



SEWAGE TREATMENT SYSTEMS

Klargester - Tricel - WPL - CLF - Harlequin - Conder - Kee Services



1

Site Assessor : Mr John Fanning

Drainpower Environmental Services Ltd,

**Pallasmore, Portroe, Nenagh, Co. Tipperary.
Mobile 086 050 5454 Email info@siteassessment.ie**

Site Suitability Assessment - Geo Located Images :

Property : Colm Quigley Cornode Garykennedy Nenagh E45CY94

Grid reference 52.90715, -8.36681



CONSTRUCTION AWARDS 2017
Drainpower Environmental Services Ltd
Local Authority Award for Best Drainage Service
Awarded by the Local Authority for the best drainage service in the region

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CONSTRUCTION & ENGINEERING AWARDS 2016
Drainpower Environmental Services Ltd
Best Drain & Repair Service - Republic of Ireland

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Contact : Mob 086 050 5454 Email : info@siteassessment.ie Website : www.siteassessment.ie

The information included in this report details the site suitability for a waste water treatment tank and percolation system for single houses less than or equal to 10PE. This report has been completed in accordance with the EPA CoP 2021.



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Colin,

I have completed a desk study and a site visit to complete an assessment on the integrity of the waste water drainage system at your home in Cornode, Garykennedy Nenagh, E45 CY94. Grid reference 52.90715, -8.36681.

There is a 4 bed, 6 PE, principal dwelling on the site, with 2 independent log chalets North of the dwelling towards Lough Derg. The house has a private well which is located at the entrance laneway to the site.

2

Waste water treatment unit

The Biological waste from the main dwelling house is currently being processed in a secondary packaged system located 15m West of the principal private dwelling. This Water treatment unit is a precast concrete aerated unit which was supplied by Corcoran's Precast, Carlow.

It has an internal aerator and separate pump chamber. At the time of inspection it was working with no visual defects. The storm water from the principal private dwelling is not being treated in the WWT unit.

There are 2 Puraflow tertiary modules located 10m South of the WWT unit providing tertiary treatment to the waste water from the WWT unit. I was unable to determine the size of the surface area for the percolation bed, however there was no evidence of eutrophication, breakout or excessive grass growth in the immediate area.

4 P.E Log Cabin x 2

The first independent 4 P.E log cabin is located 30m South from the lakeshore. The waste water from this unit is being treated in a 3.2m Precast concrete aerated treatment plant. This precast unit was manufactured by Cronin Concrete in Macroom, Co Cork, and it holds a PIA certificate. The tank is located 10m West from the dwelling unit and is 30m upstream from the lakeshore.

There is a pump chamber associated with this concrete waste water treatment unit and the treated waste water from the aerated unit is being pumped to the tertiary modules which provide tertiary treatment for the principal dwelling house.

The second independent 4 P.E log cabin is located 15m South from the lakeshore. The waste water from this unit is being treated in a 3.2m Klargester Bio-Efficient aerated unit. This unit is placed 5m from the log cabin and 10m from the lakeshore. The treated waste water is being pumped to the tertiary treatment unit which treats the waste water from the principal private dwelling.

A site assessment has been completed to design and locate a waste water treatment system for the two log cabins. The new waste water treatment system will comply with the EPA CoP 2021.

Please contact me on the attached number if you require further clarification.

Kind Regards,

Regards,

John Fanning

EPA Site Assessor / EPA DWWTs inspector.

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3



Company: info@siteassessment.ie
Project: E45CY94 Colin Quigley Cornode
Notes: 2 x 4 PE cabins on site
Date & time: 17.01.2023 13:21
ED50: 52.90725, -8.36614 (±20m)
Altitude: 109m
Address: Unnamed Road, Cornode, Co. Tipperary



CONSTRUCTION AWARDS 2017
Drainpower Environmental Services Ltd
Local Authority Award for Best Drainage Service
Awarded by Cork City Council, Cork City Council

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CONSTRUCTION & ENGINEERING AWARDS 2016
Drainpower Environmental Services Ltd
Best Drain & Repair Service - Republic of Ireland

BUILD

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4



Company: info@siteassessment.ie
Project: E45CY94 Colin Qulgley Cornode
Notes: 4m3 WWT tank 10m west from cabin
Date & time: 17.01.2023 13:22
ED50: 52.90718, -8.3661 (±34m)
Altitude: 106m
Address: Unnamed Road, Cornode, Co. Tipperary

CONSTRUCTION AWARDS 2017
Drainpower Environmental Services Ltd
Construction Services - Best Drain & Repair Service - Republic of Ireland

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CONSTRUCTION & ENGINEERING AWARDS 2016
Drainpower Environmental Services Ltd
Best Drain & Repair Service - Republic of Ireland

BUILD

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5



Company: info@siteassessment.ie
Project: E45CY94 Colin Quigley Cornode
Notes: 4m3 WWT 35m South from lakefront
Date & time: 17.01.2023 13:25
ED50: 52.90699, -8.36658 (±6m)
Altitude: 109m
Address: Unnamed Road, Cornode, Co. Tipperary

CONSTRUCTION AWARDS 2017
Drainpower Environmental Services Ltd
Construction Services - Best Drain & Repair Service - Republic of Ireland

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CONSTRUCTION & ENGINEERING AWARDS 2016
Drainpower Environmental Services Ltd
Best Drain & Repair Service - Republic of Ireland

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Contact : Mob 086 050 5454 Email : info@siteassessment.ie Website : www.siteassessment.ie

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SEWAGE TREATMENT SYSTEMS

Klargester - Tricel - WPL - CLF - Harlequin - Conder - Kee Services



6



Company: info@siteassessment.ie
Project: E45CY94 Colin Quigley Cornode
Notes: 2 x tertiary modules on site
Date & time: 17.01.2023 13:18
ED50: 52.90613, -8.36696 (±8m)
Altitude: 121m
Address: Unnamed Road, Corrode, Co. Tipperary

CONSTRUCTION AWARDS 2017
Drainpower Environmental Services Ltd
Best Drain & Repair Service - Republic of Ireland
Awarded by the Construction Industry Association of Ireland

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CONSTRUCTION & ENGINEERING AWARDS 2016
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Best Drain & Repair Service - Republic of Ireland

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SEWAGE TREATMENT SYSTEMS

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7



Company: info@siteassessment.ie
Project: E45CY94 Colin Quigley Corrode
Notes: 2 x 4 PE cabins on site
Date & time: 17.01.2023 13:21
ED50: 52.90725, -8.36614 (±20m)
Altitude: 109m
Address: Unnamed Road, Corrode, Co. Tipperary



CONSTRUCTION AWARDS 2017
Drainpower Environmental Services Ltd
Local Authority Award for Best Drainage Service
Awarded by the Local Authority for the Best Drainage Service

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CONSTRUCTION & ENGINEERING AWARDS 2016
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Best Drain & Repair Service - Republic of Ireland

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Klargester - Tricel - WPL - CLF - Harlequin - Conder - Kee Services



8



Company: info@siteassessment.ie
Project: E45CY94 Colin Quigley Cornode
Notes: WWT system 15m from dwelling
Date & time: 17.01.2023 13:17
ED50: 52.90613, -8.36677 (±63m)
Altitude: 121m
Address: Unnamed Road, Cornode, Co. Tipperary



CONSTRUCTION AWARDS 2017
Drainpower Environmental Services Ltd
Best Drain & Repair Service - Republic of Ireland
Best Drain & Repair Service - Republic of Ireland

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CONSTRUCTION & ENGINEERING AWARDS 2016
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9



Company: info@siteassessment.ie
Project: E45CY94 Colin Quigley Cornode
Notes: Pump chamber to primary tertiary treatment unit
Date & time: 17.01.2023 13:23
ED50: 52.90696, -8.36661 (±5m)
Altitude: 109m
Address: Unnamed Road, Cornode, Co. Tipperary



CONSTRUCTION AWARDS 2017
Drainpower Environmental Services Ltd
Best Drain & Repair Service - Republic of Ireland

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10



Company: info@siteassessment.ie
Project: E45CY94 Colin Quigley Cornode
Notes: Klargester WWT unit 10m from lakefront
Date & time: 17.01.2023 13:27
ED50: 52.90715, -8.36681 (±5m)
Altitude: 106m
Address: Unnamed Road, Cornode, Co. Tipperary



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Contact : Mob 086 050 5454 Email : info@siteassessment.ie Website : www.siteassessment.ie

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 Best Drain & Repair Service - Republic of Ireland

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Klargester - Tricel - WPL - CLF - Harlequin - Conder - Kee Services



12



Company: info@siteassessment.ie
Project: E45CY94 Colin Quigley Cornode
Notes: Cabin 10m West ant South from lakefront
Date & time: 17.01.2023 13:25
ED50: 52.90707, -8.36662 (±6m)
Altitude: 109m
Address: Unnamed Road, Cornode, Co. Tipperary



Housing Density.



CONSTRUCTION AWARDS 2017
Drainpower Environmental Services Ltd
Local Authority: South Tipperary Council
Awarded: Best Drain & Repair Service - Republic of Ireland

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CONSTRUCTION & ENGINEERING AWARDS 2016
Drainpower Environmental Services Ltd
Awarded: Best Drain & Repair Service - Republic of Ireland

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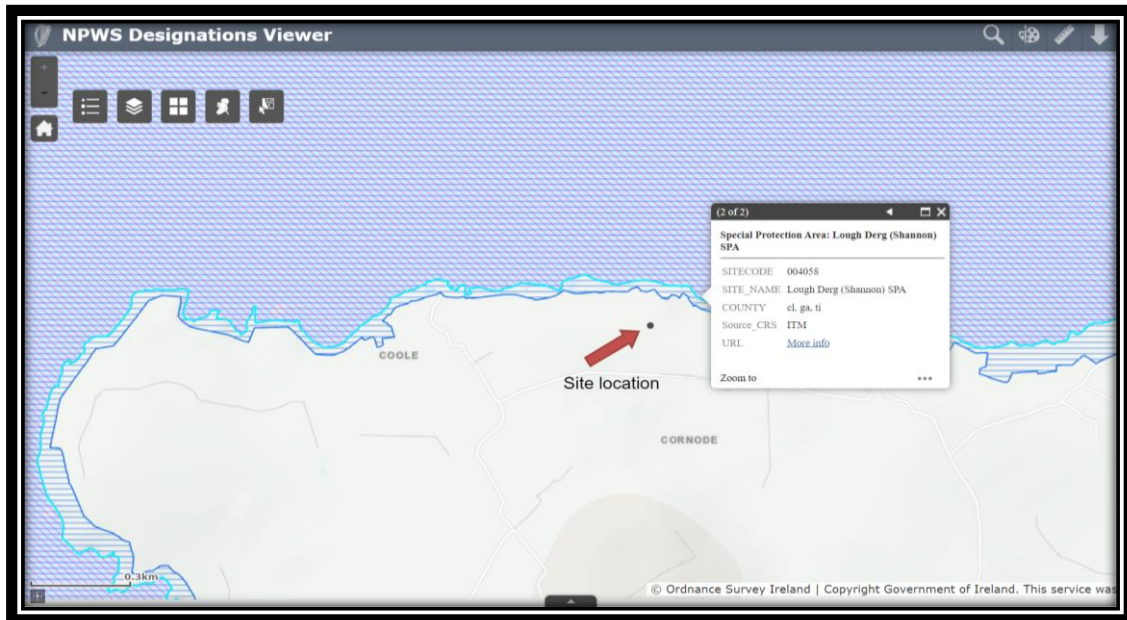
SEWAGE TREATMENT SYSTEMS

