratory services, Anua stands by its technology and its customers.

### Customised for Customers

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#### The Environmental Advantages of Puraflo

Puraflo is a 100% natural system that draws on the remarkable filtration properties of peat and uses no chemical additives in achieving exceptional results.

Puraflo's unique bio-fibrous peat filter provides unsurpassed treatment of domestic water, reducing the risk of pollution whilst providing protection for homes, the environment and public health.

Low carbon footprint.

99.9% reduction in total coliforms.

Elimination of pathogenic bacteria.

Micro-biological treatment of wastewater.

Phosphorous reduction <2mg/litre\*.

Existing septic tank system can be easily upgraded to a high performance treatment plant by adding Puraflo modules.

The media covering the effluent distribution grid in the Puraflo module has odour absorption properties therefore suppressing sewage odours.

\*optional extra if required

#### The Puraflo Advantages for You

Puraflo has minimal power requirements, costs typically averaging approximately €10 per annum.

The modular design of Puraflo can be installed above or at ground level. Puraflo units do not require concrete backfill and can utilise the existing excavated material as backfill.

The Puraflo bio-filters require no de-sludging or backwashing. Provided the septic tank and sump receive regular de-sludging, the system will continue to operate efficiently.

Intermittent or seasonal flows have no detrimental effect on treatment levels, making Puraflo ideally suited where fluctuating loads are expected.

The use of a septic tank means fewer de-sludging operations and reduced operational costs.

The only mechanical device in the system is the pump, which works on an intermittent basis, minimising the possibility of mechanical problems.

To further enhance the treated effluent quality with a tertiary treatment option the treated effluent can be passed through an additional Puraflo module capable of achieving a 5:5mg/1 BOD: SS standard.



# The Puraflo Residential System At Work

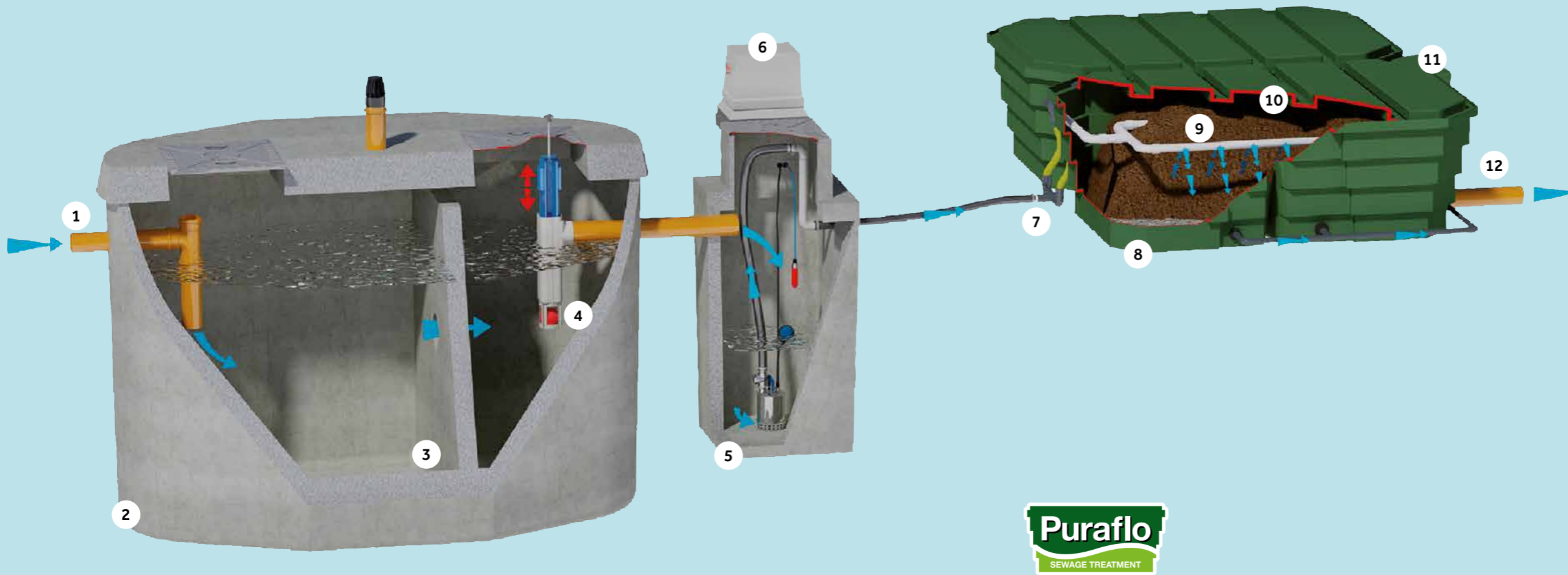
The Puraflo Residential System is an advanced sustainable technology for the treatment of wastewater in domestic homes.

