

ALAN MORRISSEY & ASSOCIATES
CHARTERED SURVEYORS & PROJECT MANAGEMENT

**SITE SUITABILITY REPORT FOR ON SITE WASTE WATER
TREATMENT AND DISPOSAL SYSTEMS SERVING SINGLE
HOUSES (p.e.<10)
AS PER EPA CODE OF PRACTICE 2009**

**SITE ADDRESS
5 SKEOUGHCLORAN
CALLAN
CO. KILKENNY**



**AMA CARRIED OUT THE EXAMINATION
ON THE 14TH & 15TH OF JANUARY 2019**

CLIENT

KILKENNY COUNTY COUNCIL

**SITE SUITABILITY REPORT FOR ON SITE WASTE WATER
TREATMENT FOR SINGLE HOUSES**

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APP 1

Designed in accordance with CoP Wastewater Treatment & Disposal Systems Serving
Single Houses (p.e. ≤ 10)

APPENDIX B: SITE CHARACTERISATION FORM

File Reference:

1.0 GENERAL DETAILS (From planning application)

Prefix: First Name: Surname:

Address: Site Location and Townland:

Telephone No: Fax No:

E-Mail:

Maximum no. of Residents: No. of Double Bedrooms: No. of Single Bedrooms:

Proposed Water Supply: Mains Private Well/Borehole Group Well/Borehole

2.0 GENERAL DETAILS (From planning application)

Soil Type, (Specify Type):

Aquifer Category: Regionally Important Locally Important Poor

Vulnerability: Extreme High Moderate Low High to Low Unknown

Bedrock Type:

Name of Public/Group Scheme Water Supply within 1 km:

Groundwater Protection Scheme (Y/N): Source Protection Area: SI SO

Groundwater Protection Response:

Presence of Significant Sites (Archaeological, Natural & Historical):

Past experience in the area:

Comments:

(Integrate the information above in order to comment on: the potential suitability of the site, potential targets at risk, and/or any potential site restrictions)

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, 2009) are met and that the likelihood of microbial pollution is minimised.

The potential targets at risk are the ground water and surface water

Note: Only information available at the desk study stage should be used in this section.

3.0 ON-SITE ASSESSMENT

3.1 Visual Assessment

Landscape Position:

Slope: Steep (>1:5) Shallow (1:5-1:20) Relatively Flat (<1:20)

Surface Features within a minimum of 250m (Distance To Features Should Be Noted In Metres)

Houses:

Existing Land Use:

Vegetation Indicators:

Groundwater Flow Direction:

Ground Condition:

Site Boundaries:

Roads:

Outcrops (Bedrock And/Or Subsoil):

Surface Water Ponding: Lakes:

Beaches/Shellfish: Areas/Wetlands:

Karst Features:

Watercourse/Stream*:

Drainage Ditches*:

Springs / Wells*:

Comments:

(Integrate the information above in order to comment on: the potential suitability of the site, potential targets at risk, the suitability of the site to treat the wastewater and the location of the proposed system within the site)

The site would appear to be suitable to treat waste water.

The system ideally should be located to the south-side of the existing dwelling.

The potential targets at risk are the stream to the rear south of the site and the ground and surface water in general.

*Note and record water level

3.2 Trial Hole (should be a minimum of 2.1m deep (3m for regionally important aquifers))

To avoid any accidental damage, a trial hole assessment or percolation tests should not be undertaken in areas, which are at or adjacent to significant sites (e.g. NHAs, SACs, SPAs, and/or Archaeological etc.) without prior advice from National Parks and Wildlife Service or the Heritage Service.

Depth of trial hole (m):

Depth from ground surface to bedrock (m) (if present):

Depth from ground surface to water table (m) (if present):

Depth of water ingress:

Rock type (if present):

Date and time of excavation:

Date and time of examination:

Depth of P/T Test*	Soil/Subsoil Texture & Classification**	Plasticity and dilatancy***	Soil Structure	Density/ Compactness	Colour****	Preferential flowpaths
0.1 m	300mm topsoil SILT					
0.2 m						
0.3 m						
0.4 m	700mm silt CLAY					
0.5 m	Ribbons 80-110mm					
0.6 m	Thread 4no					
0.7 m						
0.8 m						
0.9 m						
1.0 m						
1.1 m	1800mm gravelly CLAY					
1.2 m						
1.3 m	Ribbons 80-120mm					
1.4 m	threads 4-5no					
1.5 m						
1.6 m						
1.7 m						
1.8 m						
1.9 m						
2.0 m						
2.1 m						
2.2 m						
2.3 m						
2.4 m						
2.5 m						
2.6 m						
2.7 m						
2.8 m						
2.9 m						
3.0 m						

Level of P test

Level of T Test

Bottom of Trial Hole

Likely T value:

Note: *Depth of percolation test holes should be indicated on log above. (Enter P or T at depths as appropriate)
 ** See Appendix E for BS 5930 classification.
 *** 3 samples to be tested for each horizon and results should be entered above for each horizon.
 **** All signs of mottling should be recorded.

3.2 Trial Hole (contd.) Evaluation:

We propose to carry out T test at 200mm below surface in the B horizon. Also the P test will be carried out at 400mm down. Having carried out the BS5930 soil sampling process it appears that these depths are the most appropriate to treat waste water with sufficient depth of soil beneath the invert of the proposed pipes. It is assumed from the soil sampling and the BS5930 process that the soil is adequate to deal with both the attenuation and hydraulic issues on site. Because the bedrock is close to e surface additional suitable soil will be required to build up the ground to achieve the correct level of suitable soil beneath the invert of the pipes. A total of

3.3(a) Percolation ("T") Test for Deep Subsoils and/or Water Table

Step 1: Test Hole Preparation

Percolation Test Hole	1	2	3
Depth from ground surface to top of hole (mm) (A)	500	500	500
Depth from ground surface to base of hole (mm) (B)	900	900	900
Depth of hole (mm) [B - A]	400	400	400
Dimensions of hole [length x breadth (mm)]	300 x 300	300 x 300	300 x 300

Step 2: Pre-Soaking Test Holes

Date and Time pre-soaking started	14/01/2019	10:00	14/01/2019	10:00	14/01/2019	10:00
-----------------------------------	------------	-------	------------	-------	------------	-------

Each hole should be pre-soaked twice before the test is carried out. Each hole should be empty before refilling.

Step 3: Measuring T_{100}

Percolation Test Hole No.	1	2	3
Date of test	15/01/2019	15/01/2019	15/01/2019
Time filled to 400 mm			
Time water level at 300 mm			
Time to drop 100 mm (T_{100})	0.00	0.00	0.00
Average T_{100}			0.00

If $T_{100} > 300$ minutes then T-value >90 – site unsuitable for discharge to ground

If $T_{100} \leq 210$ minutes then go to Step 4;

If $T_{100} > 210$ minutes then go to Step 5;

Step 4: Standard Method (where $T_{130} \leq 210$ minutes)

Percolation Test Hole	1			2			3		
Fill no.	Start Time (at 300 mm)	Finish Time (at 200 mm)	Δt (min)	Start Time (at 300 mm)	Finish Time (at 200 mm)	Δt (min)	Start Time (at 300 mm)	Finish Time (at 200 mm)	Δt (min)
1			0.00			0.00			0.00
2			0.00			0.00			0.00
3			0.00			0.00			0.00
Average Δt Value	0.00			0.00			0.00		
	Average $\Delta t/4 =$ [Hole No.1] 0.00 (t ₁)			Average $\Delta t/4 =$ [Hole No.2] 0.00 (t ₂)			Average $\Delta t/4 =$ [Hole No.3] 0.00 (t ₃)		

Result of Test: $T =$ 0.00 (min/25 mm)

Comments:

The 3 test holes were still full of water on inspection on day 2.

