

Technical guidance and advice on Non Mains Drainage



The Developer / Owner : will be responsible to ensure compliance with both the Building Regulations and Environment Agency legislation

INTRODUCTION

Where mains drainage is not possible, the three main methods for drainage discharge are cesspools, septic tanks, and treatment plants. Since Approved Document H was introduced, further advice and research indicates that, providing tanks are effectively sealed and adequately vented, then health risks are minimal, and precautions/distance are mainly for structural reasons.

CESSPOOLS

Tanks should be a minimum of 18000l for 2 persons and 6800l for each additional person.

Considering a 2.6m diameter tank, allowing for neck and disturbance due to digging, an overall depth of 3m is assumed.

Taking a 'worst case' scenario of any adjacent foundations (on the site or adjacent land) being at ground level, then:

- Tank to be 4.5m min from any building on the site or adjacent land
- Tank to be a minimum of 3.5m from site boundaries to allow for future building on adjacent land
- The tank may be built closer to buildings within the boundaries of the proposal providing foundations or the tank surround are designed accordingly
- Tank to be 3.5m from any road unless suitable structural design undertaken
- Tank to be 10m from any watercourse unless suitable precautions – such as surrounding in 200mm of structural concrete – are taken
- Tank to be within 30m of vehicular access for emptying

SEPTIC TANKS & TREATMENT PLANTS

Septic tanks should be a minimum of 2700l for 4 persons and 180l for each additional person. Treatment plants should be designed for the number of users.

Considering a tank of 2m diameter and allowing for neck and digging, a maximum depth of 2.5m is assumed.

- Tank to be 4.5m min from any building on the site or adjacent land
- Tank to be a minimum of 3.5m from site boundaries to allow for future building on adjacent land
- The tank may be built closer to buildings within the boundaries of the proposal providing foundations or the tank surround are designed accordingly
- Tank to be 3.5m from any road unless suitable structural design undertaken
- Tank to be 10m from any watercourse unless suitable precautions –such as surrounding in 200mm of structural concrete – are taken
- Tank to be within 30m of vehicular access for emptying
- Prior consent required from Environment Agency for any discharge

GENERAL INFORMATION

When using a Package Treatment Plant, you will need to verify whether you have the legal right to discharge to any watercourse on or adjacent to the land or drainage field. With a Septic Tank system, **you will have** to use a secondary treatment system (ie a drainage field)

You will need to provide full details for the drainage field to comply with BS 6297 and ensure it is not within a Zone of special interest as described by the Environment Agency. (LINK)

The design will include details of the sewer plant (package treatment plant to BS 12566 pt3 or Septic tank to BS 12566 pt1).

You will need to provide a percolation test and calculations to verify the area of disposal for the drainage field.

Note : Some manufacturers will provide a free site Survey.

Key Points :

- Septic tanks can only discharge to ground via a drainage field. Discharge to a watercourse (stream, ditch, pond etc) is **not allowed**
- A drainage field is not the same as a soakaway (used for surface water)
- Drainage fields are not permitted in Zone 1 groundwater protection areas
- Drainage fields can only be used where the soil conditions are suitable
- Site tests are required to determine if a site is suitable, and to provide information to design the drainage field
- Drainage fields must be a minimum of 10m from a watercourse, 50m from a water abstraction point and 4.5m from a building or boundary
- They must be at least 1.5m above the water table to prevent short circuiting into the groundwater.

DISCHARGE TO GROUND

Drainage fields are laid in the ground

Drainage mounds are placed above the natural surface, usually in order to avoid a high water table.

The water table must, at all times of the year, be at least 1.5m below the distribution pipes.

A drainage field has two principal purposes

- 1) To allow infiltration of the treated / partially treated effluent into the ground at a controlled rate
- 2) To allow further treatment of partially treated effluent before it reaches the groundwater level.