## Stage One: Primary Settlement - Physical Treatment

1. The wastewater from the house flows into the septic tank.
2. Initial settlement occurs.
3. The gross solids sink to form a sludge layer at bottom of the tank.
4. The liquid effluent flows by gravity into the pump chamber.

## Stage Two: Puraflo Biofiltration - Secondary Treatment

5. The liquid effluent is pumped to the Puraflo modules.
6. A pipework system at top level in the modules evenly distributes the effluent onto a naturally occurring filter media.
7. A combination of biological, chemical and physical processes treat the effluent as it filters through the media in the modules.
8. The treated effluent emerges from the modules through the outlet pipework for an approved disposal method.



The illustration above is a typical Puraflo System installation

## Diagram Index

### Stage One

- 1 Inlet pipe
- 2 Septic tank
- 3 Baffle wall
- 4 Effluent filter
- 5 Pump chamber
- 6 Control panel

### Stage Two

- 7 Inlet pipe
- 8 Puraflo module
- 9 Distribution pipework
- 10 Biofibrous peat
- 11 Sample chamber
- 12 Outlet pipe

## Sewage Treatment Simplified

**Sewage Treatment:** Combination of physical and biological processes which breakdown the organic and inorganic sewage content which cause pollution to receiving waters.

**Receiving Waters:** All groundwaters and watercourses such as streams and rivers.

**Population Equivalent (PE):** A measure of the number of people the treatment plant serves.

**Media:** Bio-fibrous peat.

**Sludge:** The solids that settle to the bottom of the tank chambers.

**BOD:** Biological Oxygen Demand measured in milligrams per litre (mg/l) is a relative measure of how polluting the sewage is.

**SS:** Suspended Solids measured in milligrams per litre (mg/l) includes all suspended matter both organic and inorganic.

**Coliform bacteria :** A commonly used bacterial indicator of sanitary quality of foods and water.

**Pathogenic Bacteria:** Pathogenic bacteria such as Streptococcus are bacteria which cause disease in humans and animals.

For further information about how the Anua Puraflo Residential system works, go to [www.anuainternational.com](http://www.anuainternational.com)

The Puraflo Residential System has undergone a rigorous performance testing regime to achieve the highest results required. The tables alongside show the sizes and the wastewater treatment capability of Puraflo.

If you have any specific requirements, the Anua sales team will assist and guide you along from enquiry stage through to after-sales service.

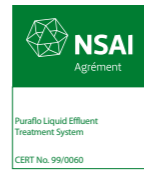
## Treated Wastewater Quality

|                              |        |
|------------------------------|--------|
| pH (pH units)                | 5-8    |
| BOD (mg/l)                   | <15    |
| SS (mg/l)                    | <15    |
| NH <sub>2</sub> -N (mg/l)    | < 5    |
| Nitrate - N (mg/l)           | 20     |
| Total Coliforms elimination  | >99.9% |
| Faecal Coliforms elimination | >99.9% |
| *Pathogenic Bacteria         | Absent |

\*Including Salmonella spp, Shigella spp, Sulphide reducing Clostridia, Staphylococcus and Pseudomonas aeruginosa.

## Puraflo Module Dimensions

|        |          |
|--------|----------|
| Length | 2,150 mm |
| Height | 760 mm   |
| Width  | 1,400 mm |



### Ireland

Anua  
Main Street  
Newbridge  
Co. Kildare  
Ireland

T 1850 381136  
F +353 (0) 45 432 312  
e [irlinfo@anuainternational.com](mailto:irlinfo@anuainternational.com)

### UK

Anua  
Polden Business Centre  
Bristol Road  
Bridgwater  
TA6 4AW  
United Kingdom

T +44 (0) 1278 439 325  
F +44 (0) 1278 439 324  
e [ukinfo@anuainternational.com](mailto:ukinfo@anuainternational.com)

### USA

Anua  
PO Box 77457  
Greensboro  
NC 27417  
USA

T 001 336 547 9338  
F 001 336 547 8559  
e [usainfo@anuainternational.com](mailto:usainfo@anuainternational.com)

For further information, go to [www.anuainternational.com](http://www.anuainternational.com)

## Meeting the Highest Standards

Anua is committed to meeting and surpassing the highest quality standards required for each of its products. That's why you will always see national and/or international standards, accreditations for all Anua products.