Klargester - Tricel - WPL - CLF - Harlequin - Conder - Kee Services

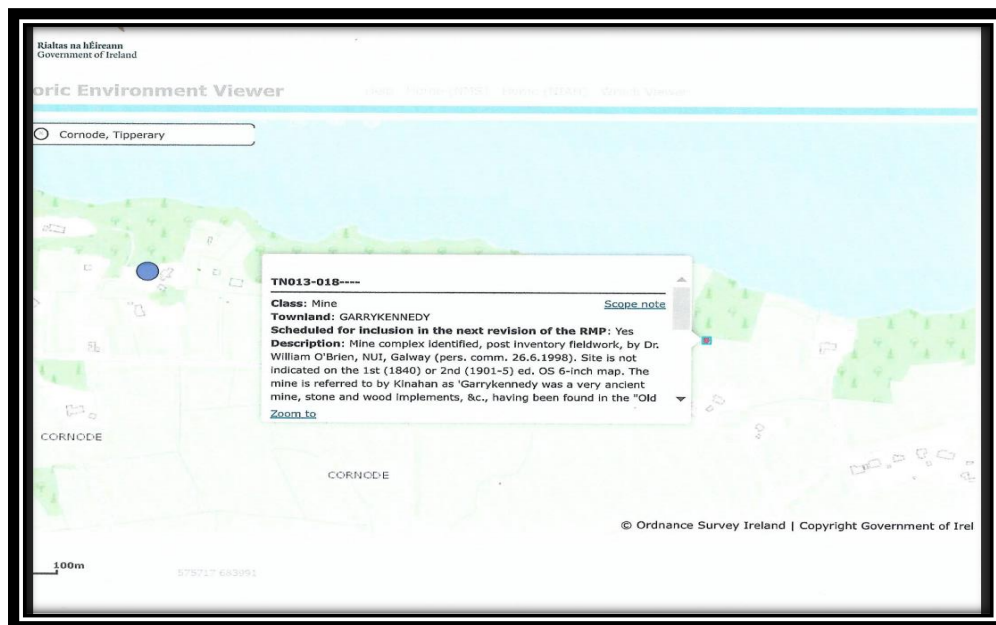


S.A.C Details.

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Monuments and historical details.



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Drainpower Environmental Services Ltd
Awarded Best Drainage Service - Republic of Ireland
Awarded Best Drainage Service - Republic of Ireland

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CONSTRUCTION & ENGINEERING AWARDS 2016
Drainpower Environmental Services Ltd
Best Drain & Repair Service - Republic of Ireland

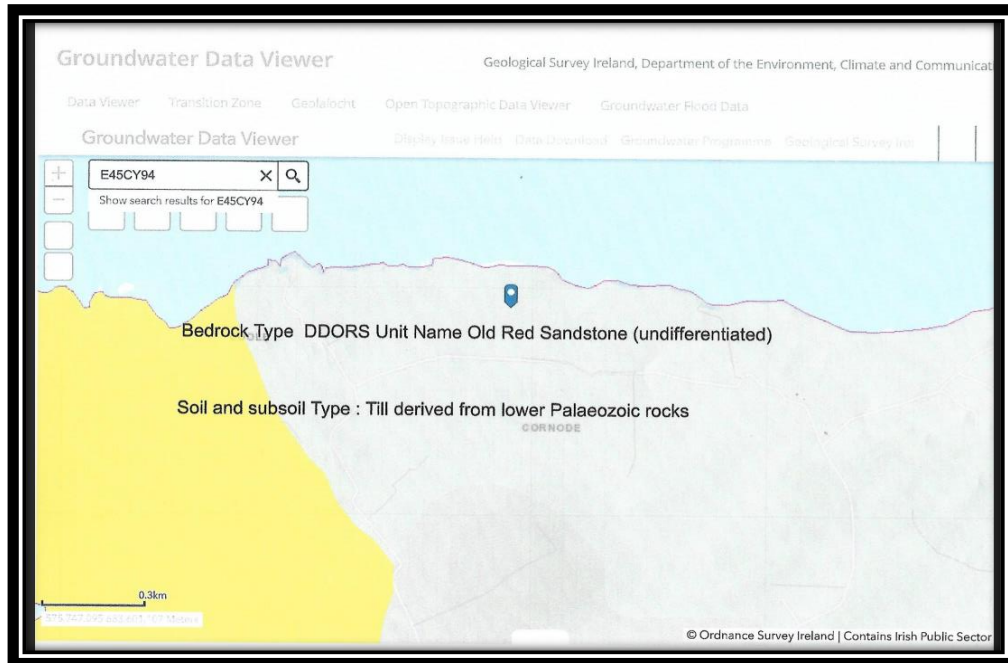
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Bedrock and soil details

14



Ground Water protection response R21

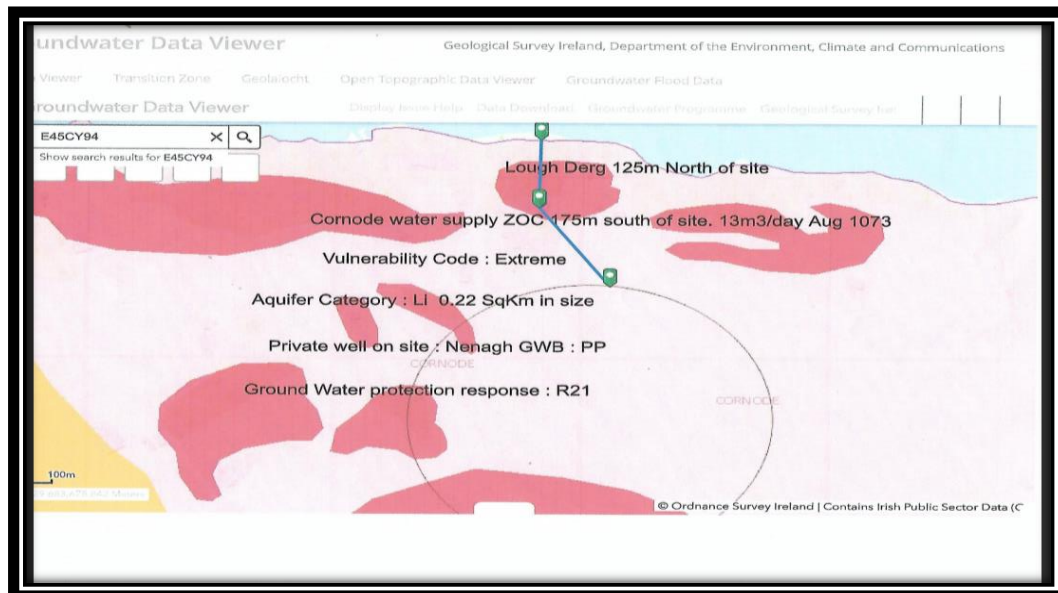




Table 2: Response Matrix for On-site Treatment Systems

VULNERABILITY RATING	SOURCE PROTECTION AREA *		RESOURCE PROTECTION					
			Aquifer Category					
			Regionally Important	Locally Important		Poor Aquifers		
	Inner (SI)	Outer (SO)	Rk	Rf/Rg	Lm/Lg	Ll	Pl	Pu
Extreme (E)	R3 ²	R3 ¹	R2 ²	R2 ²	R2 ¹	R2 ¹	R2 ¹	R2 ¹
High (H)	R2 ⁴	R2 ³	R2 ¹	R1	R1	R1	R1	R1
Moderate (M)	R2 ⁴	R2 ³	R1	R1	R1	R1	R1	R1
Low (L)	R2 ⁴	R1	R1	R1	R1	R1	R1	R1

* For public, group scheme or industrial water supply sources where protection zones have not been delineated, the arbitrary distances given in DELG/EPA/GSI (1999) of 300 m for the Inner Protection Area (SI) and 1000 m for the Outer Protection Area (SO) should be used as a guide up-gradient of the source.

R1	Acceptable subject to normal good practice (i.e. system selection, construction, operation and maintenance in accordance with EPA (2000)).
R2¹	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 depths required (EPA, 2000) are met and that the likelihood of microbial pollution is minimised.



Site Images.

