

Detailed guide: Cemeteries and burials: prevent groundwater pollution

Updated: Added 'unaltered or unweathered' to make it clear that graves must not be dug in unaltered or unweathered bedrock.

Burials must not pollute groundwater. Groundwater can be at risk of pollution from burials where the numbers are sufficient and if the site is in a sensitive or vulnerable area. Measures to prevent or limit pollution must be appropriately considered, given the sensitivity and risks posed.

The [Environment Agency's groundwater position statements](#) explain government policy on the burial of human and animal remains.

Human and animal burials: minimum groundwater protection

A burial site must be:

- outside a [source protection zone 1](#) (SPZ1)
- at least 250 metres from any well, borehole or spring supplying water for human consumption or used in food production – for example at farm dairies
- at least 30 metres from any spring or watercourse not used for human consumption or not used in food production
- at least 10 metres from any field drain, including dry ditches

Different rules apply for:

- [home burials of a person](#) or larger domestic [pet animal](#) – the minimum distance is 50 metres from any well, borehole or spring supplying water for human consumption or used in food production purposes, including [private water supplies](#)
- [home burials of domestic pets](#) – there are no minimum groundwater protection requirements
- mass emergency burials with a risk of disease carried by groundwater – the zone may extend to [source protection zone 2](#) (SPZ2)

All graves must:

- have at least 1 metre clearance between the base of the grave and the top of the water table – they shouldn't have any standing water in them when dug
- not be dug in unaltered or unweathered bedrock
- not be dug in areas susceptible to groundwater flooding
- be deep enough so at least 1 metre of soil will cover the top of the coffin, body or animal carcass

Always allow for any potential rise in the water table, including seasonal variations and extreme rainfall.

The Environment Agency can take action if large numbers of burials, either as a single event or over a period of time, affect or could affect groundwater quality.

Burials can result in the discharge of [hazardous substances](#) and [non-hazardous pollutants](#) to groundwater. They are therefore covered by the requirements of the Groundwater Daughter Directive 2006/118/EC as implemented by the Environmental Permitting Regulations.

The Environment Agency may serve a works notice under section 161A of the Water Resources Act 1991 and the Anti-Pollution Works Regulations 1999 to prevent or seek remedial action for pollution of controlled waters.

In addition to the requirements set out in this guide, you may need to monitor groundwater before burying animal or human remains. Find out what you need to monitor in the [cemeteries and burials groundwater risk assessment guidance](#).

Burials below the water table

Burials must not cause pollution and therefore shouldn't take place below the water table. Burials below the water table limit the capacity for attenuation and there must be no direct input of [hazardous substances](#) to groundwater. Therefore, some sites with existing planning permission, such as existing cemeteries, may need some form of intervention to control groundwater levels. For example, artificial drainage and abstraction for removal.

You must collect any artificially drained groundwater, treat it as contaminated, and dispose of it as foul water. You'll need an [environmental permit](#) to carry out these actions unless you have permission to discharge to mains foul drainage. [Contact your local sewerage provider](#) in these cases.

Until there is more information about the effect of any new method for managing burials close to, or below, the water table, the Environment Agency will want to see:

- a [hydrogeological assessment](#) of present and future risks
- plans for continued checks of the site including long-term [monitoring](#)

For human burials, this includes the use of sealed caskets.

Disposal of ashes

You don't need permission to scatter ashes from a single cremation on your own land, or make any formal record of doing so. You should seek permission from the landowner if you want to scatter ashes on someone else's land.

If you're spreading ashes across surface water you should avoid casting wreaths or other memorabilia – they may harm the environment, including

wildlife.

Crematoria owners and managers must carry out a site-specific [risk assessment](#) if ash is scattered at their sites.

Find out if you need a [permit to bury or spread ash at pet cemeteries](#).

Human home burials

If you want to bury individual human remains at home, you must:

- fill in a burial authorisation form before the burial takes place – [contact your local council](#) for the form
- record the burial in a land burial register
- follow the [minimum groundwater protection requirements](#)

You should also make a clear, detailed plan showing where the burial took place, and keep this with the deeds of the property or land.

Green burial sites

Green burial sites are often in areas such as woodlands, nature reserves and gardens.

Site managers and owners must follow [minimum groundwater protection requirements](#).

Contact the [Natural Death Centre](#) to find out how to arrange a green funeral.

Existing cemeteries

Manage existing cemeteries to limit environmental impact. For example, use methods such as artificial drainage to reduce the risk and meet the minimum requirements where possible.

Any extension to an existing site must comply with the [requirements for new cemeteries and extensions](#). All existing sites should have an appropriate [risk assessment](#).

New cemeteries and extensions

Any new cemetery or extension to an existing site, including grave plot reuse and 'lift and deepen' methods, must:

- comply with [minimum groundwater protection requirements](#)
- pose no unacceptable risk to groundwater used for drinking water and food production purposes

As a minimum you must do a [tier 1 risk assessment](#) to evaluate the potential harm to groundwater from pollution.

Local councils control new cemetery and extension applications through

planning laws, and the Environment Agency is a statutory consultee for potential groundwater pollution.

The Town and Country Planning Act and Regulations (various dates) have provisions allowing the control of development and land use, including cemeteries. Planning conditions may be set to protect groundwater.