Free pre-planning and site reports

Free no obligation quotations

Nationwide maintenance call-out service

Expert customer support

## The Anua Guarantee

Every Puraflo Residential System comes with a 12-month parts and labour warranty, but Anua's commitment to you goes far beyond this.

We have a national network of approved agents and installers, who will provide you with:

Free Pre-Planning and Site Reports

Free No Obligation Quotations

Expert Customer Support

Nationwide Maintenance Call-out Service

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## Complementary Products for the Puraflo Residential System

- Plant Alarm System
- High Level Alarm(s)
- Sample chambers
- Weatherproof GRP Enclosures & Kiosks
- Nutrient removal for SSI (Special Scientific Interest) areas
- Tertiary treatment for enhanced treatment levels

## Simple Installation, Minimum Maintenance

While the Puraflo Residential sewage treatment system is made up of a number of separate components, we understand the pressures to minimise installation costs while maintaining quality. Therefore we design and manufacture the system to provide a packaged solution with ease of installation and reduced maintenance in mind.

| Renew                | Recover              | Re-direct | Recycle | Rarefy          | Retain        |
|----------------------|----------------------|-----------|---------|-----------------|---------------|
|                      |                      |           |         |                 |               |
| Wastewater Treatment | Rainwater Harvesting | Pumps     | SUDS    | Odour Abatement | Holding Tanks |

In keeping with company policy of continuing research and development and in order to offer our clients the most advanced products, Anua reserves the right to alter specifications and drawings without prior notice.



Paper made from trees matured in sustainable, well managed forests and is certified to FSC standards

# Platinum

## Wastewater Treatment for the Residential Market



### Technology That Serves Customers and the Environment

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### The Platinum Residential System

Platinum is an advanced sustainable technology for the treatment of wastewater in domestic homes.

Naturally occurring micro-organisms present in the sewage remove the biological (organic) content which causes water pollution. Our system provides the conditions for these micro-organisms (biofilm) to grow, providing highly efficient treatment to achieve a high standard final effluent quality.



#### The Environmental Advantages of Platinum

- Protection of groundwaters
- Low power usage
- No chemical additives
- No noise pollution
- Designed for minimal visual impact

#### The Platinum Advantages for You

- Simple minimal maintenance
- No moving internal parts
- Ease of installation
- Complete underground installation
- Low energy consumption

- Low sludge production
- Automatic sludge / effluent recycle system
- Highly effective certified performance
- Proven reliability



Testing Institute  
for Wastewater  
Technology

## PERFORMANCE RESULTS

**Anua – Bord na Móna**

Main Street, Newbridge,  
Co. Kildare, Ireland

part of  
which is

**Anua**

Polden Business Centre,  
Bistol Road, Bridgwater,  
TA6 4AW, United Kingdom

### EN 12566-3

Results corresponding to the Irish National Annex for IS EN 12566-3

### Platinum small wastewater treatment system

Fluidised bed reactor

|                                          |                      |                       |          |
|------------------------------------------|----------------------|-----------------------|----------|
| Nominal organic daily load*              | 0.33                 | kg/d                  |          |
| Nominal hydraulic daily load             | 0.90                 | m <sup>3</sup> /d     |          |
| Material                                 | GRP                  |                       |          |
| Structural behaviour (calculation)       | pass                 | (also wet conditions) |          |
| Durability                               | pass                 |                       |          |
| Watertightness (water test)              | pass                 |                       |          |
| Treatment efficiency (nominal sequences) |                      | Efficiency            | Effluent |
|                                          | COD                  | 92.9 %                | 52 mg/l  |
|                                          | BOD <sub>5</sub>     | 96.5 %                | 12 mg/l  |
|                                          | SS                   | 96.2 %                | 16 mg/l  |
|                                          | NH <sub>4</sub> -N** | 98.1 %                | 0.7 mg/l |
| Electrical consumption                   | 0.68                 | kWh/d                 |          |