Step 5: Modified Method (where $T_{130} > 210$ minutes)

Percolation Test Hole No.	1				2				3			
Fall of water in hole (mm)	Time Factor = T _f	Time of fall (mins) = T _m	$K_{130} = T_{130} / T_m$	T-Value = 4.45 / K ₁₃₀	Time Factor = T _f	Time of fall (mins) = T _m	$K_{130} = T_{130} / T_m$	T-Value = 4.45 / K ₁₃₀	Time Factor = T _f	Time of fall (mins) = T _m	$K_{130} = T_{130} / T_m$	T-Value = 4.45 / K ₁₃₀
300 - 250	8.1				8.1				8.1			
250 - 200	9.7				9.7				9.7			
200 - 150	11.9				11.9				11.9			
150 - 100	14.1				14.1				14.1			
Average T-Value	T-Value Hole 1= (t ₁) 0.00				T-Value Hole 1= (t ₂) 0.00				T-Value Hole 1= (t ₃) 0.00			

Result of Test: $T =$ 0.00 (min/25 mm)

Comments:

3.3(b) Percolation ("P") Test for Shallow Soil / Subsoils and/or Water Table

Step 1: Test Hole Preparation

Percolation Test Hole

	1	2	3
Depth from ground surface to top of hole (mm)			
Depth from ground surface to base of hole (mm)	400	400.00	400
Depth of hole (mm)	400	400	400
Dimensions of hole [length x breadth (mm)]	300 x 300	300 x 300	300 x 300

Step 2: Pre-Soaking Test Holes

Date and Time

pre-soaking started

14/01/2019	10:00	14/01/2019	10:00	14/01/2019	10:00
------------	-------	------------	-------	------------	-------

Each hole should be pre-soaked twice before the test is carried out. Each hole should be empty before refilling.

Step 3: Measuring P_{100}

Percolation Test Hole No.

	1	2	3
Date of test	15/01/2019	15/01/2019	15/01/2019
Time filled to 400 mm	09:40	09:41	09:42
Time water level at 300 mm	10:05	10:15	10:22
Time to drop 100 mm (P_{100})	25.00	34.00	40.00
Average P_{100}			33.00

If $P_{100} > 300$ minutes then P-value >90 – site unsuitable for discharge to ground

If $P_{100} \leq 210$ minutes then go to Step 4;

If $P_{100} > 210$ minutes then go to Step 5;

Step 4: Standard Method (where $P_{100} < 210$ minutes)

Percolation Test Hole	1			2			3		
Fill no.	Start Time (at 300 mm)	Finish Time (at 200 mm)	Δp (min)	Start Time (at 300 mm)	Finish Time (at 200 mm)	Δp (min)	Start Time (at 300 mm)	Finish Time (at 200 mm)	Δp (min)
1	10:05	10:30	25.00	10:15	10:49	34.00	10:22	11:03	41.00
2	10:31	10:57	26.00	10:50	11:25	35.00	11:04	11:46	42.00
3	10:57	11:24	27.00	11:26	12:03	37.00	11:47	12:30	43.00
Average Δp Value	26.00			35.33			42.00		
	Average $\Delta p/4 =$ [Hole No.1] 6.50 (p_1)			Average $\Delta p/4 =$ [Hole No.2] 8.83 (p_2)			Average $\Delta p/4 =$ [Hole No.3] 10.50 (p_3)		

Result of Test: $P =$ **8.61** (min/25 mm)

Comments:

P test results are quite good.

Step 5: Modified Method (where $P_{100} > 210$ minutes)

Percolation Test Hole No.	1				2				3			
Fall of water in hole (mm)	Time Factor = T_1	Time of fall (mins) = T_m	$K_{10} = T_1 / T_m$	P-Value = $4.45 / K_{10}$	Time Factor = T_1	Time of fall (mins) = T_m	$K_{10} = T_1 / T_m$	P-Value = $4.45 / K_{10}$	Time Factor = T_1	Time of fall (mins) = T_m	$K_{10} = T_1 / T_m$	P-Value = $4.45 / K_{10}$
300 - 250	8.1				8.1				8.1			
250 - 200	9.7				9.7				9.7			
200 - 150	11.9				11.9				11.9			
150 - 100	14.1				14.1				14.1			
Average P- Value	P- Value Hole 1 = (p_1) 0.00				P- Value Hole 1 = (p_2) 0.00				P- Value Hole 1 = (p_3) 0.00			

Result of Test: $P =$ **0.00** (min/25 mm)

Comments:

3.4 The following associated Maps, Drawings and Photographs should be appended to this site characterisation form.

1. Discovery Series 1:50,000 Map indicating overall drainage, groundwater flow direction and housing density in the area.
2. Supporting maps for vulnerability, aquifer classification, soil, bedrock.
3. North point should always be included.
4. (a) Sketch of site showing measurements to Trial Hole location and
(b) Percolation Test Hole locations,
(c) wells and
(d) direction of groundwater flow (if known),
(e) proposed house (incl. distances from boundaries)
(f) adjacent houses,
(g) watercourses,
(h) significant sites
(i) and other relevant features.
5. Cross sectional drawing of the site and the proposed layout¹ should be submitted.
6. Photographs of the trial hole, test holes and site (date and time referenced).

¹ The calculated percolation area or polishing filter area should be set out accurately on the site layout drawing in accordance with the code of practice's requirements.

4.0 CONCLUSION of SITE CHARACTERISATION

Integrate the information from the desk study and on-site assessment (i.e. visual assessment, trial hole and percolation tests) above and conclude the type of system(s) that is (are) appropriate. This information is also used to choose the optimum final disposal route of the treated wastewater.

Not Suitable for Development

Suitable for ¹

1. Septic tank system (septic tank and percolation area)
2. Secondary Treatment System
- a. septic tank and filter system constructed on-site and polishing filter; or
- b. packaged wastewater treatment system and polishing filter

Discharge Route

Discharge to Ground Water

5.0 RECOMMENDATION

Propose to install:

and discharge to:

Trench Invert level (m):

Site Specific Conditions (e.g. special works, site improvement works testing etc.)

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, 2009) are met and that the likelihood of microbial pollution is minimised.

The potential targets at risk are the ground water and surface water.

The recommended area required for 8 people and using the Tricel Novo Waste Water Treatment Plant followed by Tricel Puraflow Modules, we need 8m². so allow for 10m² total.

900mm of unsaturated subsoil and 300mm of imported granular material/washed stone (1200mm total) is required beneath the invert of the distribution pipes, as per table 8.1 page 28 of the current EPA new Code of Practice for Wastewater Treatment and Disposal Systems Serving Single Dwelling Houses (p.e.<10).

Approx 1200mm of unsaturated suitable topsoil should be imported to site to cover an area of 10m². the sides should be banked at 45 degrees. a bed of washed 8-32mm stone should be laid over the 60m² at 250mm thick.

