

Poor drainage is the cause of many path problems. Where a path is enclosed between fences, hedges or walls, water can be trapped, then as the path is used it compacts the wet ground further.

On unenclosed paths, it's likely that the path will widen as people skirt around the muddy patches. On slopes, once vegetation is lost the path often becomes the drainage channel and is scoured by the water.

Simple improvements to drainage often have a dramatic effect; in some cases it may be necessary to surface the path as well, but this should be a last resort (see the Path Surfacing guide). Solutions will be site-specific; it is recommended that advice be sought from County Council officers from an early stage.

Responsibilities

The County Council is legally responsible for ensuring that the surface of a right of way is suitable for the public to use. **The landowner is responsible for cutting back vegetation alongside the path and usually the maintenance of ditches or other drainage features.**

Considerations for Drainage Work

Stand on the path in question, in wet weather if possible, and note where water is collecting (boggy or where silt is collecting); look for signs of where the water has come from (e.g. small gullies in the surface of small paths created through the leaf litter) and any existing drainage. Look at the gradients carefully—changes in levels are often quite subtle but will have an effect. Gravity is key to any drainage solution!

- Where is water coming from and where could it go? Is it rainwater draining from neighbouring land and then along the path? Is there lower ground to encourage the water on from this point, or can it be diverted away before it gets to this point?
- Are there any existing ditches or pipes which need clearing (you may need to dig into the undergrowth to find these)? Is that sufficient to solve the problem, or could new draining lead into these existing systems?

- Is the path overhung with vegetation? (Often, a path's surface will dry out naturally if the vegetation is cleared, allowing light and wind in so that the water evaporates). In this case, mud will often be leaf litter which has rotted down and been trampled. If so, it may be that there is a good surface under the leaf litter, and so removing the mud and clearing overhanging vegetation so it doesn't reoccur may solve the problem.
- Look at the area either side of the path—is the ground generally waterlogged? If so, the path level may need to be raised above this (see the Path Surfacing guide).
- You must speak to the neighbouring landowners if clearing existing drainage or creating new drainage will affect their land.
- Does the area have a conservation designation such as SSSI? If so, Natural England should be consulted, to ensure flora and fauna are not damaged by drainage changes.
- If water will be newly entering stream or river, the Environment Agency may also need to be consulted (see the For all Projects guide)
- Who will undertake maintenance when required? Regular vegetation cutting and clearance of ditches and drainage pipes once or twice a year will considerably lengthen the life of the surface.

Putting in New Drainage

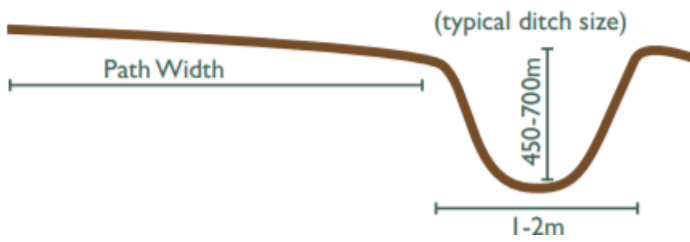
Once any existing ditches, drains or pipes have been identified and cleared, and the vegetation is cleared back, you may still need new drainage. Below are examples of common solutions for paths; these can be used on their own or in combination.

Open ditches alongside the lower side of the path are the simplest solution, either to carry the water away downhill or to hold it until the water soaks away; if there is sufficient room, a ditch is a cheap and easy option.

Ditches should have sloping sides for stability and the bottom should gradually get lower in the desired direction of flow. If digging by hand, stand in the bottom of the ditch and start digging at the lowest point and work uphill.

This guidance is suitable for most situations in Hampshire; for further advice email countryside@hants.gov.uk or call 0300 555 1391

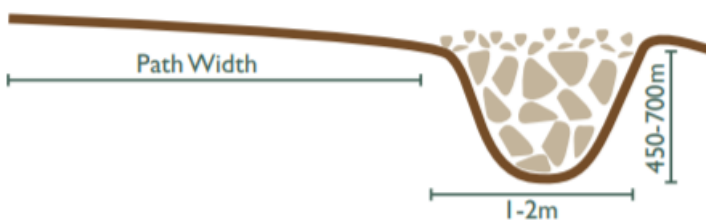
Water flow (ie downhill)
in same direction as path



