



# UNDERSTANDING WATER NETWORK MAPPING

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Did you know that if your building is more than 30 years old, you probably have no idea where your water pipes are?

For many premises, maps of utility networks simply weren't provided when they were first installed. Even if you do have details of where the original pipes ran, it's likely that changes will have occurred since then. The same is likely to be the case for other utilities as well.

If you don't have an up-to-date picture of your business's underground infrastructure, a mapping process can help you build this. In this article, we'll explain the process, and the benefits of understanding what's going on beneath your feet.

## WHY DO I NEED TO MAP MY WATER NETWORK?

If you don't know the layout of your water pipes underneath your property, a range of maintenance and repair jobs can become more difficult and more expensive. A good understanding of your utility networks is useful for planned construction work, and could also help your business save significant time and disruption in an emergency.



## Detecting and repairing leaks

A lack of network mapping can make detecting leaks difficult. Your meter might show increased usage, but without a clear idea of where your water pipes run, finding the source of a leak can take longer.

Not having a clear understanding of your water network can also increase the level of disruption to your business if a problem like a burst pipe does occur. If your business depends on a reliable water supply, the extra time required to locate a damaged pipe could force you to stop production. This can lead to significant loss of revenue, profits and reputation.

## Planning construction works

A lack of knowledge of the underground infrastructure for your premises can also make it difficult if you're planning any construction work, or any changes to your network such as installing new water pipes. Construction and excavation work will take longer if it's not clear where pipes are laid. Digging without a clear network map could increase the risk of damage to your infrastructure, as well as potential risk to your employees.

## Key reasons you might choose to undertake a network mapping project include:

- 💧 You're planning construction or expansion work on your business premises
- 💧 You're planning to make changes to your water network, for example by installing new equipment or connecting new water pipes to the mains
- 💧 You want to assess the condition of your water pipes and put a preventative maintenance plan in place
- 💧 A consistent water supply is critical to your business operations, and you want to minimise disruption if a problem occurs
- 💧 You're concerned you may have a leaking pipe
- 💧 You're looking for ways to improve the efficiency of your water infrastructure and reduce costs.

For these reasons, it's good practice to map your building's underground infrastructure, including water pipes and other utilities like gas, electricity or fibre optic cables.



## THE WATER NETWORK MAPPING PROCESS

Water network mapping is carried out by an experienced surveyor, using a Ground Penetrating Radar device.

### Ground Penetrating Radar

Ground Penetrating Radar (GPR) transmits an electromagnetic pulse into the ground at a range of frequencies. When these electromagnetic waves hit an object in the ground, they are reflected back and detected by the GPR equipment, just like a ship's radar.

The frequencies of signals which are reflected back, as well as their strength, will vary depending on the depth of the object as well as its density, and this information can be used to build up a detailed picture of your building's underground infrastructure.



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## The Mapping Process

GPR surveying is non-invasive, doesn't require any digging, and can be carried out with little or no disruption to your day-to-day operations. To make the process as efficient as possible, a surveyor will usually start at your meter or another above-ground landmark, and work outwards from there to map your water, gas and electricity networks, sewerage and drainage pipes.

## Your Network Map

Once the survey is complete, the GPR data is analysed carefully to create a detailed 2D CAD drawing of your utility infrastructure, as well as any other underground structures that they're able to identify.

While other underground mapping methods exist, GPR is popular because it can detect non-metallic utilities like plastic pipes or fiber-optic cables, as well as other structures like thrust blocks. It can even detect underground voids, which reflect electromagnetic signals differently than the earth around them.

## The key benefits of a GPR network mapping survey include:

- 💧 GPR is non-intrusive so there's no need for excavation, and there'll be minimal disruption while the survey is carried out.
- 💧 GPR can detect all your utility pipes and cables, even non-metallic ones
- 💧 With a survey already complete, you'll reduce project planning time for building projects or other works
- 💧 You'll have confidence when carrying out construction work that the risk of disruption has been minimised
- 💧 The survey might also identify other features such as underground structures or voids, and could help identify leaks or other ways to save money on your water bill.

# MAPPING YOUR WATER NETWORK

Total Water Solutions works with businesses nationwide to help them understand their water usage and make improvements to their networks that can reduce costs, improve compliance and reduce risk. If you're planning significant changes to your business premises or water network, a network mapping survey can help you make the process as straightforward as possible.



To find out more read our [case studies](#), or [contact us](#).





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