

## Groundwater flow and spring lines

### Introduction

Water moves at different rates through the ground depending on its flow path and the permeability of the geological layers.

A spring is the point at which groundwater discharges onto the surface. A spring line is the intersection of the natural water level in the ground with the surface along which springs are commonly found.

One geological structure commonly associated with springs is a layer of permeable soil or rock overlying an impermeable one. As can be seen from the diagram below, this can cause spring lines to form.

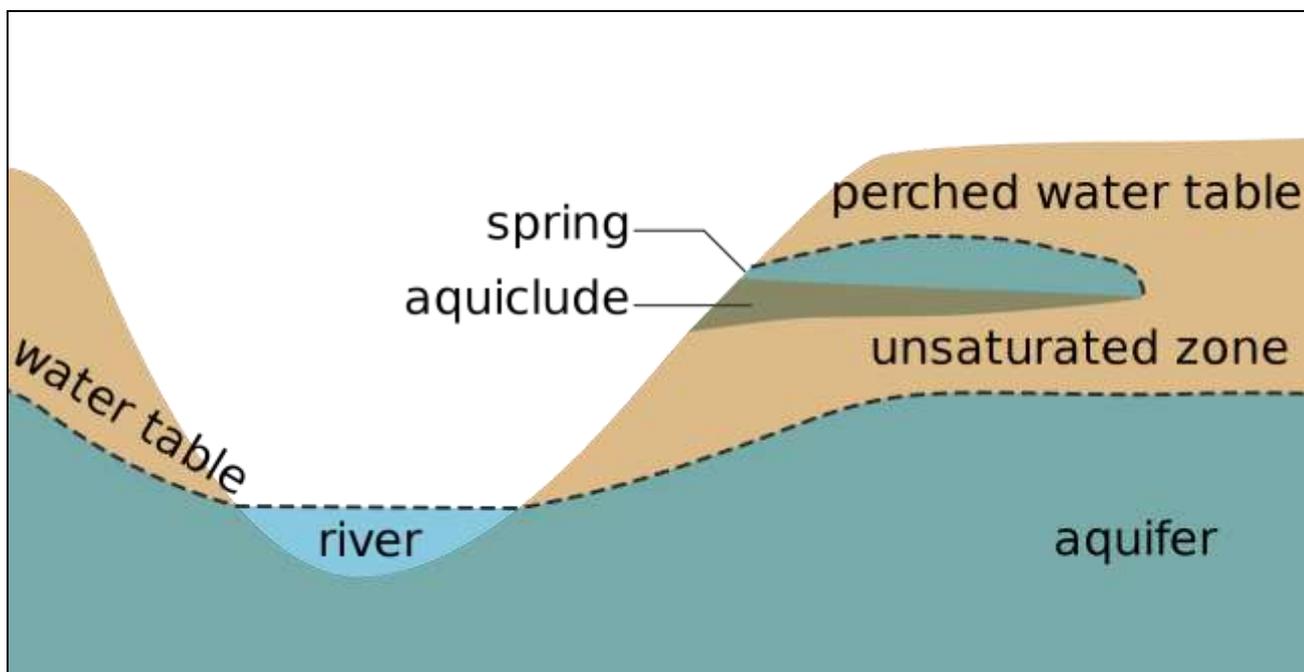


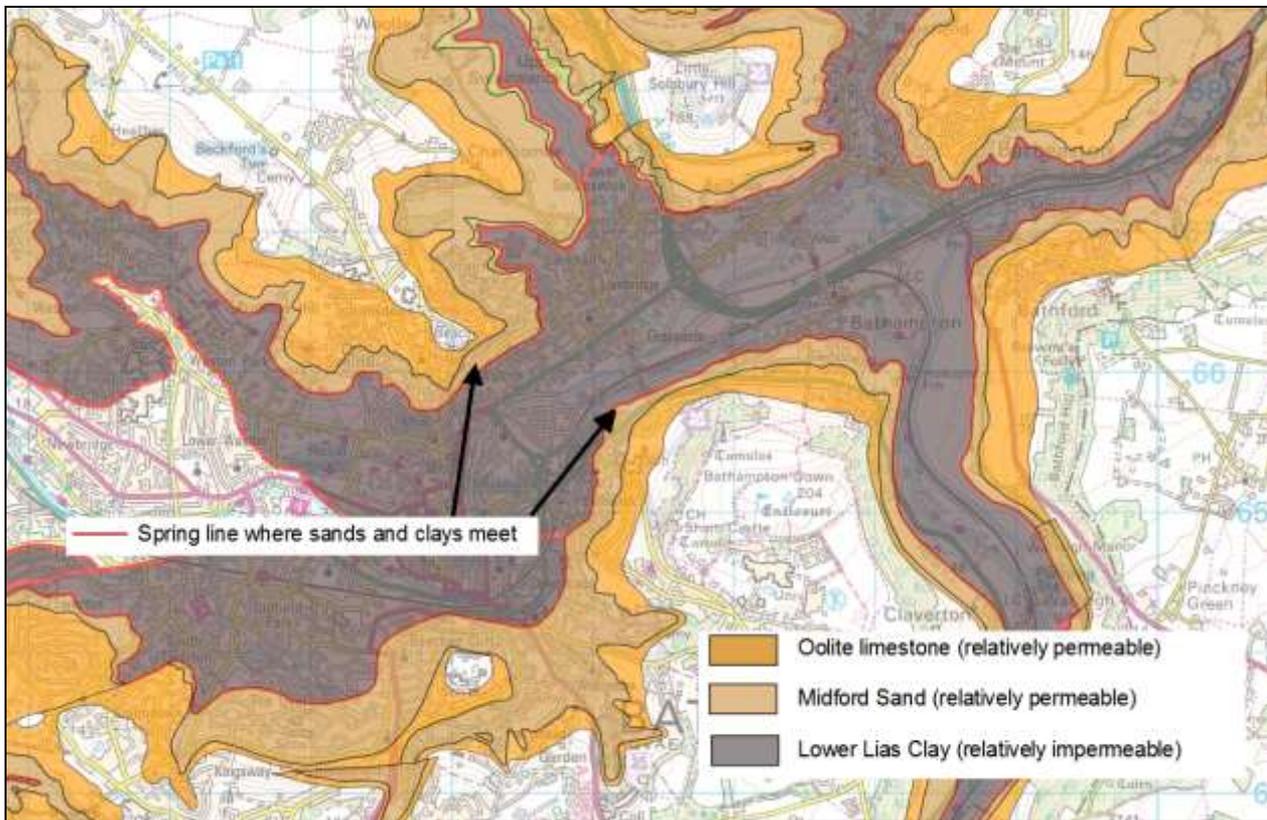
Image: Jojko.sivek Original: Fiveless [CC BY-SA 3.0 ]