Lay the infiltration pipes to the polishing filter on top of this stone. Lay 150mm of same stone above pipes. Lay the geotextile layer above this stone. Lay 300mm of topsoil above geotextile layer. The Tricel Treatment Plant will pump waste water to the Tricel 3no Modules via a pumped rising main. The modules will percolate out to the bed of gravel beneath the modules.

Only washed gravel of 8 - 32mm is to be used.

It should be noted that the ground at the lowest point should be raised appropriately above existing ground level to achieve the appropriate depth of suitable soil beneath the invert of the polishing filter. The new imported topsoil should be tested once same is laid and lightly compacted. please further note that a Primary Holding chamber is also required. from there the waste water should be pumped to the raised polishing filter where the Modules will percolate and the pump will disperse to the 32mm dia network of pipes.

PLEASE REFER TO TRICELS REPORT IN APPENDIX 4.

¹ note more than one option may be suitable for a site and this should be recorded

² A discharge of sewage effluent to "waters" (definition includes any or any part of any river, stream, lake, canal, reservoir, aquifer, pond, watercourse or other inland waters, whether natural or artificial) will require a licence under the Water Pollution Acts 1977-96. Refer to Section 2.6.2.

6.0 TREATMENT SYSTEM DETAILS

SYSTEM TYPE: Septic Tank System

Tank Capacity (m ³)	<input type="text"/>	Percolation Area		Mounded Percolation Area	
		No. of Trenches	<input type="text"/>	No. of Trenches	<input type="text"/>
		Length of Trenches (m)	<input type="text"/>	Length of Trenches (m)	<input type="text"/>
		Invert Level (m)	<input type="text"/>	Invert Level (m)	<input type="text"/>

SYSTEM TYPE: Secondary Treatment System

Filter Systems

Media Type	Area (m ²)*	Depth of Filter	Invert Level
Sand/Soil	<input type="text"/>	<input type="text"/>	<input type="text"/>
Soil	<input type="text"/>	<input type="text"/>	<input type="text"/>
Constructed Wetland	<input type="text"/>	<input type="text"/>	<input type="text"/>
Other	<input type="text"/>	<input type="text"/>	<input type="text"/>

Package Treatment Systems

Type	<input type="text" value="Tricell"/>
Capacity PE	<input type="text" value="8.00"/>
Sizing of Primary Compartment	<input type="text" value="7.00"/> m ³

SYSTEM TYPE: Tertiary Treatment System

Polishing Filter: Surface Area (m ²)*	<input type="text" value="10.00"/>	Package Treatment System: Capacity (pe)	<input type="text" value="8.00"/>
or Gravity Fed:		Constructed Wetland: Surface Area (m ²)*	<input type="text"/>
No. of Trenches	<input type="text"/>		
Length of Trenches (m)	<input type="text"/>		
Invert Level (m)	<input type="text"/>		

DISCHARGE ROUTE:

Groundwater	<input checked="" type="checkbox"/>	Hydraulic Loading Rate * (l/m ² .d)	<input type="text"/>
Surface Water **	<input type="checkbox"/>	Discharge Rate (m ³ /hr)	<input type="text"/>

TREATMENT STANDARDS:

Treatment System Performance Standard (mg/l)	BOD	SS	NH ₄ - N	Total N	Total P
AS PER MANUFACTURERS INSTRUCTIONS	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

QUALITY ASSURANCE:

Installation & Commissioning

AS PER MANUFACTURERS INSTRUCTIONS

On-going Maintenance

AS PER MANUFACTURERS INSTRUCTIONS

* Hydraulic loading rate is determined by the percolation rate of subsoil

** Water Pollution Act discharge licence required

7.0 SITE ASSESSOR DETAILS

Company: ALAN MORRISSEY & ASSOCIATES

Prefix:

Mr.

First Name: ALAN

Surname: MORRISSEY

Address: 3 GARDEN ROW, KILKENNY

Qualifications/Experience: FETAC QUALIFIED - CHARTERED SURVEYOR

Date of Report: 17/01/2019

Phone: 0877981696

Fax:

e-mail

info@amaa.ie

Indemnity Insurance Number: 012PI3269845

Signature:



Alan Morrissey & Associates
3 Garden Row, Kilkenny

Tel:0567751111 / 0877981696
info@amaa.ie

APP 2

Designed in accordance with CoP Wastewater Treatment & Disposal Systems Serving
Single Houses (p.e. ≤ 10)