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17



www.Siteassessment.ie
Colm Quigley E45CY94 Cornode Garykennedy
Subsurface hole 3 200mm @ 1156am
21.12.2021 11:56
E: 175262 N: 183892
Altitude: 108m
Unnamed Road, Cornode, Co. Tipperary

CONSTRUCTION AWARDS 2017
Drainpower Environmental Services Ltd
Local Authority: South Tipperary - Tipperary
Awarded: 10th Dec 2017
Awarded by: South Tipperary County Council

BUILD

CONSTRUCTION & ENGINEERING AWARDS 2016
Drainpower Environmental Services Ltd
Awarded: 10th Dec 2016
Awarded by: South Tipperary County Council

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SEWAGE TREATMENT SYSTEMS

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18



Company: info@siteassessment.ie
Project: Colm Quigley E45CY94 Cornode Garykennedy
Notes: Subsurface 3 200mm @ 1246pm
Date & time: 21.12.2021 12:46
Irish Grid: E: 175278 N: 183888
Altitude: 108m
Address: Unnamed Road, Cornode, Co. Tipperary



CONSTRUCTION AWARDS 2017
Drainpower Environmental Services Ltd
Best Drain & Repair Service - Republic of Ireland
Awarded by the Construction Industry Association of Ireland

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CONSTRUCTION & ENGINEERING AWARDS 2016
Drainpower Environmental Services Ltd
Best Drain & Repair Service - Republic of Ireland

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SEWAGE TREATMENT SYSTEMS

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20



Company: info@siteassessment.ie
 Project: Colm Quigley E45CY94 Cornode Garykennedy
 Notes: Dilatancy test
 Date & time: 21.12.2021 12:28
 Irish Grid: E: 175273 N: 183893
 Altitude: 108m
 Address: Unnamed Road, Cornode, Co. Tipperary



BUILD



BUILD

Contact : Mob 086 050 5454 Email : info@siteassessment.ie Website : www.siteassessment.ie

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SEWAGE TREATMENT SYSTEMS

Klargester - Tricel - WPL - CLF - Harlequin - Conder - Kee Services



21



Company: info@siteassessment.ie
 Project: Colm Quigley E45CY94 Cornode Garykennedy
 Notes: Ribbon test
 Date & time: 21.12.2021 12:29
 Irish Grid: E: 175261 N: 183891
 Altitude: 108m
 Address: Unnamed Road, Cornode, Co. Tipperary



BUILD



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Contact : Mob 086 050 5454 Email : info@siteassessment.ie Website : www.siteassessment.ie

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SEWAGE TREATMENT SYSTEMS

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22



Company: info@siteassessment.ie
Project: Colm Quigley E45CY94 Cornode Garykennedy
Notes: Ribbon test
Date & time: 21.12.2021 12:29
Irish Grid: E: 175261 N: 183891
Altitude: 108m
Address: Unnamed Road, Cornode, Co. Tipperary



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Contact : Mob 086 050 5454 Email : info@siteassessment.ie Website : www.siteassessment.ie

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SEWAGE TREATMENT SYSTEMS

Klargester - Tricel - WPL - CLF - Harlequin - Conder - Kee Services



23



www.Siteassessment.ie
Colm Quigley E45CY94 Cornode Garykennedy
Subsurface 2 @ 800mm
21.12.2021 11:02
E: 175261 N: 183891
Altitude: 108m
Unnamed Road, Cornode, Co. Tipperary

CONSTRUCTION AWARDS 2017
Drainpower Environmental Services Ltd
Local Authority Award for Best Drainage Service
Awarded by the Local Authority for the Best Drainage Service

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CONSTRUCTION & ENGINEERING AWARDS 2016
Drainpower Environmental Services Ltd
Best Drain & Repair Service - Republic of Ireland

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SEWAGE TREATMENT SYSTEMS

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24



www.Siteassessment.ie
Colm Quigley E45CY94 Cornode Garykennedy
Southern aspect of site
21.12.2021 10:46
E: 175261 N: 183889
Altitude: 108m
Unnamed Road, Cornode, Co. Tipperary



www.Siteassessment.ie
Colm Quigley E45CY94 Cornode Garykennedy
North aspect of site 90m from lake
21.12.2021 10:45
E: 175260 N: 183889
Altitude: 108m
Unnamed Road, Cornode, Co. Tipperary

CONSTRUCTION AWARDS 2017
Drainpower Environmental Services Ltd
Best Drain & Repair Service - Republic of Ireland
Awarded by: Best Drain & Repair Service - Republic of Ireland

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CONSTRUCTION & ENGINEERING AWARDS 2016
Drainpower Environmental Services Ltd
Best Drain & Repair Service - Republic of Ireland

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25



www.Siteassessment.ie
Colm Quigley E45CY94 Cornode Garykennedy
No water ingress after 48 hours.
21.12.2021 13:15
E: 175262 N: 183892
Altitude: 108m
Unnamed Road, Cornode, Co. Tipperary



www.Siteassessment.ie
Colm Quigley E45CY94 Cornode Garykennedy
GRAVEL loam spoil from trial hole
21.12.2021 11:47
E: 175262 N: 183892
Altitude: 108m
Unnamed Road, Cornode, Co. Tipperary

CONSTRUCTION AWARDS 2017
Drainpower Environmental Services Ltd
Local Authority & National award for Best Drain & Repair Service - Republic of Ireland

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CONSTRUCTION & ENGINEERING AWARDS 2016
Drainpower Environmental Services Ltd
Best Drain & Repair Service - Republic of Ireland

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www.Siteassessment.ie
Colm Quigley E45CY94 Cornode Garykennedy
Eastern aspect of the site
21.12.2021 10:47
E: 175260 N: 183889
Altitude: 108m
Unnamed Road, Cornode, Co. Tipperary

CONSTRUCTION AWARDS 2017
Drainpower Environmental Services Ltd
Ireland's leading environmental services company
Awarded Best Drain & Repair Service - Republic of Ireland

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CONSTRUCTION & ENGINEERING AWARDS 2016
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www.Siteassessment.ie
Colm Quigley E45CY94 Cornode Garykennedy
600mm topsoil
21.12.2021 11:43
E: 175266 N: 183891
Altitude: 108m
Unnamed Road, Cornode, Co. Tipperary

CONSTRUCTION AWARDS 2017
Drainpower Environmental Services Ltd
Best Drain & Repair Service - Republic of Ireland
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www.Siteassessment.ie
Colm Quigley E45CY94 Cornode Garykennedy
WWT unit with tertiary pods 100m South of site
21.12.2021 10:49
E: 175277 N: 183888
Altitude: 108m
Unnamed Road, Cornode, Co. Tipperary

CONSTRUCTION AWARDS 2017
Drainpower Environmental Services Ltd
Ireland's leading environmental services company
Awarded Best Drain & Repair Service - Republic of Ireland

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Best Drain & Repair Service - Republic of Ireland

BUILD

Contact : Mob 086 050 5454 Email : info@siteassessment.ie Website : www.siteassessment.ie
The information included in this report details the site suitability for a waste water treatment tank and percolation system for single houses less than or equal to 10PE. This report has been completed in accordance with the EPA CoP 2021.



SEWAGE TREATMENT SYSTEMS

Klargester - Tricel - WPL - CLF - Harlequin - Conder - Kee Services



30



www.Siteassessment.ie
Colm Quigley E45CY94 Cornode Garykennedy
Trial hole image
21.12.2021 11:47
E: 175262 N: 183892
Altitude: 108m
Unnamed Road, Cornode, Co. Tipperary

CONSTRUCTION AWARDS 2017
Drainpower Environmental Services Ltd
Ireland's leading environmental services company
Awarded Best Drain & Repair Service - Republic of Ireland

BUILD

CONSTRUCTION & ENGINEERING AWARDS 2016
Drainpower Environmental Services Ltd
Best Drain & Repair Service - Republic of Ireland

BUILD

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SEWAGE TREATMENT SYSTEMS

Klargester - Tricel - WPL - CLF - Harlequin - Conder - Kee Services



31



www.Siteassessment.ie
Colm Quigley E45CY94 Cornode Garykennedy
Trial hole 1.9m
21.12.2021 11:42
E: 175278 N: 183888
Altitude: 108m
Unnamed Road, Cornode, Co. Tipperary

CONSTRUCTION AWARDS 2017
Drainpower Environmental Services Ltd
Ireland's leading provider of water and wastewater services. Awarded Best Drain & Repair Service - Republic of Ireland.

BUILD

CONSTRUCTION & ENGINEERING AWARDS 2016
Drainpower Environmental Services Ltd
Best Drain & Repair Service - Republic of Ireland

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SEWAGE TREATMENT SYSTEMS

Klargester - Tricel - WPL - CLF - Harlequin - Conder - Kee Services



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www.Siteassessment.ie
Colm Quigley E45CY94 Cornode Garykennedy
Surface hole 3.400mm @ 1043am
21.12.2021 10:43
E: 175260 N: 183889
Altitude: 108m
Unnamed Road, Cornode, Co. Tipperary

CONSTRUCTION AWARDS 2017
Drainpower Environmental Services Ltd
Best Drain & Repair Service - Republic of Ireland
Awarded by the Construction Industry Association of Ireland

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CONSTRUCTION & ENGINEERING AWARDS 2016
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BUILD

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SEWAGE TREATMENT SYSTEMS

Klargester - Tricel - WPL - CLF - Harlequin - Conder - Kee Services



33



www.Siteassessment.ie
Colm Quigley E45CY94 Cornode Garykennedy
Surface hole 3: 300mm @ 1125am
21.12.2021 11:25
E: 175262 N: 183891
Altitude: 108m
Unnamed Road, Cornode, Co. Tipperary

CONSTRUCTION AWARDS 2017
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CONSTRUCTION & ENGINEERING AWARDS 2016
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SEWAGE TREATMENT SYSTEMS

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34



www.Siteassessment.ie
Colm Quigley E45CY94 Cornode Garykennedy
Subsurface locations X 3
21.12.2021 11:07
E: 175261 N: 183890
Altitude: 108m
Unnamed Road, Cornode, Co. Tipperary

CONSTRUCTION AWARDS 2017
Drainpower Environmental Services Ltd
Best Drain & Repair Service - Republic of Ireland
Best Drain & Repair Service - Republic of Ireland

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CONSTRUCTION & ENGINEERING AWARDS 2016
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EPA Percolation size guidelines

Table 10.1: Infiltration/treatment area and trench length design for tertiary treatment, per PE

Percolation values (PVs)	Pumped or underlying gravity discharge (Options 1 and 2)	Gravity discharge into 500 mm wide trenches (Option 3)	Low-pressure pipe distribution into 300 mm wide trenches (Option 4)	Drip dispersal system (Option 5)	Tertiary infiltration area (Option 6)
	Area required per person (m ²)	Trench length required per person (m)	Trench length required per person (m)	Area required per person (m ²)	Area required per person (m ²)
3 ≤ PV ≤ 20	≥7.5	≥6	≥6	≥5	≥3.75
21 < PV ≤ 40	≥15	≥12	≥12	≥14	≥7.5
41 < PV ≤ 50	≥30	≥17	≥17	≥16	≥15
51 < PV ≤ 75	≥50	≥19	≥19	≥22	≥25
76 < PV ≤ 90	–	–	≥28	≥34	–
91 < PV ≤ 120	–	–	–	≥54	–