As an example, circling the slopes of the city of Bath there is a layer of Midford Sand sitting above a band of Lower Lias Clay (see figure below). This zone gives rise to a spring line all around the city. To note these springs are distinct from the thermal springs apparent in the centre of the city.

Groundwater flow is also influenced by geological fault lines.

The location of a spring will depend upon geology, sub-surface flow paths, existing surface and subsurface drainage and maintenance of those drainage systems.

Ground water spring flow may increase in wet weather and cease completely during dry weather, although there is often a lag of several months.



Geology influencing springs around the city of Bath

### There is water coming out of the ground on my land and causing flooding. Who is responsible for dealing with it?

Under normal circumstances it is your responsibility to deal with watercourses on your land. This is known as a [Riparian Ownership responsibility](#). In the event of unexplained groundwater coming onto your property, the first step is normally to determine that the source is not a leaking water main or a faulty sewer. If it were any of these, it may be the responsibility of the relevant water supply and/ or sewerage company to fix it. In Bath and North East Somerset, Wessex Water manage all drainage sewers. Mains supply water in the city of Bath is also managed by Wessex Water. Mains supply outside the city of Bath is managed by Bristol Water. (Contact details below)

**If the spring flow is due to natural ground water flow, then it is your responsibility to deal with it**, the same as a riparian owner would. You may need guidance from a specialist land drainage contractor, and may need consent from the Council's [Lead Local Flood Authority team](#).

To note, the owner of the land through which water percolates underground has no legal rights or responsibilities regarding it. It is only when the water comes out of the ground and starts to flow in a channel that it becomes a watercourse.

## What can you do to alleviate the problem of ground water springs?

There is no simple answer to this. It is important to determine the cause of the spring, and a basic solution may be to drain to an existing watercourse. If the lie of the land permits, it may be possible to intercept the sub-surface flow with a French drain or land drain system (trenches dug and backfilled with gravel with deep collector pipes) connecting to existing ditches.

Springs cannot normally be drained into the public sewers, so you must get permission from your sewerage company before you discharge anything to their drainage system.

Alternatively it may be simpler to incorporate the spring as a feature within your land. A pond or small wetland area could create an excellent habitat for wildlife.

It is important to emphasise that in most cases there is nothing the local authority or any other body can do. Ground water springs occur naturally and it is up to the property owner to determine how they wish to deal with the problem.

Traditionally a land owner is under no obligation to prevent water that has come naturally onto the land from passing onto a neighbour's lower land. However the lower landowner is under no obligation to receive the water and may pen back the water. However in modern times it has been established that there is a general duty upon both landowners to do all that is reasonable to prevent or minimise the risk of foreseeable damage to the property of others.

## Further information

Geology maps from the British Geological Society:  
<https://www.bgs.ac.uk/data/mapViewers/home.html>

Independent directory of companies delivering flood resilience measures:  
<http://bluepages.org.uk/>

## Contact information

### **Lead Local Flood Authority (Bath and North East Somerset Council)**

If you need to speak to us about a land drainage issue or wish to report property flooding please email [drainage&flooding@bathnes.gov.uk](mailto:drainage&flooding@bathnes.gov.uk)

### **Wessex Water**

Wessex Water manage drainage sewers throughout the Bath and North East Somerset area, and mains water supply within the city of Bath  
Wessex Water Customer Services  
0345 600 4 600  
[operational.enquiries@wessexwater.co.uk](mailto:operational.enquiries@wessexwater.co.uk)

### **Bristol Water**

Bristol Water manage all mains water supply outside of the city of Bath.  
Bristol Water Customer Services  
0345 702 3797  
[BristolWaterCustomer.Services@bristolwater.co.uk](mailto:BristolWaterCustomer.Services@bristolwater.co.uk)