\* at a test influent of  $\geq 300$  mg/l BOD<sub>5</sub> (mean)

\*\* determined for temperatures  $\geq 12^{\circ}\text{C}$  in the bioreactor

Performance tested by:

**PIA – Prüfinstitut für Abwassertechnik GmbH**

(PIA GmbH)

Hergenrather Weg 30

D-52074 Aachen

Certified according to  
ISO 9001:2008



Notified Body number: 1739



This document replaces neither the declaration  
of conformity nor the CE marking.

Prüfinstitut für Abwassertechnik GmbH  
  
geprüft - tested - testé

Elmar Lancé

July 2012

# The Platinum Residential System At Work

## Stage One: Primary Settlement - Physical Treatment

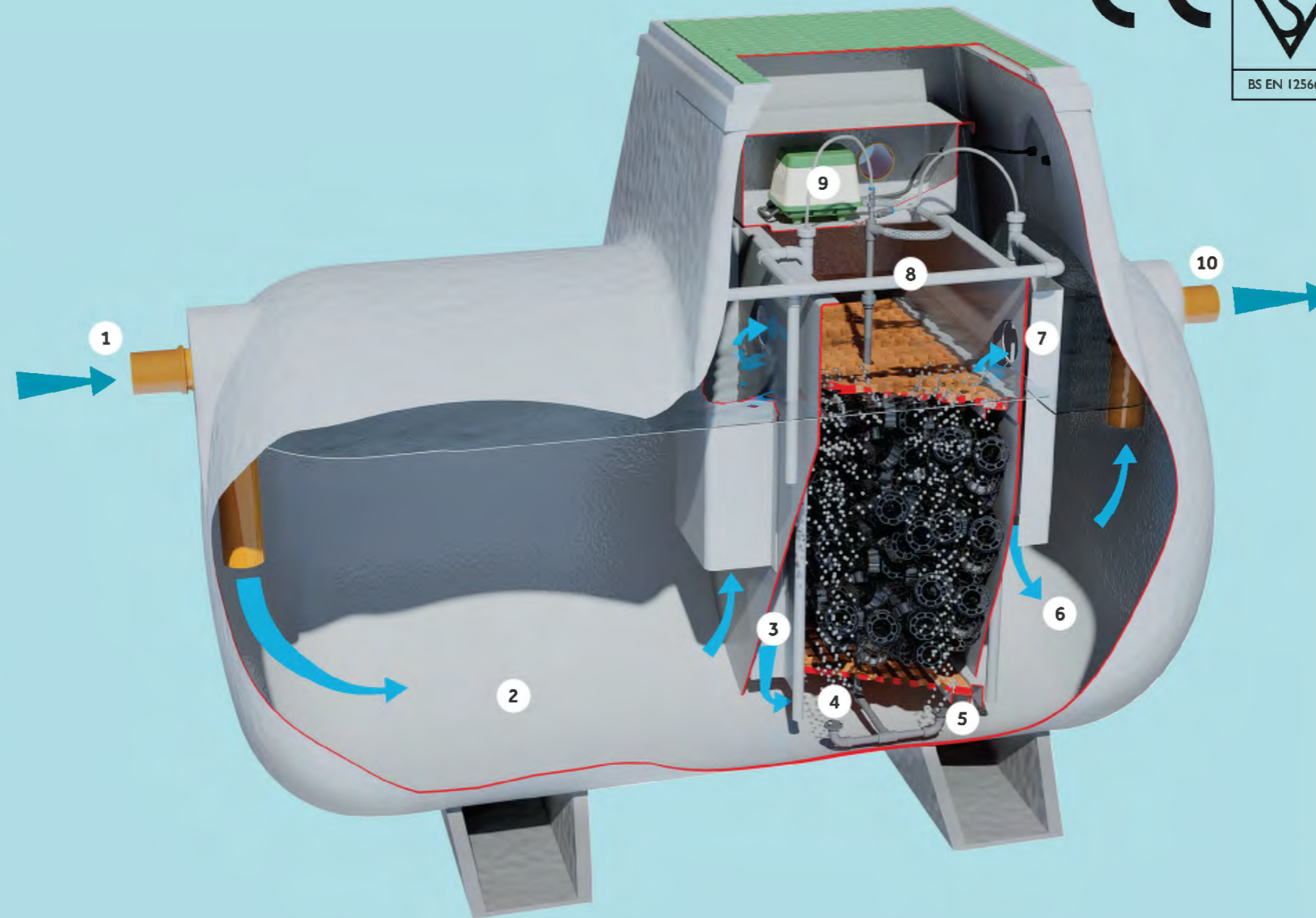
1. The wastewater from the house flows into the primary chamber.
2. Initial settlement occurs.
3. The gross solids sink to form a sludge layer at the bottom of the tank.
4. The settled liquid effluent passes forward for treatment in the aeration zone.