Separation distances from water supply sources

Table 6.2: Minimum separation distances from the entire DWWTS

Features			DWWTS – periphery of tank/plant and infiltration/ treatment area (m)
Public/group water supply abstraction points/wells			60
Down-gradient domestic well	3 ≤ PV ≤ 10 (usually SAND- or GRAVEL- dominated material)	Depth of soil/subsoil > 2.0 m between invert level and bedrock, and water table 1.2–2.0 m	60
		Depth of soil/subsoil 2.0–8.0 m between invert level and bedrock, and water table > 2.0 m	40
		Depth of soil/subsoil > 8.0 m between invert level and bedrock, and water table > 2.0 m	30
	10 < PV ≤ 30 (usually SILT- or SAND- or silty GRAVEL- dominated material)	Depth of soil/subsoil 1.2–8.0 m between invert level and bedrock	45
		Depth of soil/subsoil > 8.0 m between invert level and bedrock	30
	30 < PV ≤ 120 (usually SILT/ CLAY- or CLAY- dominated material)	Depth of soil/subsoil 1.2–3.0 m between invert level and bedrock	40
		Depth of soil/subsoil ≥ 3.0 m between invert level and bedrock	30
Alongside domestic well			25
Up-gradient domestic well			15



Minimum unsaturated soil and/or subsoil depth requirements

Table 6.3: Minimum unsaturated soil and/or subsoil depth requirements

Infiltration/treatment area	Minimum depth (m) ^a		
	GWPR R1 and R2 ¹	GWPR R2 ² , R2 ³ , R2 ⁴ and R3 ¹	GWPR R3 ²
Percolation trenches and intermittent soil filters following septic tanks	1.2	2.0	Not acceptable
Polishing filters following secondary systems and infiltration areas following tertiary systems (other than below)	0.9	1.2	1.8
Drip dispersal systems where the percolation value is >75. Infiltration areas following tertiary systems where the tertiary treatment system is proved to reduce E. coli to 1,000 cfu/100 ml prior to discharge to the infiltration area. ^b	0.6	0.9	1.2

^a These depths refer to the minimum depth of unsaturated soil and/or subsoil between the point of infiltration and the bedrock and the water table. The point of infiltration is at the base of the distribution gravel in all systems, except for (a) sand filter with underlying polishing filter where it is at the base of the basal gavel layer (Figure 8.4) and (b) drip dispersal where the tubing itself is the point of infiltration.

^b Tertiary system tested using representative secondary effluent; 90% of values complying, no value exceeding by more than 30%.

If these depths are not met but there exists 0.5 m depth of unsaturated soil and/or subsoil, which meets the required percolation values for a DWWTS discharging to ground, a raised infiltration/treatment area may be installed.

If there is less than 0.5 m depth of unsaturated soil and/or subsoil, site improvement works (see Section 6.7) may potentially be suitable. The site must be proven as able to assimilate the waste water loadings from the relevant dwelling in such cases.



Installation Inspection and monitoring schedule

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Table 12.1: Installation, inspection and monitoring schedules

System type	Certificate of installation	Inspection/maintenance schedule	De-sludging schedule
Septic tank and percolation area, including distribution device	Appropriately trained and qualified person/service provider	Every 12 months by the homeowner. If maintenance is required, then an appropriately trained and qualified person/service provider is required	See Section 12.2.2
Septic tank and secondary treatment: filter system	Appropriately trained and qualified person/service provider	Every 12 months by the homeowner. If maintenance is required, then an appropriately trained and qualified person/service provider is required	See Section 12.2.2
Packaged secondary treatment systems	Appropriately trained and qualified person/service provider	Every 12 months or as per the manufacturer's instructions by an appropriately trained and qualified person/service provider	Annually or as per the manufacturer's recommendations
Drip dispersal	Appropriately trained and qualified person/service provider	Every 6 months or as per the manufacturer's instructions by an appropriately trained and qualified person/service provider (manual flushing, filter cartridge cleaning)	Not applicable
Tertiary treatment systems, including infiltration/treatment areas	Appropriately trained and qualified person/service provider	Every 12 months or as per the manufacturer's instructions by an appropriately trained and qualified person/service provider	Not applicable



Separation distances from WWT system

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Features	DWWTS – periphery of tank/plant and infiltration/treatment area (m)
Karst feature	15
Lake or foreshore	50
Watercourse/stream	10
Open drain or drainage ditch	10
Adjacent tank/plant and percolation area, polishing filter or infiltration area	10
On-site dwelling house	7 (tank/plant) 10 (free water surface constructed wetland) 10 (infiltration/treatment area)
Neighbouring dwelling house	7 (tank/plant) 25 (free water surface constructed wetland) 10 (infiltration/treatment area)
Surface water soakaway ^a	5
Road	4
Slope break/cuts	4
Trees ^b	3
Site boundary	3
Heritage features, NHA/SAC/SPA ^c	See note
PV, percolation value. ^a The soakaway for surface water drainage should be located down-gradient of the infiltration/treatment area; it should also be ensured that this distance is maintained from neighbouring storm water disposal areas or soakaways. ^b Tree roots may lead to PFPs developing. The canopy spread indicates potential root coverage. ^c The distances required depend on the importance of the feature. Therefore, advice should be sought from the local authority and/or from the the Department of Housing, Local Government and Heritage, specifically the National Monuments Service and the National Parks and Wildlife Service.	



Euro Tank Ter 3 Specifications

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EuroTank TER 3



PACKAGED TERTIARY
Treatment Systems

Supplied By: Tpw Systems Ltd, Wexford

Sales /Service 087 2600438

053/9137650 Email tpwsystems@gmail.com

web: www.TPW.ie

Description:

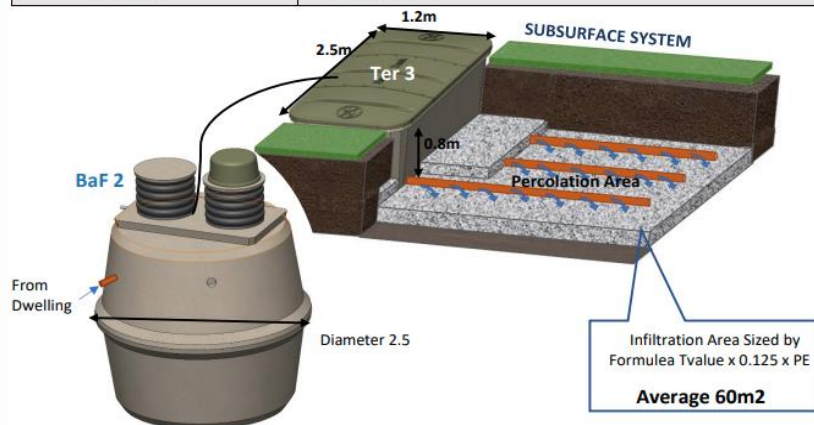
Eurotank TER3, is a CONCRETE Packaged Tertiary Treatment System which further treats effluent from a secondary treatment system example Eurotank BAF. It is an allowed form of Tertiary Treatment, *under Option section 10.3 EpA Code of Practice* ideal for most sites including difficult sites, with high vulnerability, Nutrient or Pathogen Sensitive area's and especially suited to small sites due to its small footprint.

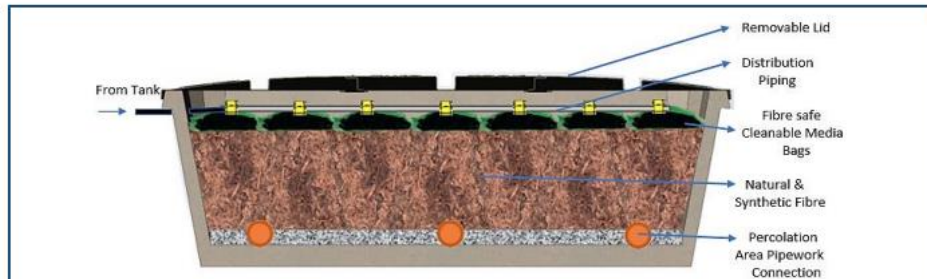
Raw sewage enters the secondary unit by gravity from the house and is treated, effluent then leaves this unit and is pumped via a network of piping over the surface of the TER3, it then trickles down through the various layers receiving Biological treatment before final discharge to the ground. The unit is connected to a network of perforated pipes and sits on a layer of distribution gravel as a slightly raised small bed or finished at ground level, depending on the results of the percolation test.

Eurotank TER3 is a Cost effective, Efficient method of complete on-site wastewater treatment and disposal

SPECIFICATION

Population Equivalent PE	6 to 50 with configurations for 6, 9, 12, 18, 24, 36, 43, 50.		
Certification	By PIA GMBH Under EN12566/3 To Irish NSAI SR66 Standard		
Effluent Quality as per PIA Test	Bod	2mg/l	Ecoli and Total Coliform Removal<99%
	Suspended Solids	4mg/l	
	NH4N	0.3mg/l	Far Exceeding Irish Min Standards
	Phosphates	< 6mg/l	
Concrete	45n reinforced		





Key Features

- High Effluent Quality, with superior reduction in BoD, CoD, Suspended solids, Nutrients, and Pathogens. (Best on the Irish Market!)
- Suitable for many sites including small restricted existing sites.
- Concrete unit.
- Fibre safe pre-clean system, in cleanable bags that can be shaken or washed.
- Very easy to maintain.
- Includes percolation pipe connections.



The Aesthetic Solution To Raised Beds

Operation Principles

Secondary treated water from the tank is pumped and distributed via a pipe network with orifice shielding.

Water is distributed evenly over the Fibre safe Bags which remove any residual solids and in particular greases which ensure long life use of the natural and synthetic mix fibre Media.

The waters then trickle through the fibre to receive final treatment and polishing before Entering the percolation pipework over a bed of stone for distribution and final discharge to underlying soils.