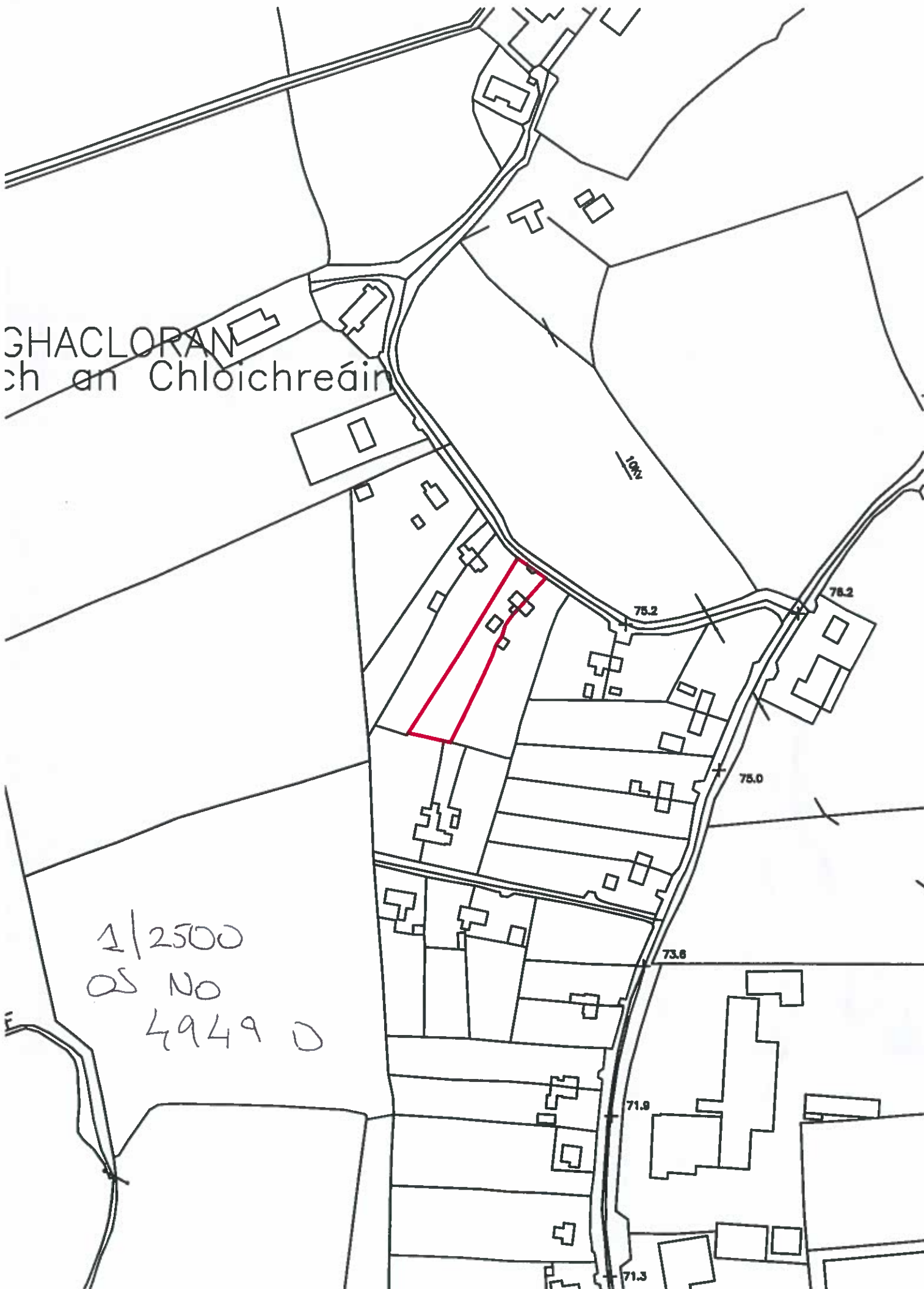
- **EPA WEBSITE**
- **GSI WEBSITE**
- **OSI MAPS**
- **KILKENNY COCO WEBSITE**

Alan Morrissey & Associates
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Tel:0567751111 / 0877981696
info@amaa.ie

APP 3

Designed in accordance with CoP Wastewater Treatment & Disposal Systems Serving
Single Houses (p.e. ≤ 10)



GHACLORAN
ch an Chloichreáin

1/2500
OS No
4949 D

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73.6

71.9

71.3

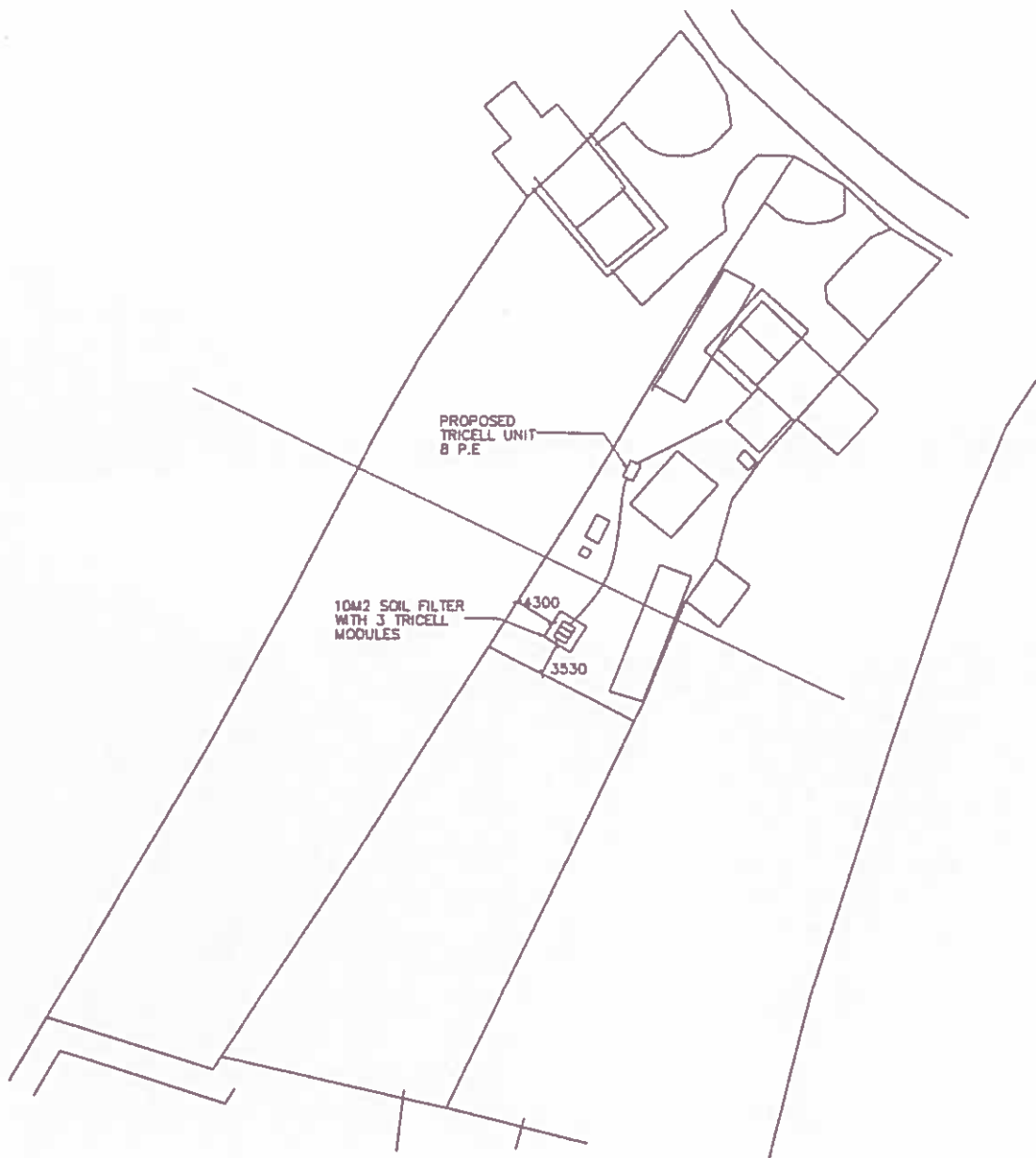
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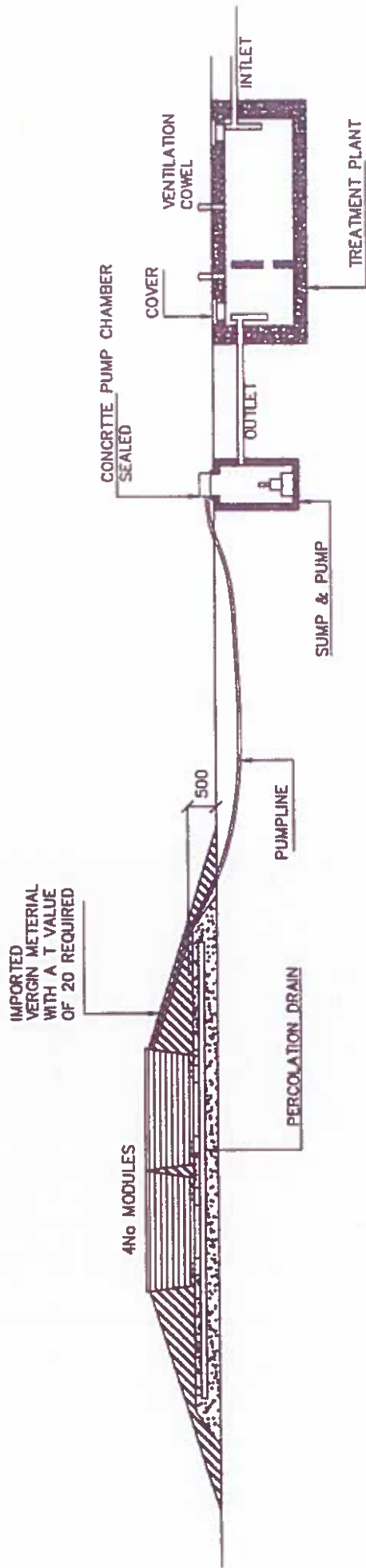
Alan Morrissey & Associates
3 Garden Row, Kilkenny

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info@amaa.ie

APP 4

Designed in accordance with CoP Wastewater Treatment & Disposal Systems Serving
Single Houses (p.e. ≤ 10)





SECTION THROUGH TRICELL
TANK AND TRICELL MODULES
SCALE 1:100.

