

AN INVESTIGATION INTO THE USE OF SEPTIC TANKS IN NORTHERN IRELAND

BACKGROUND

Sewage treatment and disposal can be provided in two ways. Ideally this would be through the main sewer service (that is the public 'foul' sewer) which in Northern Ireland is provided by Northern Ireland Water (NIW). However, in Northern Ireland few buildings (in the countryside) will be within the reach of public water borne sewerage system and therefore it will be necessary for a private sewage treatment system¹.

Private sewage treatment systems will most commonly employ a septic tank or other similar appliances which can be used to receive and store domestic waste. These include a domestic treatment plant which is a manufactured appliance that is powered electrically and a cesspool which collects waste and must be emptied regularly as it does not have an outlet pipe or drain.

SEPTIC TANKS IN NORTHERN IRELAND

The Northern Ireland Environment Agency (NIEA) has records relating to 104,512 consented domestic septic tanks - and 2,330 consented trade and commercial septic tanks. The figure of 2,330 in relation to consented trade and commercial septic tanks also contains applications which were withdrawn / refused and reviewed and therefore cannot be considered as accurate.

NIEA are aware that there are a number of un-consented septic tanks that were installed pre October 2001 before the regulations were introduced. An exercise to identify and regularise such tanks is currently being considered².

Regardless of when a septic tank was constructed or installed, Discharge Consent under the Water (Northern Ireland) Order 1999 is required. This consent must be obtained from the Water Management Unit of Environment and Heritage Service (EHS), an executive agency within DOE. This discharge consent is an important legal document which must be produced when selling a property which has a septic tank.

¹ PSU 9 – Septic Tanks Policy (This is currently under review by Draft PPS14 – Sustainable Development in the Countryside)

² Department of the Environment (DOE)

PLANNING REQUIREMENTS

The planning process surrounding the use of septic tanks crosses between two separate but complementary systems of control and regulation. As discussed, under the Water (Northern Ireland) Order 1999, Consent to discharge effluent must be obtained from the EHS. However, planning applications for housing in the countryside are often submitted prior to the submission of applications for consent to discharge water. Therefore the planning authority considers whether or not this permission is likely to be given. If this is not likely to be given then planning permission will be denied at this stage.

This emphasises the importance of ensuring the land is suitable at the earliest possible stage of the development i.e. pre planning as information such as ground conditions, soil and groundwater characteristics as well as any details of adjoining or existing properties will all be required at the planning stage. In addition the application will need to have drawings accurately showing the proposed location for the soakaways, and of drainage ditches and watercourses in the immediate vicinity. It is also necessary for all the apparatus to be on land owned by the applicant.

In the cases where the consent has already been given the planning authority requires a copy of this to be submitted with the planning application.

BUILDING REGULATIONS

Modern septic tanks are generally manufactured appliances and as such are required to be British Board of Agrément (BBA) approved in line with the British Standard (BS 6297:1983 with amendment 6150:1990). Information on the specification of septic tanks and installation is provided in annex 1.

The legislation which deals with Septic Tanks is the Building Regulations (Northern Ireland) Act 2000. Septic Tanks are addressed in section N which deals with drainage. Section N6 has a series of rules which apply to septic tanks and similar appliances:

- They must be impervious to liquid from both internal and external sources
- They must be sited in a place where they cannot cause pollution to a waterway
- There must be sufficient access for cleaning and emptying
- They must not be too close to a building where they could potentially cause nuisance or damage health
- Cesspools carry slightly different regulations than other appliances, they must be:
 - Of a suitable depth so they can be emptied completely
 - Properly covered
 - Fitted with suitable cover so as to allow access
 - Of a capacity, measured below the level of the inlet, of not less than 18m³

- Other appliances must be:
 - Of a suitable depth
 - of adequate size, having in no case a capacity of less than 2.7 m³
 - Covered or fenced in
 - If covered they must be adequately ventilated with a means of access
 - They must be fitted with a filter or other treatment facility