Euro Tank Ter 3 PIA Certification

42



Certificate

422.01C02
Tpw Systems Ltd
 Ballyheige, Screen, Co. Wexford, Ireland, Y21A8A0
EN 12566-7, Annex A
 Small wastewater treatment systems for up to 50 PT
Small wastewater treatment system Eurotank Ter3, Packaged Tertiary Mod
 Trickle filter (pump charged)
 Test report PIA2022-T7-422S09

Evaluation of the nominal sequences of the 38-week testing			
Nominal organic daily load (influent)	0.01 kg BOD ₅ /d		
Nominal hydraulic daily load	0.9 m ³ /d		
Material	Concrete		
Treatment efficiency		Efficiency	Effluent
	COD	41.7 %	37 mg/l
	BOD ₅	64.3 %	4 mg/l
	NH ₄ -N*	89.2 %	0.4 mg/l
	P _{tot}	5.0 %	5.0 mg/l
	SS	58.5 %	4 mg/l

Evaluation of the complete 38-week testing	
Electrical consumption	3.9 kWh/d
Number of desludging	-

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

Tested by:
PIA – Prüfinstitut für Abwassertechnik GmbH
 (PIA GmbH)
 Hergenrather Weg 30
 52074 Aachen, Germany

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


 PIA – Sustainable Certification
 geprüft – tested – testé
 Martina Wermter August 2022


 Notified Body
 No.: 1739




Deutsche
Zertifizierungsstelle
D-PL 17712-01-00



Certification

as listed on <https://www.pia-gmbh.com/en/component/downloads/send/9-packaged-treatment-plants/245-tpw-systems-eurotank-baf2-ter3-pdf> -- For Irish Use



PIA

TREATMENT PERFORMANCE RESULTS

TPW Systems Ltd
Ballyheige, Screen, Co. Wexford, Ireland

EN 12566-3
Results corresponding to EN 12566-3 and S.R. 66
PIA2020-SR66-2007-1024

EUROTANK BAF2 + TER3 (range with 7 models)
Biological aerated filter + packaged tertiary treatment mod

Nominal organic daily load	0.29 kg/d															
Nominal hydraulic daily load	0.9 m ³ /d															
Material	Concrete															
Watertightness	Pass															
Structural behaviour (Crushing resistance)	Pass (also wet conditions)															
Durability	Pass															
Treatment efficiency (nominal sequences)	<table border="1"> <thead> <tr> <th></th> <th>Efficiency</th> <th>Effluent</th> </tr> </thead> <tbody> <tr> <td>COD</td> <td>96.6 %</td> <td>28 mg/l</td> </tr> <tr> <td>BOD₅</td> <td>99.3 %</td> <td>2 mg/l</td> </tr> <tr> <td>NH₄-N</td> <td>99.3 %</td> <td>0.3 mg/l</td> </tr> <tr> <td>SS</td> <td>98.8 %</td> <td>4 mg/l</td> </tr> </tbody> </table>		Efficiency	Effluent	COD	96.6 %	28 mg/l	BOD ₅	99.3 %	2 mg/l	NH ₄ -N	99.3 %	0.3 mg/l	SS	98.8 %	4 mg/l
	Efficiency	Effluent														
COD	96.6 %	28 mg/l														
BOD ₅	99.3 %	2 mg/l														
NH ₄ -N	99.3 %	0.3 mg/l														
SS	98.8 %	4 mg/l														
Number of desludging	Not more than once															
Electrical consumption	1.16 kWh/d															

Performance tested by:
PIA – Prüfinstitut für Abwassertechnik GmbH
(PIA GmbH)
Hergenrather Weg 30
52074 Aachen, Germany

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

Notified Body No. 1739 Certified according to ISO 9001:2015

Verschütz
Verschütz / Wemmer July 2020
PIA - Sustainable Certification
PIA - tested and sealed

Page 1 of 12



To whom it may concern,

We hereby confirm that the company Tpw Systems tested the small wastewater treatment system Eurotank TER 3 according to the European standard EN 12566-3 for treatment efficiency on the testing field of PIA GmbH in Aachen. For details concerning the test according to the standard and the system design it can be referred to the test report No. PIA2020-373B09-02

During the test of the system, three additional analysis were made for each of the parameters phosphorous, e.coli and total coliforms at different points of the system. The samples were taken in the test phases 6 (nominal loading) and 8 (nominal loading with power breakdown). In Table 1 the results of the samples are shown.

PIA GmbH has a certified quality management system according to EN ISO 9001:2015 for the field "testing of wastewater equipment". PIA GmbH is accredited as testing laboratory based on EN ISO/IEC 17025:2005 and is approved by the European Commission as a testing laboratory "Notified Body" (NB 1739) according to the Construction Products Regulation (CPR) for small wastewater treatment systems for up to 50 PT according to EN 12566 Part 1, 3, 4, 6 and 7.

Table 1: Results

Test schedule	Test sequence	6	8*	8**	8**	
	Loading	100 %	100 %	100 %	100 %	
	Date	27.02.2020	23.04.2020	14.05.2020	16.05.2020	
Air Temperature min/max	[°C]	2/10	8/21	-	3/14	
Influent:						
E.Coli	[1/100ml]	7.500.000	6.867.000	26.030.000		
Total coliforms	[1/100ml]	1.000.000	329.000	5.560.000		
Effluent BaF2 system:						
P _{tot}	[mg/l]	1.2	-	-	4.9	
Effluent TER 3 Mod:						
P _{tot}	[mg/l]	2.8	6.1	-	5.4	Reduction [% ; n=3]
E.Coli	[1/100ml]	1090	520	5910	-	99.9
Total coliforms	[1/100ml]	300	1990	18600	-	99.6

Tertiary pod Image





SEWAGE TREATMENT SYSTEMS

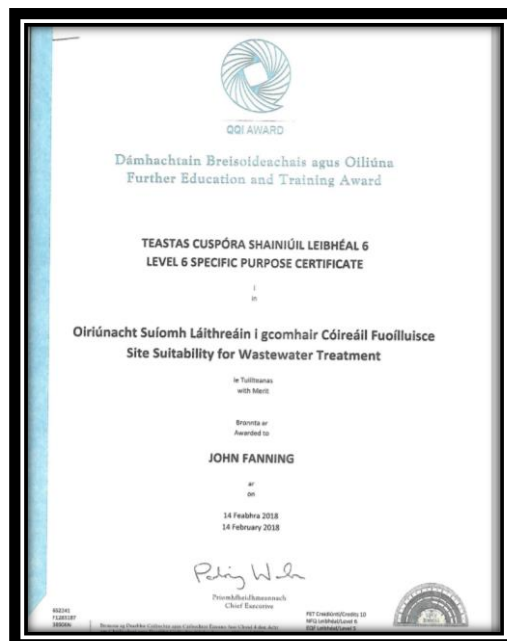
Klargester - Tricel - WPL - CLF - Harlequin - Conder - Kee Services



Installation Accreditation



Site assessor Accreditation



BUILD



BUILD

Contact : Mob 086 050 5454 Email : info@siteassessment.ie Website : www.siteassessment.ie

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SEWAGE TREATMENT SYSTEMS

Klargester - Tricel - WPL - CLF - Harlequin - Conder - Kee Services



Insurance Cert

ASCENT
UNDERWRITING
An Ascent company

CERTIFICATE ATTACHING TO AND FORMING PART OF
Ascent Property Professionals' Policy (RPL)

CERTIFICATE NO. PH030000149 This insurance is effected with Lloyd's Insurance Company S.A. under Binding Authority L005, #1100004101010000

SCHEDULE

1. INSURED Charonnet Environmental Services Ltd
ADDRESS Charonnet Road, Charonnet, Dublin, Co. Dublin, Ireland

2. POLICY PERIOD 1st April 2021 to 31st March 2022
with the option of a 12-month extension

3. LIMIT OF INSURANCE Professional Indemnity: £1,000,000 any one claim
£1,000,000 any one claim

4. EXCESS Nil

5. RETROACTIVE DATE 1st April 2021

6. PREMIUM

Description	Rate	Amount
Legal Expenses	£0.00	£0.00
Insurance Brokerage	£0.00	£0.00
Legal Expenses	£0.00	£0.00
Legal Expenses	£0.00	£0.00
Legal Expenses	£0.00	£0.00

7. NOTICE OF CLASS Charonnet Environmental Services Ltd, 1st April 2021 to 31st March 2022, under the terms of the policy.

8. CHOICE OF LAW English Law

9. TERRITORIAL LIMITS Worldwide

10. JURISDICTION Charonnet Environmental Services Ltd, 1st April 2021 to 31st March 2022, under the terms of the policy.

FORMS AND ENDORSEMENTS ATTACHED HERETO

SECURITY

COVERED RISK

COVERED RISK

COVERED RISK



SEWAGE TREATMENT SYSTEMS

Klargester - Tricel - WPL - CLF - Harlequin - Conder - Kee Services



Klargester PIA Accreditation

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Prüfinstitut für
Abwassertechnik
GmbH

PERFORMANCE RESULTS

Kingspan Environmental Limited
College Road North, Aston Clinton, Aylesbury, HP22 5EW, UK

EN 12566-3
Small wastewater treatment systems for up to 50 PT

Small wastewater treatment system Bioficient⁺
Moving-bed-biofilm reactor in a polyethylene tank

Test report PIA2015-218B44.01

Nominal organic daily load*	0.29	kg BOD ₅ /d
Nominal hydraulic daily load	0.90	m ³ /d
Material	Polyethylene	
Treatment efficiency (nominal sequences)	Efficiency	Effluent
	COD 91.2 %	64 mg/l
	BOD ₅ 95.0 %	15 mg/l
	SS 96.0 %	16 mg/l
	NH ₄ -N** 84.7 %	4.9 mg/l
	N _{tot} ** 72.6 %	17.6 mg/l
Electrical consumption	0.92	kWh/d

*at a test influent of ≥ 300 mg/l BOD₅ (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
52074 Aachen, Germany

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






Notified Body
No. 1739

Certified according to
ISO 9001:2008

DAkkS
Deutsche
Akademie
für
Zertifizierung
D.P. 17713-01-00

Elmar Lancel February 2015

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Awarded by the Construction Industry Association of Ireland

BUILD

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SEWAGE TREATMENT SYSTEMS

Klargester - Tricel - WPL - CLF - Harlequin - Conder - Kee Services



Klargester Specifications and installation instructions. Commissioning cert available on completion.

48

Service & Support Solutions



Kingspan Small Plant

PRE-COMMISSIONING CHECK LIST

Having agreed to a Kingspan commissioning it is important that the unit is ready for our engineer and to prevent any additional charges, please complete the following pre-commissioning check list. "please be aware it can take 5-10days to organise"

Date:		Product code:		Delivery date or order number:	
Site name:		Contact name:			
Email:		Contact number:			
Address:					

(including postcode if possible):

General	Type of commissioning required and paid for:	☐ Standard	☐ Visual
	Has this unit been installed as per our installation and operational guidelines?	☐ Yes	☐ No
	Has the Inlet/Outlet connections been made and sealed?	☐ Yes	☐ No
	Is the water level up to the outlet?	☐ Yes	☐ No
	Is the tank free from rubble/building material?	☐ Yes	☐ No
	Is the panel /isolator located next to the tank?	☐ Yes	☐ No
	Has 110mm ducting along with draw strings been installed between tank and panel /isolator? <i>If the panel is situated more than 2mts from the unit, a suitable cable must be provided by the contractor.</i>	☐ Yes	☐ No
	Has the Panel/Isolator been Mounted securely and connected to mains power supply and made live?	☐ Yes	☐ No
	For aeration systems has the 110mm ducting and draw string for the airline been installed?	☐ Yes	☐ No
	Has a pump discharge been fitted?	☐ Yes	☐ No
Has Pre-Commissioning Photos been attached of Unit Installation and Panel's?	☐ Yes	☐ No	
Special Site Requirements	Is a site safety induction required?	☐ Yes	☐ No
	If so what is the average time?	Mins	
	Is a permit required?	☐ Yes	☐ No
	Is access to the plant restricted? i.e. Under decking cover slabs etc.	☐ Yes	☐ No
Any other site specific requirements please state here: 			

If any of the above is not in place at the time our engineer is on site, or should any additional works outside the listed commissioning details be required (as per the scope of works), this may be subject to further charges.