Tricel Site Recommendation Report

Tricel Novo Package Plant with Tricel Puraflo Tertiary Treatment



Date	17/01/2019
Report No:	SA6_KK_4752
Client Name	Kilkenny County Council
Site Location & Townland	no. 5, Skeoughacloran, Callan, Kilkenny Tel: 0567751111 Email: alan@amaa.ie

Thank you for choosing Tricel for your wastewater treatment requirements. This report contains the following information for your site and is based on a population of 8 and a P/T value of between 3-20.

Please see outlined below the accompanying documents:

Section 1 - Information on the Tricel Novo and Puraflo modules

- Manufacturers report sizing the Tricel Novo
- Manufacturers report sizing the Puraflo modules
- Drawing of the Tricel Novo
- Drawing of the Tricel Puraflo
- Certification of the selected Tricel Novo Package Plant
- Pump selection and technical data
- Tricel Novo brochure
- Tricel Puraflo brochure
- Optional Tricel Novo Maintenance Agreement
- Optional Tricel Puraflo Maintenance Agreement

Section 2 - Information on the infiltration area

- Infiltration area sizing
- Infiltration area separation distances

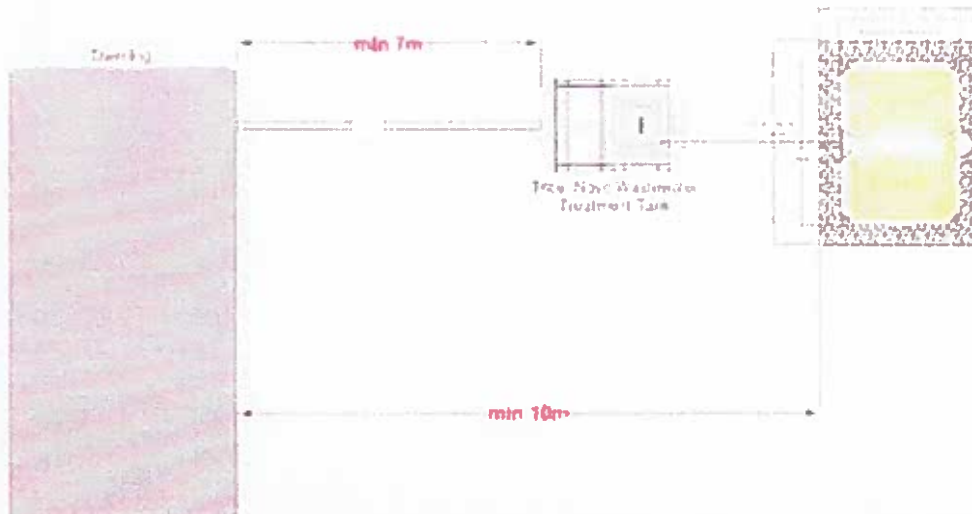
Based on the information provided to us, using SR66 and the EPA Code of Practice: Wastewater Treatment and Disposal Systems Serving Single Houses (p.e. ≤ 10), the appropriate solution for treating wastewater on your site is a Tricel Novo waste water treatment plant followed by Tricel Puraflo modules discharging to a gravel distribution area. The Tricel Novo provides secondary treatment using submerged aeration filter technology. After the Tricel Novo the wastewater is pumped into the Tricel Puraflo modules. The Tricel Puraflo modules are filled with biofibrous peat. The wastewater from the Tricel Novo is distributed over the top of the peat filter using a specially designed pipe network. Through a combination of biological, chemical and physical processes the peat treats the wastewater as it filters through. At the outlet of the Puraflo modules the tertiary treated wastewater is discharged into the in situ subsoil through a gravel distribution area.

Tricel Site Recommendation Report

Tricel Novo Package Plant with Tricel Puraflo Tertiary Treatment



Typical Plan layout of a Tricel Novo with Puraflo tertiary treatment.



For your site we recommend a Tricel Novo IRL8 wastewater treatment plant which is designed to treat a maximum of 1200 litres of wastewater per day. This recommendation is based on the EPA Code of Practice which states the plant selection should be based on a hydraulic loading of 150l/per person /per day. The Novo IRL8 has a capacity of 4000 litres, of which 1900 are in the primary chamber, this ensures a long desludging interval. The Tricel Novo range of wastewater treatment plants is fully in conformance with EN12566-3 and complies with SR66.

The Tricel Novo pumped plant contains a BEST FOUR pump based on an the Length of Rising Main 30.0 metres and Difference in Height of Rising Main 1.5 metres. The plant outlet is fitted with a 38mm compression fitting for connection to a rising main of 38mm internal bore pipework. Details and pump specifications are contained in section 1.

For tertiary treatment with a PE of 8 a total of 3 Puraflo modules are required to ensure the loading rate of the biofibrous peat per day is not exceeded. The gravel distribution area required underneath the Puraflo modules, as set out in the EPA Code of Practice Clarification February 2012, should be sized based on the following formula: $\text{Area} = 0.125 \times \text{TI} \times \text{PE}$

Note:

In the above named site, a substitute wastewater treatment system may not be put in place of the Tricel wastewater treatment system.