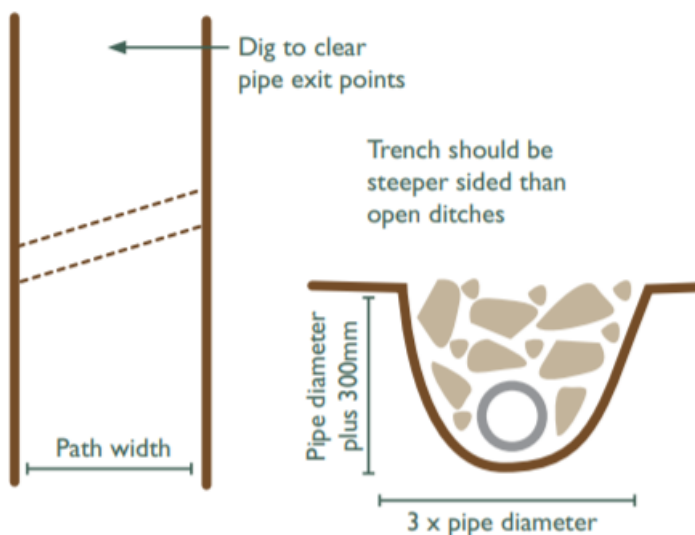
French drains are open ditches filled with fist-sized stones and topped with 20-40mm diameter stones, used where an open ditch would be too deep right next to the path, where there's insufficient room for a full size ditch or where the water must travel across and underneath a path. They can be walked on, forming part of the path.

The gaps between the stones allow the water to flow through and away or to sink into the ground. Perforated pipes are sometimes laid along the bottom of the drain, to assist the water flow. A geo-textile membrane may be used if the stones would otherwise sink into wet ground.

Water flow (ie downhill) in same direction as path



Pipes are used when there is insufficient room for a ditch or to transport water across or beside the path. A 150mm diameter plastic pipe will be suitable for most paths in Hampshire; in some circumstances they should be perforated along their length to allow the water in and out. Pipes will need regular maintenance (usually pushing a rod through or jet washing and clearing back silt at the entrances) to stop them blocking with silt and leaves.



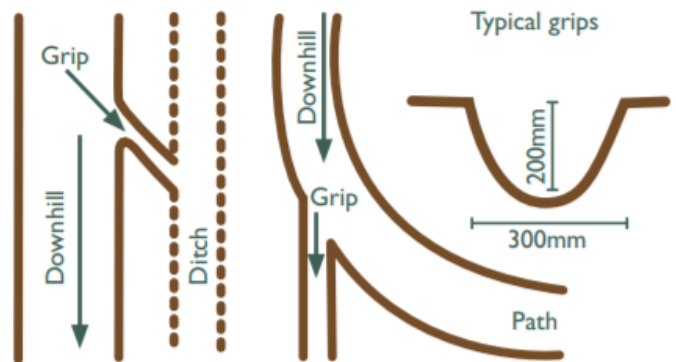
Culverts use the same principles as pipes but are generally concrete and of larger diameter.

Soakaways are used to hold the water whilst it soaks away into the ground. They are usually shallow circular pits dug in soil which drain well, and will have ditches, grips or other drains leading to them. They will need to be carefully sited and landowners should be consulted.

Grips are small, shallow trenches easily dug by hand which can be very effective in taking surface water either directly away from the path or across it and onto lower ground, a ditch or to soakaway.

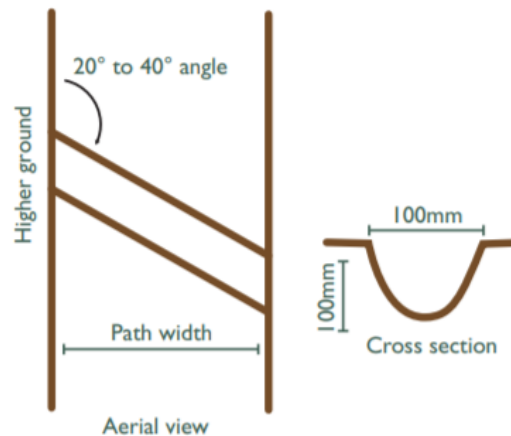
A grip may be used, for example, to provide water with a route to the ditch or where a descending path turns at a bend, to take the water straight on and away from the path.

Cross Drains or Cut-offs



These are very small channels cut at an angle across the width of a path on a slope, to stop water flowing down the path itself and eroding it. They should be no more than 100mm wide and 100mm deep.

Note that even small cross-drains can adversely affect accessibility, so they should only be used where water scouring is likely to be an issue.



They can also be used in combination with a small French drain, along the edge of the path, to keep water to the edge rather than scouring the centre of a route as it descends.

Drawing a stick through grips periodically to clear detritus will keep them flowing.