Signed:		Position:	
Date			

On completion a report will be issued highlighting any faults/recommendations. A commissioning certificate will be issued if all is in order. Having completed the above please sign and return to helpingyou@kingspan.com or fax to 0044 28 3836 4445
For further information please contact: UK Tel: 0333 240 6868 | IRL Tel: 0818 543 500

CONSTRUCTION AWARDS 2017
Drainpower Environmental Services Ltd
Awarded Best Drainage Service - Republic of Ireland
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SEWAGE TREATMENT SYSTEMS

Klargester - Tricel - WPL - CLF - Harlequin - Conder - Kee Services



Service & Support Solutions



Kingspan Small Plant

COMMISSIONING DETAILS

It is important and part of planning/building regulation that you have your wastewater treatment equipment installed correctly and accompanied by an commissioning certificate.

Within the attached quote we offer two levels of commissioning, a **'Full Commissioning'** or **'Visual'**. Below we include details of each.

Full Commissioning

This requires that the unit has been installed by the main contractor in line with the provided installation guidelines.

This includes the following:

- Tank installed flat and level with safe working area around the perimeter.
- All incoming and outgoing pipework has been connected.
- Control panel has been fixed in a secure position with a live mains supply connected.
- All cables have been ducted and laid between the panel and treatment plant.
- All air lines provided have been ducted and laid to the treatment plant.

The following will then be carried out by a Kingspan Service Engineer.

- Check plant is level, 5mm tolerance.
- Confirm the ground around the plant is level, flat and that the lid securely fastens.
- BioDisc
 - Confirm the panel has been mounted correctly.
 - Make the required connections to the panel using correct glands.
 - Within the tank make all electrical connections.
 - Ensure all safety guards are fitted.
 - Set all greasomatics within the plant (if applicable)
 - Check belt/chain tension and alignment
 - Check pump float activates freely, (Pumped discharge only.)
 - Check operation of sludge return pump (Nitrification plants only)
 - Check direction of disc pack.
 - Check levels within the unit.
 - Test and set any alarms supplied with the unit.
- Bioficient/BioSafe/BioTec/HEQ As above plus:
 - Check the air blower is secure.
 - Set forward feed airlift (larger plants).
 - Make sure there is adequate air supply.
 - Connect all airlines and set valves.
 - Make sure BioZones have adequate air supply.
 - Wire and set timer solenoid for Sludge return (if applicable).

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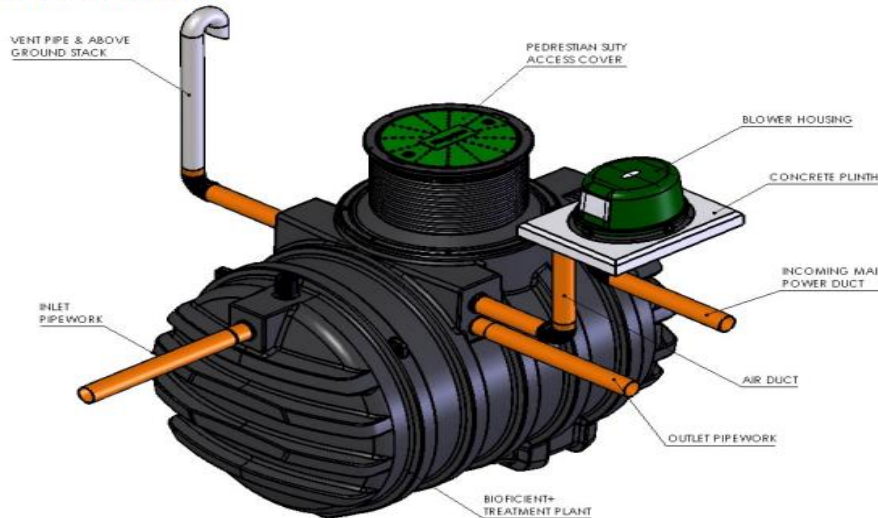
017909-01 – Bioficient® Sewage Treatment Tank

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The Kingspan Bioficient® treatment plant provides a reliable and economic solution for homes not connected to mains drainage. Suitable for homes up to 10 persons, the Bioficient® is manufactured from high quality Polyethylene and uses the latest treatment technology to deliver a high level of water discharge quality.

SYSTEM OVERVIEW



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SEWAGE TREATMENT SYSTEMS

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1 WHY YOU CAN INSTALL OUR TANKS WITH CONFIDENCE:

- They are robust, with high impact resistance, and can withstand all common chemicals they are likely to encounter.
- Our Tanks are trouble-free. No chemicals are required for bacterial action to take place.
- Our Tanks are strong, easy to move and simple to install. Full installation instructions are supplied with every tank.
- High performance, efficient treatment technology.
- Discharge to ground, river or lake.
- Designed in accordance to EU standards EN-12566 Part 3
- Minimum power use.
- An extension neck is available to allow for deeper installation on difficult sites. (Please contact our sales team).
- Our modern design means that access for desludging is easier through the wide neck.
- All our Tanks carry a 12 month warranty from date of delivery.

Unit	Storage Volume (Litres)	Standard Overall Height (mm)	Standard Inlet Invert (mm)	Standard Outlet Invert (mm)	Length (mm)	Width (mm)
BFP06	3380	1820 - 2990	500-1500	600-1600	2480	Ø1680
BFP10	5585	2245 - 3245	500-1500	600-1600	3189	Ø2010

2 GROUND CONDITIONS

2.1 Prior to installation, care should be taken to establish the depth to the water table and land drain facilities as ground conditions will determine the type of backfill materials to be used. In dry free draining soils where the ground is dry all year round i.e. the water table never rises above the base of the tank then use method of installation for DRY GROUND.

2.2 In clays, silts, heavy ground or badly drained ground where the water table rises above the base of the tank use method of installation for WET GROUND.

3 SITE PLANNING

3.1 British Standard BS EN 12566-3 recommends that treatment tanks should not be closer than 7 metres from a dwelling. The outlet from the tank should be well away from any source of water supply. Care should be taken to site the tank. Roads, driveways and vehicles should not be permitted within a distance equal to the depth of the unit, unless suitable structural protection is provided to the installation, to avoid damage to the tank structure.

3.2 Don't forget that there must be access for service vehicles during installation and desludging.

3.3 If the tank can only be installed where it will be subjected to a traffic load, then contact our sales team for details of any special requirements.

4 HANDLING & STORAGE

4.1 Care should be taken when handling the tank. The tank should be lifted using a rope or sling passed through the lifting points provided on the tank. The tank must be carefully lifted from the delivery vehicle and set down on to level ground. Do not roll the tank off the delivery vehicle.

4.2 Carry out an inspection for any damage before accepting the tank, and inspect again prior to installation, paying particular attention to the inlet and outlet pipes.

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4.3 During storage of the tank on site do not allow it to rest on these pipes at any time. The tank should always be filled with clean water during backfilling. It is desirable to temporarily cover all openings in the tank to prevent the ingress of debris during installation.

5 EXCAVATION

5.1 INSTALLATION SHOULD ONLY BE CARRIED OUT BY A COMPETENT CONTRACTOR.

5.2 The tank is supplied with a standard neck extension giving an Inlet Invert of 500-875mm from the top of the manhole cover to the bottom of the inlet pipe.

5.3 Extension necks are available to give a maximum invert depth of 1500mm if required.

5.4 Excavate a hole according to the table below. Normal safety precautions must be adopted during excavation. Excavate a trench for the inlet and outlet pipework noting: the inlet invert selected, and that the outlet pipe is 100mm lower than the inlet pipe.

5.5 If the excavation is in unstable ground, take particular precautions to avoid a collapse of the sides of the excavation.

5.6 Make sure that any water collecting in the hole is pumped out during installation.

5.7 Tank Excavation Dimension - These dimensions assume 200 mm clearance all round the tank.

Tank Model	Maximum Overall Height (mm)	Length (mm)	Width (mm)
BFP06	2990	2480	Ø1690
BFP10	3245	3189	Ø2010

6 DESLUDGING

6.1 The tank has been specially designed to allow easy access for cleaning when required. The tank is desludged in the usual way by suction tanker.

6.2 When desludging, which should be undertaken at least once a year, care should be taken to avoid damage to the tank by the hose nozzle.

6.3 Desludge the primary and final settlement zones using a suction tanker. Please consult your local yellow pages, internet or similar for licensed contractors offering this service.

6.4 Remove the cover. Carefully lower the suction hose into the primary compartment, then empty the final compartment. Remove all floating and settled solids from these compartments taking care not to knock or disturb the internal pipework.

6.5 Note: **DO NOT EMPTY** the reactor compartment, this is unnecessary and if done will affect the process abilities of the system. When the primary and final compartments are emptied, the level in these compartments will drop a little.

6.6 (If it is necessary to desludge the reactor compartment, **following specialist advice only**, ensure that the correct size suction hose is used. Pressure wash the media to release any solids which are binding/clumping the media, then carefully insert the suction hose. Take care not to remove any of the media when emptying. When complete, ensure all components are correctly replaced and refill the reactor with clean water.)

6.7 After desludging each compartment, the primary zone should be refilled with clean water either by using a hosepipe or by running several taps in the household(s). Refill final settlement/ humus tank with a hose, whilst running in tap water into the primary.

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6.8 See unit start-up guidance.

7 HOW SHOULD I INSTALL THE TANK?

There are basically two ground types:

- Dry ground conditions - In light, totally dry, free draining soils where the water table does not rise above the base of the tank;
- Wet ground conditions - In clay or heavy soils where the water table can rise above the base of the tank.



Step 1 (Delivery)

Firstly you must ensure you have received all components ordered.

Please check your order against the delivery ticket which will list all delivered parts.

Standard delivery will consist of a storage tank and blower housing assembly.

If there are any shortages or damaged components please contact us immediately.

Blower housing can be installed at the civil stage but will require to be wired up by a qualified electrician.