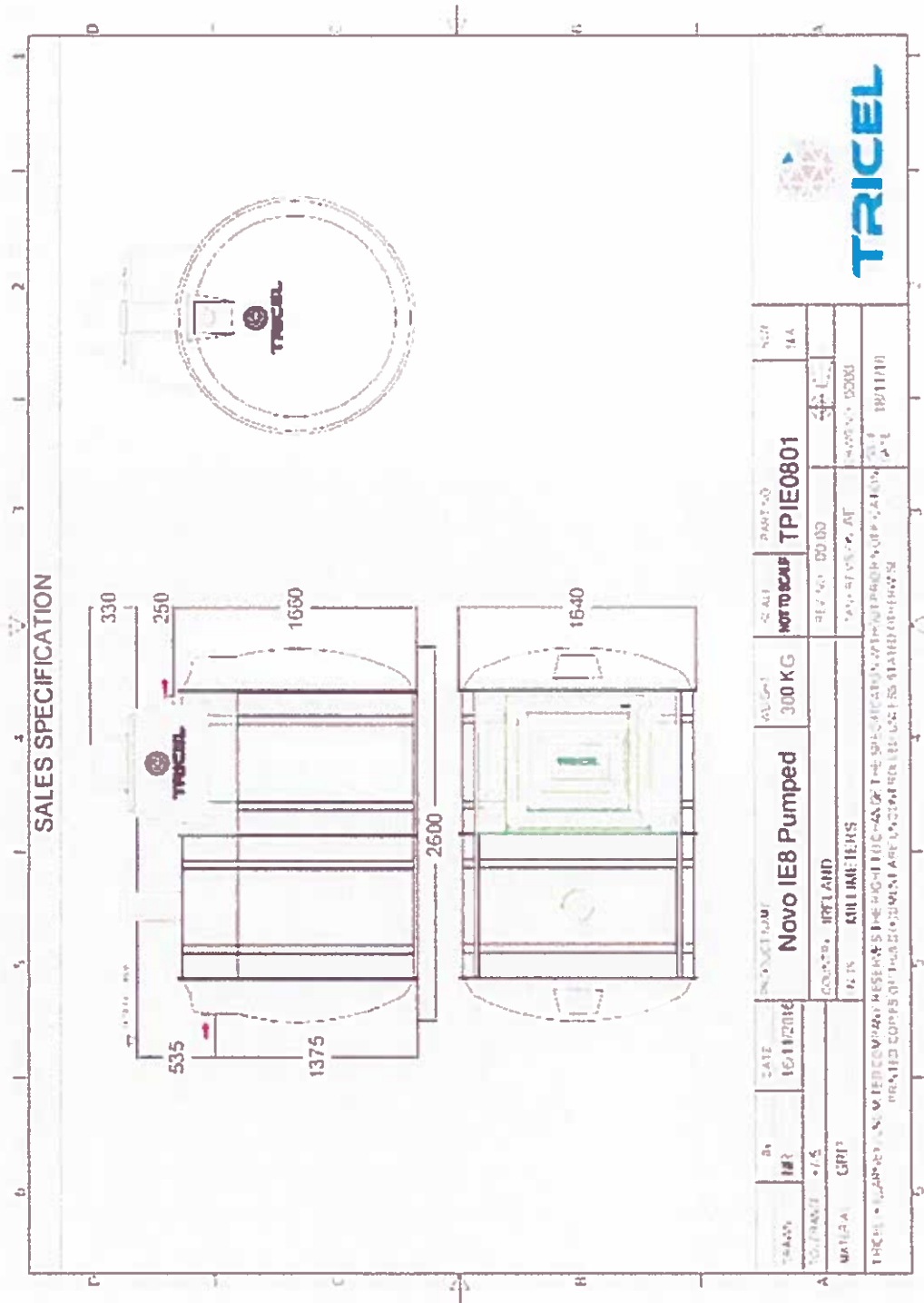
This recommendation only applies to the above named site based on the information supplied to Tricel. A Site Characterisation Form should accompany this report. Tricel cannot be responsible for misinformation due to misleading information being received by us from clients.

Please see attached the accompanying documents in Section 1 for the Novo Package Plant with Tricel Puraflo and Section 2 for the infiltration area.

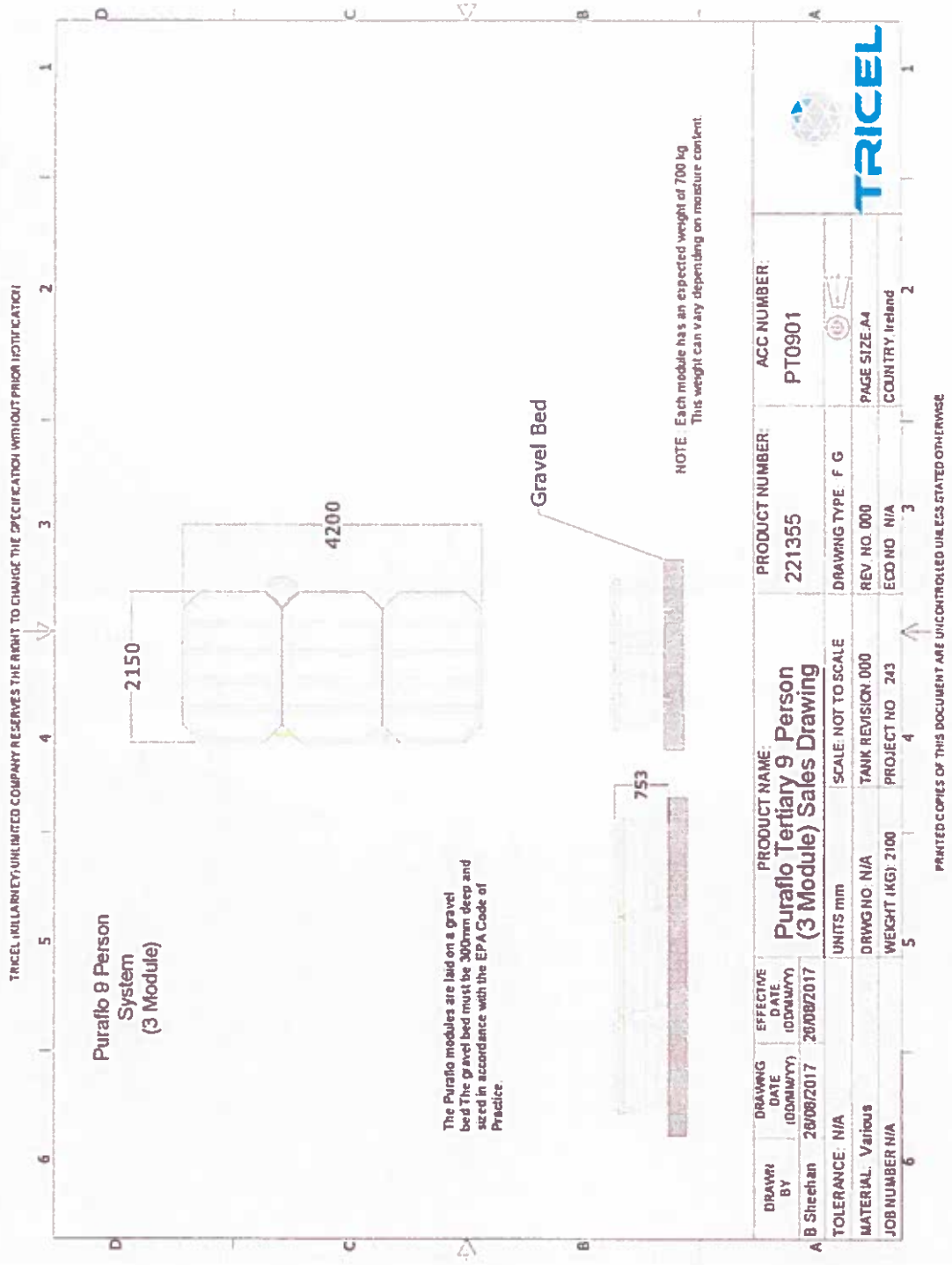
Tricel Site Recommendation Report
 Tricel Novo Package Plant with Tricel Puraflo Tertiary
 Treatment




Section 1



Tricel Site Recommendation Report
 Tricel Novo Package Plant with Tricel Purafluo Tertiary
 Treatment



Certificate in accordance with SR66 for EN12566-Part 3



TREATMENT PERFORMANCE RESULTS





Tricel (Killarney)
 Ballyspillane Industrial Est., Killarney, Co. Kerry, Ireland
EN 12566-3
 Results corresponding to EN 12566-3 and S R 66
 PIA-SR66-1512-1052
Novo
 Submerged fixed film


Nominal organic daily load	0.06 kg/d	
Nominal hydraulic daily load	0.04 m ³ /d	
Material	Glass reinforced plastic	
Welding process	Plas	
Structural behaviour (Calculation)	Plas (also welded joints)	
Durability	Plas	
Treatment efficiency (Nominal services)		Efficiency Effluent
	CO ₂	11.6 % 52 mg/l
	BOD ₅	95.9 % 11 mg/l
	NH ₄ -N	70.0 % 8 mg/l
	SS	95.0 % 10 mg/l
Rated cost of desludging	Manual 1000 l/d	
Electrical consumption	1.1 kWh/d	

Performance tested by

PIA – Prüfinstitut für Abwassertechnik GmbH
 (PIA GmbH)
 Hergersrather Weg 30
 52074 Aachen, Germany

It is hereby confirmed that the results of the performance test are in accordance with the CE marking.