The Environment Agency considers sites with the potential for 100 burials a year or more to be high risk. These sites will need detailed evidence to show both:

- sufficient depth to the water table or that natural formations offer protection
- proposed engineering and management methods to prevent unacceptable groundwater pollution

You may also have to carry out regular [monitoring](#) to ensure the risk of groundwater pollution stays acceptable. How often, and what checks, depends on:

- cemetery size and rates of use
- results of the [risk assessment](#)
- hydrogeological characteristics
- ongoing results of the monitoring

The Environment Agency expects you to limit your cemetery's environmental impact, such as phasing burials to reduce the concentration of substances and organisms.

Arrangements for human burials in emergencies

During an emergency situation, such as a health epidemic or disaster, it's a priority to keep sources of drinking water safe from contamination.

Emergency planners should always try to use alternatives to burial for body disposal, such as cremation. Plans for using existing cemeteries, or land reserved for new cemeteries, must not affect the quality or safety of groundwater or any other water supplies.

Any temporary morgue or mortuary must be able to contain bodily fluids, microbes, substances and chemicals. This may involve sealing drains for safe collection of liquids for later removal by a specialist contractor.

During such emergency situations, if groundwater is at risk, then the minimum groundwater protection requirement of being outside an SPZ1 may be extended to SPZ2.

Animal burials

Different rules apply for:

- [domestic pets](#)

- [pet cemeteries](#)
- [livestock and wild game](#)

If you're burying wild animals (except wild game) you must follow the [minimum groundwater protection requirements](#).

Domestic pets

You don't need permission to bury domestic pets.

You can bury small domestic pet animals such as a dog or a cat on your own land, for example in your back garden. There are no minimum groundwater protection requirements.

If you want to bury a larger pet animal such as a pet horse follow the [minimum groundwater protection requirements](#).

For these larger pet burials contact your [local council's animal health office](#). Your local council may ask for a map marking the burial place or they may have additional requirements .

Pet cemeteries

Owners and managers of pet cemeteries should comply with:

- [minimum groundwater protection requirements](#)
- the Animal By-products (Enforcement) (England) Regulations 2013
- the voluntary code of practice of the [Association of Private Pet Cemeteries and Crematoria](#)

You must also register your pet cemetery with the Animal and Plant Health Authority. Find out [where you can build pet cemeteries and how to register them](#).

Livestock and wild game

You must not bury on-site any animal kept as livestock or that's wild game. This includes animals at farms, zoos and similar places. You can dispose of them by:

- commercial incineration and rendering
- landfill – the site must have the correct environmental permit for animal carcasses

Under normal circumstances, the burial of fallen stock is prohibited by the Animal By-products (Enforcement) (England) Regulations 2013. A relaxation from this rule (a 'derogation') applies in the Isles of Scilly.

Find out the rules on [burying or burning fallen stock](#) so you can safely dispose of dead animals.

Animal burials in emergencies

The government may relax the laws preventing on-site burials of animals kept as livestock and wild game during extreme events. For example, during a widespread outbreak of foot and mouth disease. You must consider the risk to groundwater – the [minimum groundwater protection measures](#) still apply.

Emergency conditions and time pressures mean only quick, simple risk assessments are possible. This limits burial permissions. Farm managers must have no other means available for disposal before considering burial.

Animal burials: pollution risk

The potential for disease transmission may mean the burial exclusion zone applies to both [SPZ1 and SPZ2](#). The risk of pollution is site-specific and depends on a number of issues.

Animal carcass type and number

Large volumes of carcasses pose a greater hazard, especially in areas close to principal aquifers. These may have to go to existing landfill sites with permits to handle animal waste.

Risk of contamination and spread of pathogens

If this is a concern then you'll need to limit use of groundwater for drinking water, food production purposes and livestock watering.

Burial method and proposed site

Burial in unlined pits under emergency conditions will affect groundwater quality.

Surrounding geology

Areas with permeable deposits may result in a greater risk to the underlying groundwater. Areas of low permeability present a higher risk that contaminated water will build up and present a hazard to surface water.

Depth to the water table

You should allow for any potential rise in the water table. There must be no direct input of hazardous substances to groundwater and non-hazardous pollutants must be limited to avoid pollution.

Current and potential use of groundwater

As well as the risk to any current use of groundwater, over time the burial is likely to remain an active source of contamination so this may limit future use of groundwater. You need to avoid causing pollution to groundwater resources in future.

Emergency animal burial by weight

There are different requirements for the emergency burial of animal carcasses based on the animals' weight.

Less than 2 tonnes

You don't need permission from the Environment Agency for burials of less than 2 tonnes, but you should follow the [minimum groundwater protection requirements](#).

You can carry out more than 1 burial a year, providing:

- no single burial exceeds 2 tonnes
- the burial sites are at least 500 metres apart
- the total weight of all carcasses buried is no more than 8 tonnes

Between 2 and 8 tonnes

Contact your [local Environment Agency office](#) for burials between 2 and 8 tonnes. It will work with you to:

- assess the risk of groundwater pollution
- decide if burial is safe
- advise if you need an environmental permit

Over 8 tonnes

You must have [an environmental permit](#) before burying animal carcasses over 8 tonnes. Contact your [local Environment Agency office](#) for further information for burials over 8 tonnes.

If the burials exceed 50 tonnes you will also need to show comprehensive plans for engineered containment and site management during and after burial.

For more information on emergency burials read Section M of the [groundwater protection position statements](#).

You may have to follow the [groundwater monitoring](#) rules for animal carcass burials.