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BRITISH WATER
CODE OF PRACTICE

DRAINAGE FIELDS FOR THE DISPOSAL OF SEPTIC TANK
AND SMALL WASTEWATER TREATMENT SYSTEMS
(PACKAGE PLANT) EFFLUENT

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1. INTRODUCTION

This guide has been created to enable owners and users to understand how the discharge from septic tanks and small wastewater treatment systems (package plants) can be discharged to ground.

BS6297 does not specifically refer to the use of boreholes for the disposal of septic or treatment plant effluent, but the EA position is that these should only be considered if there is no alternative. In order to consider a borehole discharge the case would require detailed investigation to ensure protection of groundwater. The point discharge poses a greater risk of groundwater pollution as well as there being significant risk of bio-fouling diminishing the hydraulic efficiency over time.

The Environment Agency publication GP3 contains the background to groundwater, position statements and technical information.

This Code of Practice is not a detailed design guide, but a checklist of the factors that should be considered before disposing of treated / partially treated effluent to ground.

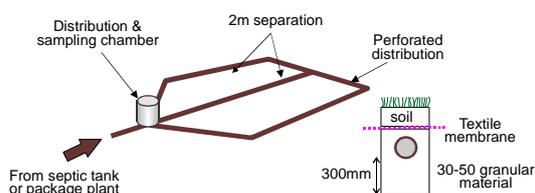
Key Points

- 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 15m from a building
- They must be at least 1.2m above the water table to prevent short circuiting into the groundwater

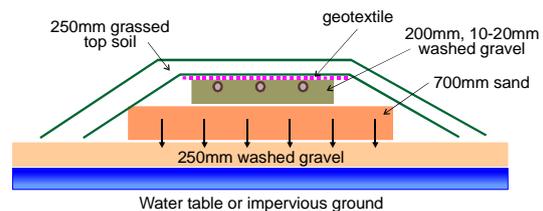
2. DISCHARGE TO GROUND

Drainage fields are laid in the ground.

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



Typical Drainage Field



Typical Drainage Mound

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

The phrase soakaway is often, wrongly, used in relation to septic tank / package plant discharges to ground:

- A soakaway is used for surface water (rainwater from roofs, paved areas etc)
- A soakaway is typically a hole or structure filled with rubble / drainage crates)

The purpose of a soakaway is to distribute surface water into the ground as fast as possible. Therefore they do not provide the two required features of a drainage field.

3. 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 of 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. These are:

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

Drainage fields do not operate indefinitely and eventually need to be replaced. When designing wastewater treatment systems, whole-life costing of both plant and drainage field design should be carried out and include provision for the future replacement of the drainage field.

Information on how the tests are performed can be found in the reference detailed below.

4. REFERENCE DOCUMENTS

Detailed information relating to the use, design and installation of drainage fields can be found in the following publications:

- BS6297 2007: Code of Practice for the Design and Installation of Drainage Fields for use in Wastewater Treatment
- Building Regulations Section H2
- DETR Circular 3/99 (Planning Requirements in Respect of Non-Mains Sewerage)

- Environment Agency: Groundwater Protection: Principles and Practice (GP3)
- Environment Agency Pollution Prevention Guideline Number 4 (PPG4)