B11110106 July 2010



Novo range and its referring test reports

Population equivalent (PE)	Drawing of model of the range	Watertightness (EN 12566-3 Annex A)	Treatment Efficiency (EN 12566-3 Annex B)	Structural Behaviour (EN 12566-3 Annex C)	Durability
Initial Type Test (ITT) 5		Pass PIA2009-WD-AT0909-1055 PIA2015-WD/NC-1404-1021 01 PIA2015-WD/NC-1405-1031 01	Pass PIA2010-1001/05Site	Pass For wet ground conditions also, 1.25 m installation depth from inlet invert	Pass PIA2015-D11-1504-1023 01
6		Pass PIA2009-WD-AT0909-1055 PIA2015-WD/NC-1404-1021 01 PIA2015-WD/NC-1405-1031 01	Pass Range conformity according to S.R. 66:2015	Pass For wet ground conditions also, 1.25 m installation depth from inlet invert	Pass PIA2015-D11-1504-1023 01
8		Pass PIA2009-WD-AT0909-1055 PIA2015-WD/NC-1404-1021 01 PIA2015-WD/NC-1405-1031 01	Pass Range conformity according to S.R. 66:2015	Pass For wet ground conditions also, 1.25 m installation depth from inlet invert	Pass PIA2015-D11-1504-1023 01

GENERAL SITE WORKS

REMOVE EXISTING DRIVEWAY WITH INTERLOCKED CONCRETE PAVING TO PROVIDE TARMACQUAM SURFACE TO SHARED ENTRANCE JOINTS & EXISTING ROAD EDGE

TARMACQUAM AREA BETWEEN EXISTING ROAD AND NEW SITE BOUNDARY NOT TO EFFECT THE EXISTING ROAD DRAINAGE. CONTRACTOR TO ALLOW FOR ROUTING ANY ADDITIONAL SURFACE WATER BACK TO NEW DRAINAGE OR EXISTING ROAD DRAINAGE IF REQUIRED

REMOVE EXISTING DRIVEWAY SURFACING TO MAKE 4 FOOT WIDE TO FRONT DOOR

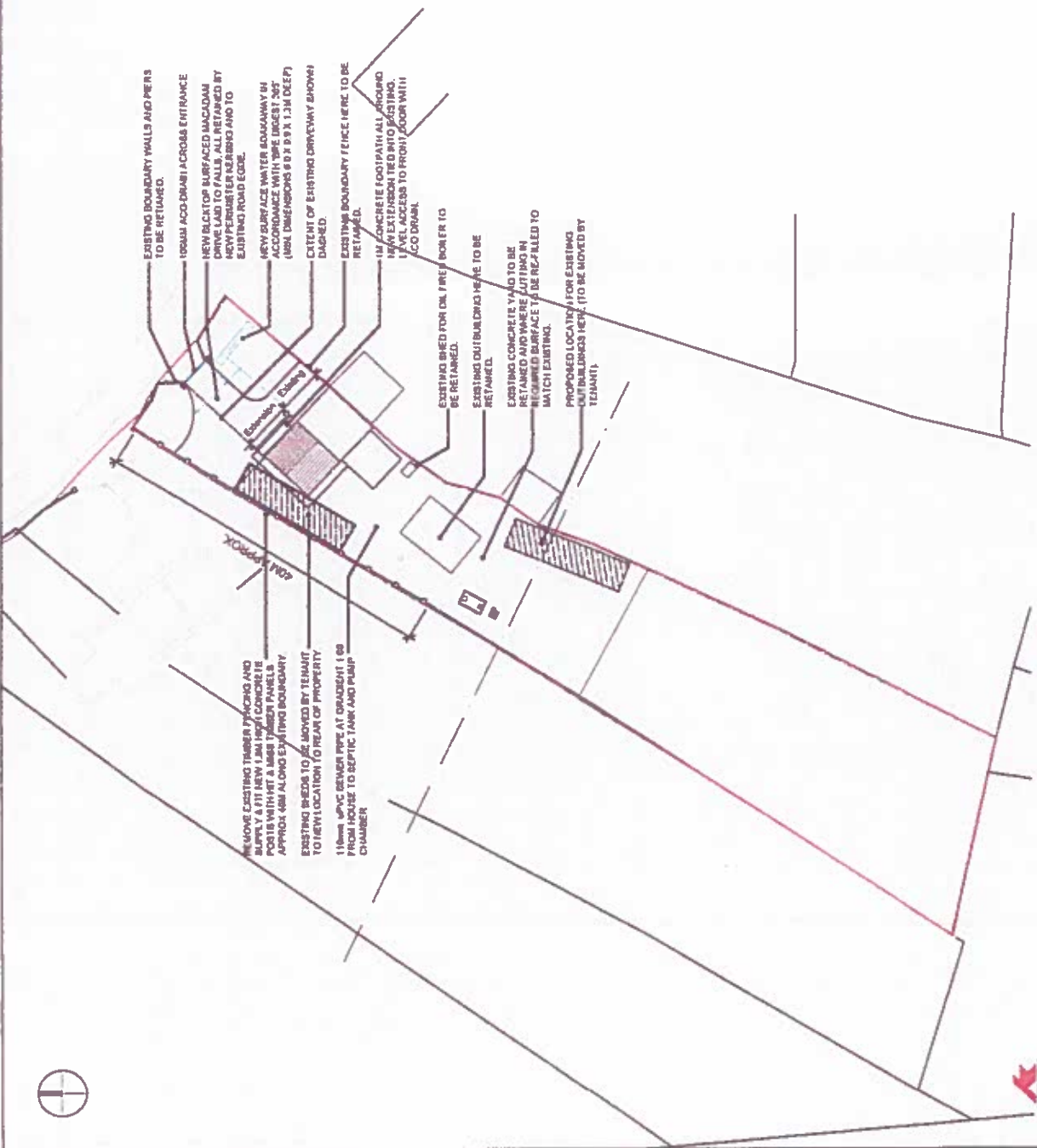
LEVEL ALL GRASS AREA TO EXISTING SITE TOPSOIL AND SEED AS NECESSARY TO PROVIDE A NEW LAWN

UTILITIES

CONNECTION TO APPLY FOR A NEW FIBRE CONNECTION. ALL WARES SHALL BE NEW CONNECTIONS TO INCLUDE: WATER, GAS, ELECTRICITY AND FIBRE. TO BE THE RESPONSIBILITY OF THE CONTRACTOR

LINE & BOUNDARY CONNECTIONS AND WORKS TO BE THE RESPONSIBILITY OF THE CONTRACTOR

NEW PERCOLATION AREA, SEPTIC TANK AND PUMP CHAMBER



EXISTING BOUNDARY WALLS AND PENS TO BE RETAINED.

VEHICLE ACCOMMODATION ACROSS ENTRANCE

NEW BACKTOP SURFACED TARMACQUAM DRIVE LEAD TO FALLS, ALL RETAINED BY NEW PERIMETER KERBS AND TO EXISTING ROAD EDGE.

