

# Private Drainage



Most properties in the UK are connected to a public mains sewer which collects effluent from the foul drains and conveys it to a central sewage treatment works for processing. However, particularly in rural areas, some properties have private drainage installations because the public main sewer is not available nearby.

## Type of drainage

There are two main types of private drainage, which may be shared with adjacent properties, and may sometimes be sited on an adjoining site. These are septic tanks and cesspools (the latter are often referred to as cesspits). Much less common, but becoming increasingly more so, are self-contained treatment plants. Each of these installations must be located such that there is no risk of contamination of watercourses or wells nearby.

## Traditional septic tanks

A traditional septic tank installation consists of two or more large underground settlement chambers built of either brickwork or concrete. Effluent is piped into the first chamber, where heavier solids sink to the bottom and lighter materials such as fat and grease float on the surface.

Pipes within the chambers ensure that the surface layer (known as a crust) is not disturbed. This is important in order to ensure that the contents of the chamber are not in contact with the air.

Anaerobic bacteria which cannot survive in contact with the air break down the materials within the chamber causing a dense sludge to form at the bottom of the chamber. A system of pipes allows excess effluent to flow into the second chamber, where further settlement of finer solids and further treatment by bacteria occurs.

Finally, the remaining effluent, which by this time is relatively clear in appearance, is drained to a series of underground perforated pipes which act as a soakaway. The effluent then seeps into the ground.

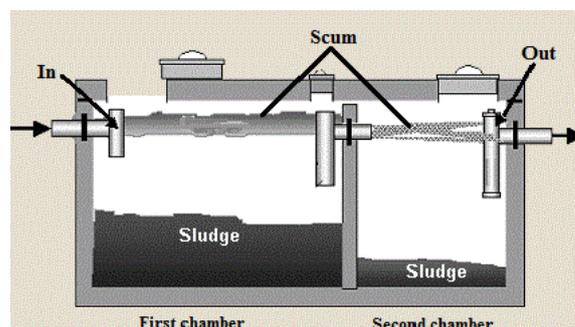
Each settlement chamber requires a vent to the open air to allow sewer gases to dissipate.

## Modern pre-formed septic tanks

In recent years pre-formed septic tanks have largely replaced the installation of the traditional septic tanks. These are installed below ground level and connected to inlet and outlet drains as for the traditional type of septic tank. The processes which occur within the unit are exactly the same, since the chambers are formed within the unit. Modern pre-formed tanks are quick and easy to install with a typical installation being completed within a day.



Old two chamber septic tank



Modern preformed septic tank

## Maintenance

Most septic tank installations work efficiently, and give little trouble, but regular maintenance is required.

Private drainage systems (in particular the older septic tanks and cess pools) and the drainage pipes which connect to them are vulnerable to damage from shrubs and trees. Any existing shrubs and trees nearby should be maintained to prevent them increasing in size and the spread of their roots causing damage to drainage systems. Ideally it might be necessary to remove shrubs and trees situated too closely to private drainage systems.

Also avoid planting trees, shrubs or fruit bushes in the vicinity of cess pools and septic tanks. In addition to the normal risk of root penetration into faulty mortar it should be noted that the outflow pipe from a septic tank might be either a porous field drain (clay drain or a slotted plastic pattern). The roots from trees and shrubs can completely block such pipes in a relatively short period.

It is important to ensure that the system operates efficiently. If it becomes overloaded by an excess volume of effluent, this will pass through too quickly and will not be fully broken down. This may cause pollution of the surrounding sub-soil, and will probably result in solids being washed into the soakaway pipes, causing an obstruction to build up. It is therefore necessary to ensure that the system is of sufficient capacity to cope with the expected volume of effluent from the property.

Storm water must not be discharged into the foul drains since the effluent will be diluted and greatly increased in volume such that the treatment process will be impaired.

The use of bleaches and other household cleaners which will be discharged with the effluent will tend to harm the bacteria which break down the effluent, and this will also result in solids passing through to the soakaway pipes. Special detergents are available which are suitable for use with septic tank installations.

Over a period of time, which will vary according to the volume of effluent treated, the sludge in the settlement chambers will build up to the point where the effective volume of the installation is significantly reduced. At this stage the chambers must be pumped out by a local contractor who specialises in such work. The sludge is taken away for disposal elsewhere. It is important to have the system inspected at regular intervals in order to identify a need for attention at an early stage.

If the level of effluent within the chambers is above the normal level this may be an indication that the soakaway pipes are not draining effluent away at an adequate rate. This may happen because the pipes are obstructed or the local water table (the level of water within the sub-soil) is raised such that effluent cannot be readily absorbed into the ground. The contractors engaged to empty the chambers can usually arrange for the soakaway pipes to be cleaned with high pressure water jets.

If the effluent is seen to be below the normal level this might indicate that there is a leak from the chamber. This is potentially very serious since significant pollution of the surrounding ground may occur. Leaks are most likely in the case of a very old installation.

If the pipes within the chambers are broken, the surface of the effluent will be disturbed, and this will hinder the normal treatment process. This will lead to the problems described above.

Any required repairs should be carried out by suitably qualified contractors.

## Cesspools

Where there is insufficient space for soakaway pipes adjoining a septic tank, or the sub-soil is not sufficiently porous a cesspool can be used. Also known as a cesspit, it is simply a large underground chamber which collects effluent discharged by the foul drains. Older chambers may be built of brick or concrete, and more modern installations are usually pre-formed.

When the chamber is full it must be emptied by a specialist contractor. The contents are taken away for disposal. In many cases the cesspool will need to be emptied at intervals of around 14 days, but this will vary with the volume of the chamber and the quantity of effluent discharged from the property. If the cesspool becomes too full there is a risk of pollution of the surrounding area.



A modern package treatment plant

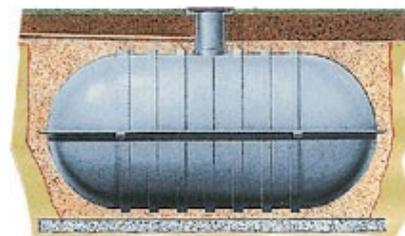
## Treatment plants

This form of private drainage is becoming increasingly popular because the effluent is recognised as being cleaner than that discharged from a septic tank. When the site is tight and/or there is more than one house involved they have become the preferred private drainage solution.

In simple terms a motorised mechanism assists in the treatment of the effluent, which is discharged to a soakaway drain at the end of the process. This type of treatment plant requires regular maintenance. Further information and guidance can be obtained from the manufacturers or by searching for their maintenance manuals on the internet.



Cesspit opening



Modern pre-formed cesspool

## Health and Safety

It is important to remember that only authorised persons are able to gain access to private drainage installations. Ideally the access covers should be secured in order to exclude adventurous children or animals. Damaged covers must be replaced without delay to minimise the risk of persons falling into the chambers.

## Liability

If a private drainage system is located on an adjoining site, or is shared with one or more other properties the extent of liability for repairs and maintenance will need to be established. Your Legal Advisers will be able to assist in this regard.

## Useful websites

<http://www.defra.gov.uk/environment/quality/water/sewage/sewers/>

<https://www.ofwat.gov.uk/>

<http://www.thameswater.co.uk/help-and-advice/8654.htm>

**Private sewer transfer explained:**  
<http://www.thameswater.co.uk/tw/common/downloads/got%20a%20problem/private-sewers-leaflet-june-2011.pdf>

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