## Stage Two: Submerged Aerated Filtration - Biological Treatment

5. The lightweight durable filter media in the aeration zone provides a large surface area where the naturally occurring micro-organisms develop into a thin layer called a biofilm.
6. In conjunction with the media, oxygen is pumped into the liquid effluent by a compact, highly efficient air blower via a diffuser grid, supplying the oxygen required for the micro-organisms to develop and survive.
7. As the sewage makes contact with the media, the micro-organisms come in contact with the sewage to reduce levels of contaminants, ensuring it reaches the necessary treatment standard.

## Stage Three: Final Settlement - Physical Treatment

8. As the micro-organisms are regenerated, the oldest layer of the biofilm is removed from the media and passes with the effluent into the final chamber. Here settlement of this layer and any remaining solids occurs, reducing the levels of the SS (Suspended Solids) in the final effluent.
9. When these solids settle as sludge, they are returned via the sludge return system to the primary settlement chamber for storage. This application also allows enhanced treatment of the effluent as it is recycled through the system.
10. The clarified liquid effluent then emerges from the Platinum system for an approved disposal method.



## Diagram Index

- 1 Inlet
- 2 Primary settlement
- 3 Inlet duct to aeration
- 4 Aeration zone
- 5 Diffuser arrangement
- 6 Secondary settlement zone / Clarifier
- 7 Inlet to Clarifier
- 8 Sludge return line
- 9 Air blower
- 10 Outlet

## Sewage Treatment Simplified

**Sewage Treatment:** Combination of physical and biological processes which breakdown the organic and inorganic sewage content which cause pollution to receiving waters.

**Receiving Waters:** All groundwaters and watercourses such as streams and rivers.

**Population Equivalent (PE):** A measure of the number of people the treatment plant serves.

**Biofilm:** A thin layer of micro-organisms attached to a media.

**Media:** Any material or surface which allows growth of Biofilm.

**Sludge:** The solids that settle to the bottom of the tank chambers.

**BOD:** Biological Oxygen Demand measured in milligrams per litre (mg/l) is a relative measure of how polluting the sewage is.

**SS:** Suspended Solids measured in milligrams per litre (mg/l) includes all suspended matter both organic and inorganic.

The product shown above is for illustration purposes only. For further information, go to [www.anuainternational.com](http://www.anuainternational.com)

## Typical Design Detail\*

| Model Reference                              | APG6 | APG8 | APG10 |
|----------------------------------------------|------|------|-------|
| Population Equivalent (PE)                   | 6    | 8    | 10    |
| Max BOD (kg/day)                             | 0.36 | 0.48 | 0.6   |
| Daily Design Flow Rate (m <sup>3</sup> /day) | 0.9  | 1.2  | 1.5   |

## Treated Effluent\* - EN12566-3 Test Results

|                        | Efficiency | Effluent | Efficiency         | Effluent       |
|------------------------|------------|----------|--------------------|----------------|
| COD                    | 92.9%      | 52mg/l   | NH <sub>4</sub> -N | 98.1% 0.7mg/l  |
| BOD <sub>5</sub>       | 96.5%      | 12mg/l   | N <sub>tot</sub>   | 71.2% 19.4mg/l |
| SS                     | 96.2%      | 16mg/l   | P <sub>tot</sub>   | 47.6% 3.9mg/l  |
| Electrical Consumption | 0.68       | kWh/d    |                    |                |