Step 2 (Excavation)

Excavate a sufficient hole to suit storage tank. See previous table for dimensions.

Ensure depth allows for a suitable concrete base to meet site condition requirements to prevent shrinkage.

Safe excavation methodology should be followed at all times.

Care should be taken not to cause undermining of foundations if tank is located close to a building.

A dewatering pump may be required to remove excess water.



Step 3 (Preparation)

Lay the concrete base (min 300 mm).

Once cement is cured lower the tank into the excavation.

Ensure you use the correct lifting equipment and the slings are connected to the 4x6 lifting points using appropriate shackles.

Ensure tank is level and all connections line up with site pipework.

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Step 4 (Backfill)

If necessary locate a dewatering pump in the base of the excavation to remove excess water (wet sites only).

Fill the tank with water to approximately 300 mm from base DO NOT OVERFILL. This can be poured in through the inlet pipe.

Backfill around the tank with suitable selected material, until level with the water line in the tank.

Fill tank and backfill in 300mm stages until you reach pipe connection levels.

Wet Sites - Concrete

Dry Sites - Pea Shingle

*Dry Site - No water table - free draining to level below tank base.



Step 5 (Pipe Connections)

Connect lead from the dwelling to the labeled Inlet Pipe.

Connect the overflow pipe to the relevant soak away/water course/storm sewer.

There is a socket on the tank to accept Ø110 mm pipework to run your diffuser and sludge return pipework from the blower housing.

There is also a vent socket on the tank for the end user wish to fit an appropriate vent stack.



Step 6 (Finalisation)

Continue to backfill the tank up to ground level.

The unit has an adjustable riser on to aid it reaching ground level.

NB. Pedestrian duty man hole cover supplied as standard, this is not suitable for traffic loading.

If installing in a traffic area a suitable rated cover/frame should be installed.

This should be recessed into a suitably designed structural slab to distribute the load away from the tank.

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INSTALLATION PROCEDURE

8.1 Please see installation drawing provided.

8.2 DRY GROUND CONDITIONS

8.2.1 Excavate the site allowing for a minimum clearance on all sides and base of the unit of 150-200mm and level the base. If levelling pegs are used they should only be placed at the corners of the hole, well away from the tank.

8.2.2 Ensure that the hole is kept dry. Should any rain or surface water collect in the hole, this should be pumped out.

8.2.3 A base of at least 150-200mm of lean mix concrete should be provided.

8.2.4 Lower the tank into the hole using a rope sling through the lifting points provided on the tank. Under no circumstances should the sling be attached to the inlet pipe or outlet pipe.

8.2.5 Position the inlet pipe in line with the incoming drain. Note that the inlet and outlet pipes are clearly marked on the tank. The unique profile of the base will help to level the tank, but make sure the tank is in the truly upright position in order to maintain the 100mm head difference between the inlet and outlet pipes.

8.2.6 Use webbing slings of suitable specification through both of the designated lifting holding down points, fitted either side of the tank body to secure tank in place.

8.2.7 After any concrete in the base has taken up its initial set (usually after one day), ballast the tank by putting approximately 0.5m depth of water into it.

8.2.8 Backfill the space around the tank with pea gravel or similar material (3-6mm). The backfill should be free from organic material, large stones, bricks or sharp objects.

8.2.9 Backfilling should be carried out in layers making sure that voids are not left under and around the sides of the tank and that there are no localised stress concentrations. It is most important that the installer progressively fills the tank with water to the level above the backfill in order to stabilise pressures on the tank.

8.2.10 Remove any temporary covers, and connect up the tank inlet and outlet pipe to your own pipework. Do not use reducers.

8.2.11 Backfilling can now proceed up to ground level.

8.2.12 Venting can be provided through a dedicated 110mm vent socket arrangement on the tank, additional venting can be provided via the inlet & outlet vertical pipe connections, if not used please blank off with socket and blanking cap.

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8.3 WET GROUND CONDITIONS OR BADLY DRAINED GROUND

- 8.3.1 The installation procedure for wet ground conditions is similar to that for dry ground conditions, though the following additional points must be considered:
- 8.3.2 A lean mix concrete base of minimum depth 200mm should be provided. In wet ground conditions the installer should ensure that the base is adequate to support the weight of the tank and its contents. If the base of the excavation is unstable (i.e. running sand or similar) excavate an additional 250-300mm below the concrete levels and fill up with compacted hard-core. Place a sheet of polythene over the hard-core and up the sides of the excavation before putting in the concrete cradle.
- 8.3.3 Ensure that the water is pumped from the excavation during installation and that during backfilling the water is conveyed away from the hole.
- 8.3.4 Backfilling material should be lean mix concrete.
- 8.3.5 Ensure that the concrete is not too wet and that it is tamped in around the tank. Do not use a vibrating poker.
- 8.3.6 Only back fill with concrete up to the top of the body sphere. Do not surround the pipework with concrete.
- 8.3.7 It is most important that the installer progressively fills the tank with water to a level above the backfill in order to stabilise pressure on the tank.

8 INSTRUCTIONS FOR CONNECTION OF EXTENSION NECK

- 9.1 Please see attached Extension neck fitting instructions drawing DS1213 provided.
- 9.2 When extension neck is used, tank must be encased in concrete (for details see Wet Ground Conditions Section).

9 VENTING

- 9.1 A vent socket has been provided in the tank body so as to provide air for blower operation. A high level vent should be provided at the property, connected to the drain line. The head of the drainage system should be connected to a stack pipe, open at high level, so as to draw foul air from the system and be sited with consideration to prevailing wind direction.
- 9.2 The vents & Air admittance valves should not be used as the sole drainage ventilation facility, but if these cannot be avoided, the unit should be independently ventilated. All inspection points within the drain system should be sealed so as to enable ventilation at high level. If the unit is installed at a great distance from the property, a local vent may be required. The drainage field should be vented. (See BS 6297 2007)

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10 ELECTRICAL INSTALLATION

- 10.1 It is imperative that the electrical installation of this equipment is entrusted to a competent qualified electrician working to the latest IEE regulations.
- 10.2 It is not possible to state a specific installation configuration that would suit all sites. The selection of current protection devices must remain the responsibility of the installer who should select a suitable cable and current overload protection, taking into account the distance from the power source to the unit and any other relevant factors. (In many cases steel wire armoured (SWA) cable, minimum 1.5 sq. mm will be suitable)
- 10.3 When installing the electrical supply to the unit, the following points should be considered:
- 10.4 The electric power supply to the tank should be by means of a dedicated circuit with isolation and protection devices consistent with the requirements for fixed equipment and in accordance with the latest regulations of the Institute of Electrical Engineers.
- 10.5 This power supply should be independent of all other household protection devices other than the supply authority's main fuse and that provided specifically for the power supply. In particular, earth leakage devices provided for normal domestic protection must not form part of the supply circuit to the tank.
- 10.6 An earth leakage circuit breaker should be incorporated in the supply to the unit. A device with 30mA minimum trip current is recommended.
- 10.7 Locate the Control Panel (017158) and mount externally at a point where it is easily visible from the property.
- 10.8 The power supply cable should connect to the IP65 rated control panel mounted externally (see sales drawing DS1285P). The supply from the control panel should then pass through a duct into the Blower Housing (located outside the plant) and terminate in the junction box fitted inside the blower housing. Any terminal shrouds removed during the connection of cable cores must be replaced afterwards. A separate duct or conduit should be provided by others. The connection from the junction box to the solenoid valve will be made by the factory.
- The selected timer will be pre-set:
BioCient® 1 (10PE) - 60 Secs ON / 60 mins OFF.
BioCient® 2 (10PE) - 90 Secs ON / 60 mins OFF.

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11 THE PROCESS

- 12.1 The unit is a new generation of package sewage treatment plant developed to treat domestic and other biodegradable sewage waste in a simple and compact system comprising three treatment zones within a 'uni-tank' design.
- 12.2 The moving aerated media process used is a compact development of the traditional biological process and provides a more effective and complete means of reducing the loads.
- 12.3 Raw sewage gravitates to the unit where it is received in the primary settlement zone. Here, gross solids and other solid debris settle to the bottom of the tank where they remain until the tank requires desludging. Settled sewage is displaced from primary zone and enters the aerated media reactor.
- 12.4 Media and liquid circulation in the reactor is achieved through the use of a compressor and diffuser, which introduces fresh air into each compartment. The liquor is constantly re-circulated and contacts the moving media and as it does so, it is purified by the microorganisms (biomass) growing on the surface of the media and within the moving liquor. Excess growth of biomass is shed as solid particles into the liquor.
- 12.5 When settled sewage enters the primary tank it displaces an equal volume of treated liquor from the second reactor chamber into the humus or final section.
- 12.6 The final settlement tank is where humus solids settle to form sludge. At preset intervals, portions of the sludge and liquor are returned to the primary tank for additional treatment. However, sludge does build up and it must be periodically removed. The primary and final settlement zones should be emptied of sludge every 12 months.
- 12.7 Final effluent is displaced from the final settlement tank. With regulator approval, it is suitable for discharge to a watercourse or drainage field.

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12 PLANT START UP/SHUT DOWN PROCEDURE

START UP

- 12.1.1 Every care is taken to ensure that all mechanical components are correctly fitted, adjusted and lubricated prior to leaving the factory. However, subsequent handling during transportation and installation may result in the movement of components and a subsequent need to re-adjust prior to starting the unit. Your installing contractor should have thoroughly checked the unit.
- 12.1.2 If, on inspection, you consider that any components require adjustment, please contact us. We do strongly recommend that you purchase a Pre-Service Agreement inspection from an approved engineer experienced in the operation of sewage systems. Your warranty may require it.
- 12.1.3 If you are considering starting up the unit yourselves, the following guidance is provided, however, you should not attempt to carry out to do this if there is any doubt about the installation. Ensure that all Health and Safety precautions are observed. All electrical work should be carried out by a competent qualified electrician.

Water

- 12.1.4 During installation the unit should have been left filled with water, check that the unit is full of water to the outlet level.

Electrical

- 12.1.5 Check that the power supply is connected. Check that all electrical components and conductors are earthed.
- 12.1.6 Check the operation of the RCD (supplied by others) in accordance with the manufacturer's instructions.
- 12.1.7 Check the running current of the compressor against the full load current rating.