MAINTAINING A SEPTIC TANK

One of the conditions of the Consent to Discharge is the agreement of the holder to ensure that the septic tank is desludged at least once every 12 months. In addition the responsibility for the tank and connecting pipe work is the responsibility of the owner. It is therefore recommended that, in addition to the desludging that some time is spent ensuring that the system is operating effectively. Northern Ireland Water provides a number of suggestions which highlight the basic tasks which will help ensure the effective work of the septic tank. These include:

- Ensuring that surface water or roof water do not run into the tank, reducing its capacity and causing it to fail thereby putting the user in breach of their consent order;
- Check the effluent to make sure the tank does not need emptied;
- Make sure the tank has a secure cover;
- Make sure vents are clear from debris
- Ensure safe access to the tank is available

In order for the tank to be desludged a tanker needs access to the property of at least 3.5m wide along the route which is clear of obstruction and of a gradient no steeper than 1: 15. The vehicles further requires an all weather area that can support a weight of 18 tonne and is within 30 metres of the tank. The all weather area must not be more than 1.2m above the level of the tank³.

Other measures which will help with the efficient running of the septic tank include:

- Reducing the amount of bleach poured down the toilet;
- Reduce household water use;
- Avoiding the installation of a waste disposal system
- Having the septic tank inspected every few years
- Using OE42 to maintain and optimize natural biological activity
- Not pouring grease, coffee grounds, medicines, solvents and other chemicals down the household drain

THE ROLE OF NORTHERN IRELAND WATER WITH SEPTIC TANKS

Northern Ireland Water offer provide a discretionary service for the disposal of tankered waste. Each domestic customer is entitled to one free tank service each year. Subsequent requests for collection and treatment of sewage are charged for.

³ Northern Ireland Water.

ENVIRONMENTAL DAMAGE FROM SEPTIC TANKS

In many cases septic tanks in Northern Ireland are required to accommodate single dwellings in the countryside which are not able to access the main sewage system. Friends of the Earth (FOE) comment that “many of these septic tanks are badly sited and poorly maintained resulting in sewage leaks into Loughs, rivers, streams and sheughs as well as into ground water”⁴.

The council for Nature, Conservation and the Countryside (CNCC), who are the statutory advisory council appointed to advise Government on conservation matters provide evidence that supports this view from FOE stating that:

1. An estimated 60 per cent of septic tank discharges in the Loughs Neagh area are reaching surface waters.
2. 17 per cent of homes in Northern Ireland use septic tanks, compared with a UK average of just 4 per cent.
3. 12 per cent of phosphate pollution reaching Lough Erne comes from septic tanks.
4. 14 per cent of phosphate pollution reaching Lough Neagh comes from septic tanks.
5. Many septic tanks are not regularly desludged
6. The number being emptied regularly is likely to diminish when charges are introduced as part of the Water Reform process.
7. About 90 per cent of water bodies in Northern Ireland are at risk of not achieving the water quality standards required by the Water Framework Directive.

This is clear evidence that there is in fact a great deal of environmental damage being caused by septic tanks in Northern Ireland particularly in key waterways like Lough Erne and Lough Neagh. However, there is also a paucity of data on this subject.

⁴ Friends of the Earth (2006) “Planning Policy Statement 14”. Briefing Paper. FOE: Belfast

ANNEX 1

When installed the tank should be not less than 1200 mm deep below TWL (top water level) and input to the tank should be by a pipe feeding at a depth of not less than 450mm below TWL. The pipe should be laid as flat as possible and in a direct line to the centre of the tank to reduce turbulence. The output pipe should be 250 mm below the inlet pipe.

It is essential that the sewage is held in the tank long enough for decomposition to take place. If the tank is too small the resulting discharge will be even more polluting than normal and may even include what are known as "gross solids". These may block pipe-work, clog the bio-filter or block the soakaways or may even be discharged direct to the environment leading to pollution, land affected by "sewage sickness", risk of rat infestation and disease. British Standards (BS: 6297) provide a formula to surmise what size a tank should be:

$$C = (180P + 2,000)$$

Where C is the size of the tank in litres and P is the population to be served assuming the tank is desludged on an annual basis and also counting children as adults.

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