## Typical Specification\*

| Model Reference                        | APG6     | APG8     | APG10    |
|----------------------------------------|----------|----------|----------|
| Inlet Invert Depth from cover (mm)     | 750      | 750      | 750      |
| Outlet Invert Depth from cover (mm)    | 850      | 850      | 850      |
| Inlet/Outlet Diameter (mm)             | 110      | 110      | 110      |
| Overall Length (mm)                    | 2600     | 2800     | 3000     |
| Overall Depth (mm)                     | 2100     | 2100     | 2100     |
| Overall Width (mm)                     | 1500     | 1500     | 1500     |
| Electrical Requirement (voltage/phase) | 230v 1ph | 230v 1ph | 230v 1ph |
| Dry Unit Weight (kg)                   | 250      | 300      | 350      |

\*Details correct at time of going to press.

## Platinum Pump Unit Detail\*

|                                        |                                 |
|----------------------------------------|---------------------------------|
| Discharge Pipework Size                | 1 1/2 inch BSP Female           |
| Discharge Pipework Material            | PVC                             |
| Power Rating                           | 0.55 KW (typical standard pump) |
| Electrical Requirement (voltage/phase) | 230v 1ph                        |
| Air Blower Location                    | External Weatherproof Housing   |

**Pumped Outlet Units:** Platinum residential systems can be supplied with an integral pump unit where required. The standard pump typically has a power rating of 0.55 kW.

## The Correct Solution for You

The Platinum Residential System has undergone a rigorous performance testing regime to achieve the highest standards required by EN12566 Part 3. The tables, (to the left), are a guide in selecting the best treatment solution for your needs. If you have any specific requirements the Anua sales team will assist and guide you along from enquiry stage through to after-sales service.



### Ireland

Anua  
Main Street  
Newbridge  
Co. Kildare  
Ireland

T 1850 381136  
F +353 (0) 45 432 312  
e [irlinfo@anuainternational.com](mailto:irlinfo@anuainternational.com)

### UK

Anua  
Polden Business Centre  
Bristol Road  
Bridgwater  
TA6 4AW  
United Kingdom

T +44 (0) 1278 439 325  
F +44 (0) 1278 439 324  
e [ukinfo@anuainternational.com](mailto:ukinfo@anuainternational.com)

### USA

Anua  
PO Box 77457  
Greensboro  
NC 27417  
USA

T 001 336 547 9338  
F 001 336 547 8559  
e [usainfo@anuainternational.com](mailto:usainfo@anuainternational.com)

For further information, go to [www.anuainternational.com](http://www.anuainternational.com)

## Meeting the Highest Standards

Anua is committed to meeting and surpassing the highest quality standards required for each of its products. That's why you will always see national and/or international standards, accreditations for all Anua products.

Free pre-planning and site reports

Free no obligation quotations

Nationwide maintenance call-out service

Expert customer support

## The Anua Guarantee

Every Platinum Residential System comes with a 12-month parts and labour warranty, but Anua's commitment to you goes far beyond this.

We have a national network of approved agents and installers, who will provide you with:

Free Pre-Planning and Site Reports

Free No Obligation Quotations

Expert Customer Support

Nationwide Maintenance Call-out Service

For further information, go to [www.anuainternational.com](http://www.anuainternational.com)

## Complementary Products for the Platinum Residential System

### Alarm Systems

- General Plant Alarm
- Pressure Alarm
- High Level Alarm

### Sample chambers

Weatherproof GRP Enclosures & Kiosks

Nutrient removal for SSI (Special Scientific Interest) areas

Tertiary treatment for enhanced treatment levels

## Simple Installation, Minimum Maintenance

While the Platinum Residential sewage treatment system is made up of a number of separate components, we understand the pressures to minimise installation costs while maintaining quality. Therefore we design and manufacture the system to provide a packaged solution with ease of installation and reduced maintenance in mind.

### Renew



Wastewater Treatment

### Recover



Rainwater Harvesting

### Re-direct



Pumps

### Recycle



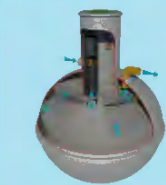
SUDS

### Rarefy



Odour Abatement

### Retain



Holding Tanks

In keeping with company policy of continuing research and development and in order to offer our clients the most advanced products, Anua reserves the right to alter specifications and drawings without prior notice.



Paper made from trees matured in sustainable, well managed forests and is certified to FSC standards