DRAINAGE FIELD DESIGN

The key factor in the potential use of a drainage field is the suitability of the ground

- Ground which is waterlogged / flooded for some year of the year is not suitable.
- Ground into which water soaks away too quickly is not suitable – for example some sandy soils – this is because there could be insufficient attenuation / treatment time
- Ground into which water soaks away too slowly is not suitable – for example some clay soils – this is because there could be potential flooding issues.

Two tests are carried out, on the site, to determine the suitability of an area for a drainage field. There are :

- Water table test – determines the location of the water table
- Percolation test – determines the rate of infiltration into the ground.

NON STANDARD INFILTRATION

For treatment plants only, where there is insufficient room to install the required length/area of field drains, other systems such as infiltration tunnels or crates **may** be acceptable if designed by a drainage engineer. This is subject to a discharge permit application being made to the Environment Agency and them agreeing to the proposed discharge method.

FURTHER INFORMATION

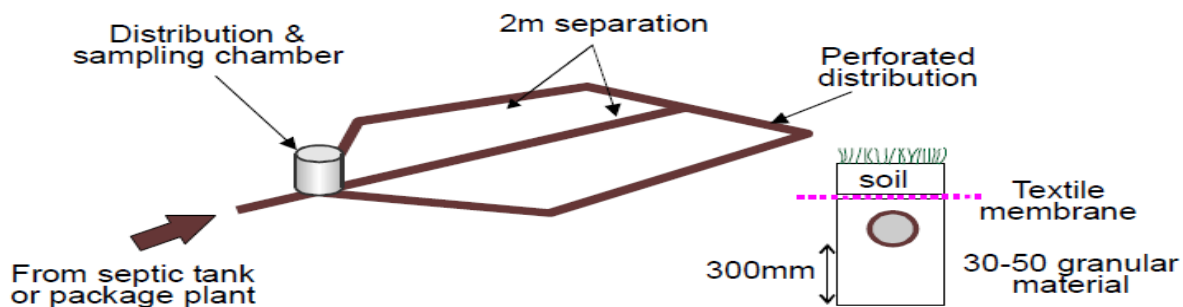
Department for Environment, Food & Rural Affairs

Reform of the regulatory system to control small sewerage discharges from septic tanks and small sewage treatment plants in England

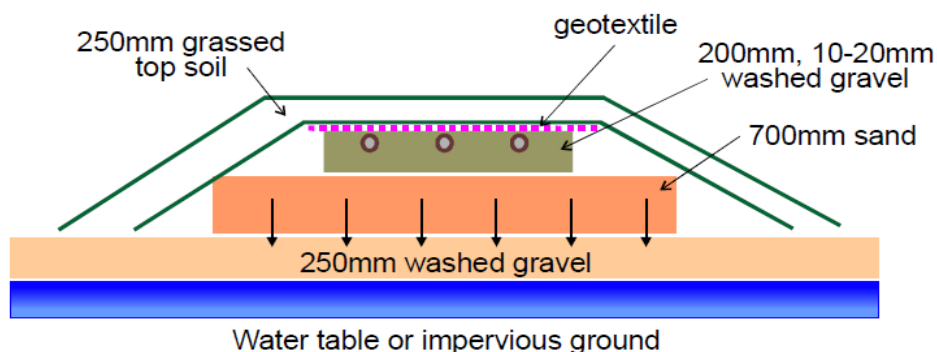
General binding rules for small sewerage discharges (SSDs) with effect from January 2015

The Environmental Agency publication GP3 contains the background to groundwater position statements and technical information

TYPICAL DETAILS



Typical Drainage Field above Typical Drainage Mound below



Helpful Websites :

- https://www.wte-ltd.co.uk/wastewater_legislation.html
- <https://www.gov.uk/guidance/groundwater-source-protection-zones-spzs>
- <https://www.britishwater.co.uk/code-of-practise-flows-and-loads-4-on-sizing-criteria-treatm.aspx>

Typical Infiltration Tunnel

Whilst every care has been taken in compiling this information note and the statements contained herein, the publishers and promoters cannot accept responsibility for any inaccuracies