Unit

- 12.1.8 Check that the unit is in order, with no obvious damage or misalignment of parts. If any problems are discovered, contact us.
- 12.1.9 Check that the recycle operates returning liquid from the final settlement zone to the primary settlement zone.
- 12.1.10 Check that the reactor compartments "bubble" and that the media moves.
- 12.1.11 Check that water flows freely into and out of the plant.
- 12.1.12 Fit the manhole cover and lock in position.
- 12.1.13 If any equipment appears not to be operating correctly, refer to Fault Finding section of this manual.
- 12.1.14 The unit is now operational; however, the treatment process is dependent on the growth of naturally occurring microorganisms on the filter media. The time taken for these to fully establish is dependent on temperature and may take from six to eight weeks in winter (less in summer). Please note that the treatment process will be incomplete until the biomass is fully developed. During this time, do not allow any strong cleaning agents or bleaches to enter the system. Some ammonia treating bacteria will not develop in the colder months when the temperature is low (below 12°C).

SHUT DOWN - NO INCOMING FLOW

- 12.1.15 Temporary absence of flow to the plant will not be detrimental, however, if the flow of sewage to the plant is interrupted for long periods, (several months), the following procedure should be completed.
- 12.1.16 Desludge all tank compartments in accordance with the instruction in the maintenance section of the manual.
- 12.1.17 Refill the plant with clean water.
- 12.1.18 Re-Fit all tank covers, checking that the lid fixings are secure and in place.
- 12.1.19 Isolate the compressor.

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13. OPERATION

13.1 Introduction

13.1.1 The biological treatment process of your BioPura is self regulating and it requires no specialised operational knowledge, but it is important that you are aware of the following:

13.1.2 Your system uses colonies of five natural micro-organisms (biomass), to break down the pollutants in the sewage. Many chemicals used in households and commercial establishments can inhibit or kill these micro-organisms; particularly if used in excessive amounts.

13.1.3 Bear in mind that treatment plants serving small populations do not have the benefit of dilution that occurs at a large sewage works. A bottle of bleach tipped down a toilet in Birmingham would be virtually lost amongst the millions of gallons of sewage arriving at the city's treatment works; a bottle of bleach in a plant serving just one house can be a lethal dose for the biomass.

13.1.4 If the biomass is damaged, it will usually recover in time, but one of the more obvious symptoms of damage can be an unpleasant smell, so it is in the operator's interest to avoid this.

13.1.5 Generally speaking all common household cleaning fluids are acceptable, provided they are used in accordance with the maker's instructions and stipulated concentrations. The following 'Do's and Don'ts' includes the most common household chemicals, but it is not an exhaustive list and the golden rule is "If in doubt - leave it out."

13.1.6 Bear in mind too that it isn't only the toilet that is connected to the treatment plant; anything that goes down the sink, bath etc. also ends up there.

13.2 Do's and Don'ts

13.2.1 **Washing machine and dishwasher detergents, washing up liquids:** These are generally all right to use in the normal concentrations and usage found in domestic housing applications. But problems can occur if, for instance, you are washing the jersey of the local rugby club's 'lee team'. If you have to do unusual amounts of clothes washing it would be a good idea to spread it over a few days.

13.2.2 **Excessive use of Biological washing powders** can cause degradation of the biomass. Non-biological detergents, without enzymes, may be substituted. The use of liquid detergents can be more economical as well as being less detrimental. Avoid excess.

13.2.3 **Floor cleaners, disinfectants and bleaches:** These are safe to use in accordance with the makers recommendations and in the minimum necessary concentration. Do not pour neat disinfectant or bleach down sinks or outside gullies. (If these are smelly it usually indicates a build up of decaying material or a plumbing problem and should be dealt with accordingly.)

13.2.4 **Nappy disinfectants and bottle sterilising fluids:** e.g. Milton. When disposing of the used fluid, ensure that it is well diluted with water, for example by flushing it away down the toilet.

13.2.5 **Waste disposal units:** These do not inhibit the biomass, but, depending on use, they can present the treatment plant with considerable extra load both in terms of organic load and liquid as the grinded product is flushed into the unit. The use of a macerator will probably result in the treatment process becoming unbalanced, leading to problems. We have not allowed for their use in the system design.

13.2.6 **Home beer and wine making:** These present a similar problem to waste disposal units. The unit has to work as hard to treat one pint of beer tipped down the drain as it does to treat all the normal waste produced by one person in 24 hours. The chemicals used to cleanse and sterilise can affect biomass. See also the notes above regarding sterilising fluids.

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13.2.7 THE FOLLOWING MUST NOT BE DISCHARGED INTO THE DRAINS

- Motor oil, grease, anti-freeze, brake fluid etc.
- Cooking oil and fat.
- Weed-killers, insecticides, fungicides and other gardening chemicals.
- Paint, thinners, white spirit, turpentine, creosote etc.
- Chemical drain cleaners/ Commercial cleaning products.
- Acid based brick/stone floor cleaners.
- Medicines (Return unused medicines to a pharmacist for safe disposal)
- Photographic developing fluids.
- Nappies, sanitary towels, rags, soft toys, tennis balls etc. Although such items are not directly damaging to the biomass they can cause problems, not the least of which is simple blockage of the drains. Disposable nappies and sanitary towels and toilet wipes although termed biodegradable, they do not degrade fully within the treatment plant and they can lead to malfunction.

15. MAINTENANCE

Every sewage treatment plant needs regular maintenance as does the upkeep of drainage fields and drains. This is the responsibility of the owner/user.

We recommend that plants are maintained by qualified service personnel, however some self help and an awareness of normal operation is helpful in identification of a larger problem.

If the plant appears not to be operating correctly, refer to the Fault Finding section of this manual.

15.1 MAINTENANCE SCHEDULE

DAILY

15.1.1 Check the operation of the compressor. It should be possible to hear it running by standing close to the unit.

MONTHLY

15.1.2 Check the operation of the compressors (bubbles should be rising in the reactors and media should be seen slowly rotating).

15.1.3 Visually check that the inlet and outlet zones are clear of debris.

15.1.4 Visually check the biomass growth on the filter media. The biomass colours should vary from light brown colour, (not white or grey) to rich brown. Odour from the plant should be 'earthy' and hydrogen sulphide odours ('rotten eggs') should not be present.

15.1.5 Visually check the final effluent. If cloudy or containing many suspended particles, then the humus and/or primary tank is likely to require desludging.

THREE MONTHLY

15.1.6 Assess the depth of the thickness of the floating sludge in the primary and final zones.

15.1.7 Check the blower filter, and replace if necessary. Note: The filter will collect dirt particles from the air and the location of blower/intake will influence the frequency of filter change.

ANNUALLY

15.1.8 The unit is designed to be emptied of sludge every 12 months

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017909-01 - BioCient® Sewage Treatment Tank

16. WARRANTY

16.1 Taken from 'Kingspan's Terms & Conditions of Sale'

16.2 The company will replace or, at its option, properly repair without charge any goods which are found to be defective and which cause failure in normal circumstances of use within a period of twelve months from the date of delivery.

16.3 This warranty is conditional upon:

- (a) the Buyer notifying the Company of any claim within seven days of the failure becoming discernible;
- (b) the Company being allowed a reasonable opportunity to inspect the goods so as to confirm that they are defective;
- (c) the goods not having been modified, misused or misused and being used strictly in accordance with any relevant instructions issued by the Company.

16.4 The Company's liability under this Clause is limited to the repair or replacement of the defective goods, and does not cover costs of transport, installation or associated site costs, if applicable.

16.5 The Company's liability to replace or repair the goods is in lieu of and excludes all other warranties and conditions, and in particular (but without limitation) the Company shall have no liability of any kind for consequential loss or damage.

16.6 For any further advice, please contact us.

16.7 A Warranty Form is included in this package, to register your unit for Warranty. Please complete ALL sections of the Form, and return it at your earliest convenience.

16.8 Also within this package is a Notice, describing the necessary maintenance of the plant in use. This should be fixed within the building.

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017909-01 - BioCient® Sewage Treatment Tank

17. FAULT FINDING

1. COMPRESSOR NOT RUNNING

Cause	Remedy
Power cut	Do nothing. When power is restored the system will restart automatically. Check Mini Circuit Breaker on electrical supply board
Power supply RCD (Residual current Device) tripped	Isolate the power supply and reset the RCD. Switch on the blower, which should start automatically. If not, switch off the power and call an electrician

2. NO EVIDENCE OF AIR BUBBLES RISING THROUGH THE MEDIA

Cause	Remedy
Blower not running	Refer to fault condition 1 Contact our Service company (Details on front cover)

3. MEDIA NOT MOVING

Cause	Remedy
Blower not running	Refer to fault condition 1 Contact Service company

4. NO BIOMASS GROWTH ON MEDIA OR WHITE GROWTH THROUGHOUT BOTH BIOLOGICAL REACTORS

Cause	Remedy
Blower not running	Refer to fault condition 1 Contact service company
Toxic input	Consider each chemical and the amount used within the properties. E.g. washing powders bleaches. Switch to alternative products, consider switch from biological powders to non biological washing liquids and use less per wash

5. SMELL

Cause	Remedy
Blower not running	Refer to fault condition 1 Contact service company
Time for a Desludge	Remove sludge from primary and final compartments

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Contact : Mob 086 050 5454 Email : info@siteassessment.ie Website : www.siteassessment.ie

The information included in this report details the site suitability for a waste water treatment tank and percolation system for single houses less than or equal to 10PE. This report has been completed in accordance with the EPA CoP 2021.



017809-01 – Bioficient® Sewage Treatment Tank	
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Cause	Remedy
Power cut	Do nothing. When power is restored the system will restart automatically. Check Mini Circuit Breaker on electrical supply board
Power supply RCD (Residual current Device) tripped	Isolate the power supply and reset the RCD. Switch on the blower, which should start automatically. If not, switch off the power and call an electrician
2 NO EVIDENCE OF AIR BUBBLES RISING THROUGH THE MEDIA	
Cause	Remedy
Blower not running	Refer to fault condition 1 Contact our Service company (Details on front cover)
3 MEDIA NOT MOVING	
Cause	Remedy
Blower not running	Refer to fault condition 1 Contact Service company
4 NO BIOMASS GROWTH ON MEDIA OR WHITE GROWTH THROUGHOUT BOTH BIOLOGICAL REACTORS	
Cause	Remedy
Blower not running	Refer to fault condition 1 Contact service company
Toxic input	Consider each chemical and the amount used within the properties. E.g. washing powders bleaches. Switch to alternative products. Consider switch from biological powders to non biological washing liquids and use less per wash
5 SMELL	
Cause	Remedy
Blower not running	Refer to fault condition 1 Contact service company
Time for a Desludge	Remove sludge from primary and final compartments
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