NEW SURFACE WATER DRAINAGE BY ACCORDANCE WITH TYPE (B) 8 X 9 X 1.3M DEEP (USUAL DIMENSIONS 600 X 900 X 1.3M DEEP)

EXTENT OF EXISTING DRIVEWAY SHOWN DASHED.

EXISTING BOUNDARY FENCE HERE TO BE RETAINED.

1M CONCRETE FOOTPATH ALL AROUND NEW EXTENSION TIED INTO EXISTING. LEVEL ACCESS TO FRONT DOOR WITH 1:10 DRAIN.

EXISTING BUILDING FOR OIL FUEL BUNKER TO BE RETAINED.

EXISTING OUT BUILDINGS HERE TO BE RETAINED.

EXISTING CONCRETE YARD TO BE RETAINED AND WHERE APPROPRIATE SURFACE TO BE RECALLED TO MATCH EXISTING.

PROPOSED LOCATION FOR EXISTING OUT BUILDINGS HERE (TO BE MOVED BY TENANT).

REMOVE EXISTING TIMBER FENCING AND SUPPLY A 1.1M NEW 1.1M HIGH CONCRETE POSTS WITH 100 X 100mm TIMBER PANELS APPROX 400mm ALONG EXISTING BOUNDARY

EXISTING SEEDS TO BE MOVED BY TENANT TO NEW LOCATION TO REAR OF PROPERTY

110mm PVC BENCH PIPE AT GRADIENT 1:60 FROM HOUSE TO SEPTIC TANK AND PUMP CHAMBER

NO.	DATE	DESCRIPTION

HOUSING TECHNICAL SECTION

Kilkenny County Council
County Hall, John Street, Kilkenny

Tel: 051 774000
Fax: 051 774000
Email: info@kilkenny.ie
Website: www.kilkenny.ie

Serving People - Preserving Heritage

PROJECT	PLANNING	DESIGN	CONSTRUCTION
PHASE 1			
SITE LAYOUT PLAN			
SCALE	1:500	DATE	OCT 2018
DRAWN BY		CHECKED BY	
REF NO.	111160031		
ALL DIMENSIONS GIVEN UNLESS OTHERWISE SPECIFIED. ALL DIMENSIONS GIVEN UNLESS OTHERWISE SPECIFIED.			

Site layout plan. Scale 1:500.

Comhairle Chiontae Chill Channigh
1100m PVC BENCH PIPE AT GRADIENT 1:60 FROM HOUSE TO SEPTIC TANK AND PUMP CHAMBER



Alan Morrissey & Associates
3 Garden Row, Kilkenny

Tel:0567751111 / 0877981696
info@amaa.ie

APP 5

Designed in accordance with CoP Wastewater Treatment & Disposal Systems Serving
Single Houses (p.e. ≤ 10)

TRIAL HOLE



BS 5930 PROCESS



P3



TRIAL HOLE



TRIAL HOLE MATERIAL



P2



TRIAL HOLE



TRIAL HOLE MATERIAL



P1



T2 PRE SOAK DAY 1



T1 PRE SOAK DAY 1



P3 PRE SOAK DAY 1



P2 PRE SOAK DAY 1



R PRE SOAK DAY 1



TEST AREA



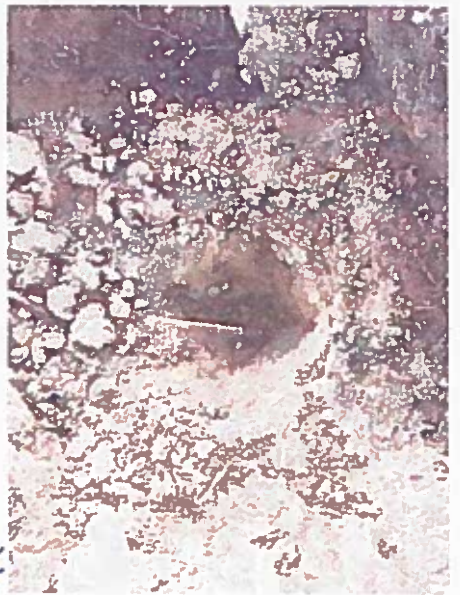
T3



T2



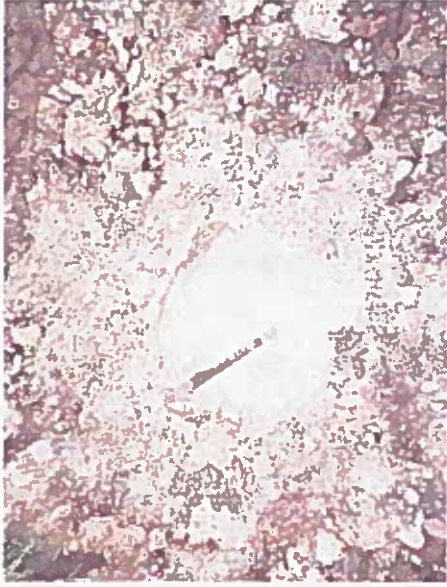
T1



P2 DAY 2



T2 DAY 2



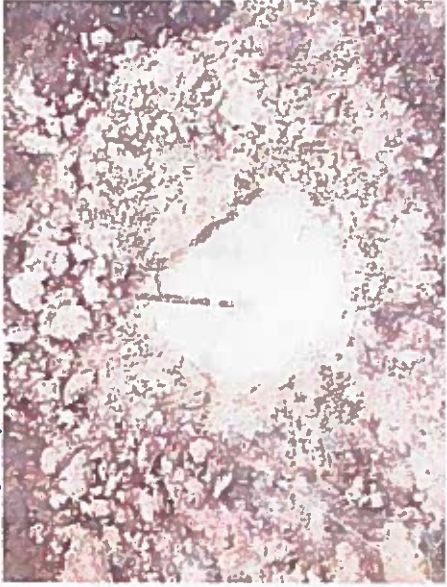
P2 TEST DAY 2



P1 DAY 2



T1 DAY 2



P1 TEST DAY 2



T3 PRE SOAK DAY 1



P3 DAY 2



T3 DAY 2



TEST AREA



TEST AREA



P3 TEST DAY 2



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APP 6

Designed in accordance with CoP Wastewater Treatment & Disposal Systems Serving
Single Houses (p.e. ≤ 10)

GLENNON

Frank Glennon Limited
Insurance Brokers & Consultants
Charlemont House, Charlemont Place, Dublin 2
Telephone 707 5800. Fax 707 5900
www.glennons.ie

PROFESSIONAL INDEMNITY INSURANCE CERTIFICATE

We hereby confirm that the undernoted Firm is insured for the risks of Professional Negligence as per the details shown.

Alan Morrissey Surveying
Chartered Surveyors & Project Management
12 Parliament Street
Kilkenny

Insurer : Zurich Insurance PLC
Policy Number : 01 ZPI 3269845
Limit of Indemnity : €1,000,000 any one claim/incident
Unlimited any one Period of Insurance
Policy Excess : €5,000 each and every claim/incident but €10,000 for
valuation reports
Period of Indemnity: From - 31st October 2018
To - 30th October 2019
Policy Wording : Surveyors Wording
Retro-Active Date : None
Jurisdiction Limits: Worldwide, excluding U.S.A./Canada territories

SIGNED: [Signature]

DATE : 30/10/2018

This document is intended to provide brief details of cover only. For full policy terms, conditions and exclusion please refer to Policy Documentation.