northern ireland water

Your water and wastewater

Everything you need to know about water services

Where does our water come from?

Essentially all of our water comes from rain.

When it rains two things can happen:

1. The water can flow into streams, rivers, loughs and reservoirs. This type of water is known as surface water.

2. Alternatively, the water can seep through the ground until it reaches rocks which it cannot pass through. This is known as ground water. It is often very pure as many of the pollutants are naturally filtered out through the seeping process.

Why does water need to be treated?

As humans we cannot live without water. We depend upon it for nearly everything that we do. If water carries certain microorganisms, this could seriously damage our health. As a result, the main aim of our treatment process is to remove any harmful microorganisms and ensure our water is safe for you to use and drink.

Water quality and the law

There are very strict laws governing drinking water quality. The water that we supply to our customers must meet high standards set by the Government and the European Union. As a result, we regularly test our water quality at the treatment works and at our customer's tap. These sample results are sent to the Drinking Water Quality Regulator.

What is in our water?

Depending on the natural environment found near the water supply source, your water may contain traces of some of the substances listed below.

Aluminium – some aluminium does occur naturally in water. However, in some areas, aluminium may be present in minute quantities where it has been used as part of a treatment process to clarify and cleanse the water. The regulation level is set at 200 micrograms per litre.

Iron and manganese – these occur naturally in many of our water sources. Upland surface water can be naturally acidic and can dissolve iron and manganese from the soils and minerals. The regulation levels are set at 200 micrograms per litre for iron and 50 micrograms per litre for manganese.

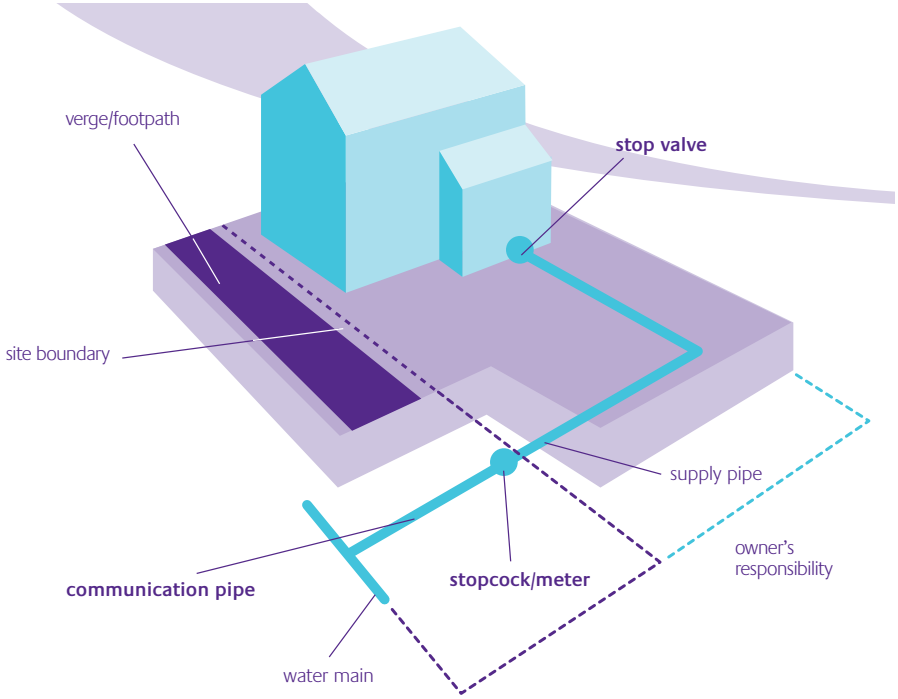
Lead – in Northern Ireland lead does not occur naturally in significant concentrations in the water supply. It is only a problem when the water comes into contact with lead pipes, joints and cisterns. The regulation level, with effect from December 2003, is 25 micrograms per litre. (This will reduce to 10 micrograms in 2013.)

If you have any specific questions or require more information on any of the above information, please call Waterline on 08457 440088.

Your water supply

We aim to maintain your water supply at a pressure which will enable a storage tank at second floor level to fill. This pressure should give a flow which will fill a 10 litre bucket in about a minute.

We are responsible for the main in your street and all the pipework up to, and including, the stopcock at the boundary of your property. You will then normally have responsibility for any pipework from the stopcock into the property and all your indoor and external plumbing. The diagram below helps to illustrate this.



How do we make your water safe?

The way that we treat depends on where it has come from. Surface and ground waters do contain some naturally occurring substances, as outlined previously. Each water source will have unique characteristics and require a tailored treatment process to ensure that it is safe for you to drink.

A typical treatment process

Screening

Coarse screening to remove leaves and debris is carried out at the water source and then the water is piped to our treatment works.

Chemical treatment and clarification

A chemical coagulant is added at this stage.

This reacts with the water to form loosely connected 'super particles' called a floc, which settles and carries any suspended particles with it. The floc also traps bacteria and absorbs colour. As it settles it forms a sludge which is removed for disposal leaving behind a clarified water.

Filtration

The clarified water is then filtered to remove any remaining particles before disinfectant is added.

Disinfection

A disinfectant, usually chlorine, is then added. This is the most effective and reliable way of ensuring that your water is safe to drink.

In carefully controlled doses, chlorine is deadly to bacteria but is harmless to humans.

It has been used in water supplies since 1897.

pH adjustment

pH is a scientific term used to describe the acidity or alkalinity of a substance. We have to ensure our water supply does not corrode the metal pipes in the distribution system by being too acidic.

Your water is now clear, safe and ready to drink. The water is then pumped into a vast network of pipes ready to flow into our water mains to your taps.

Your wastewater

Everything you need to know about water services

What is wastewater?

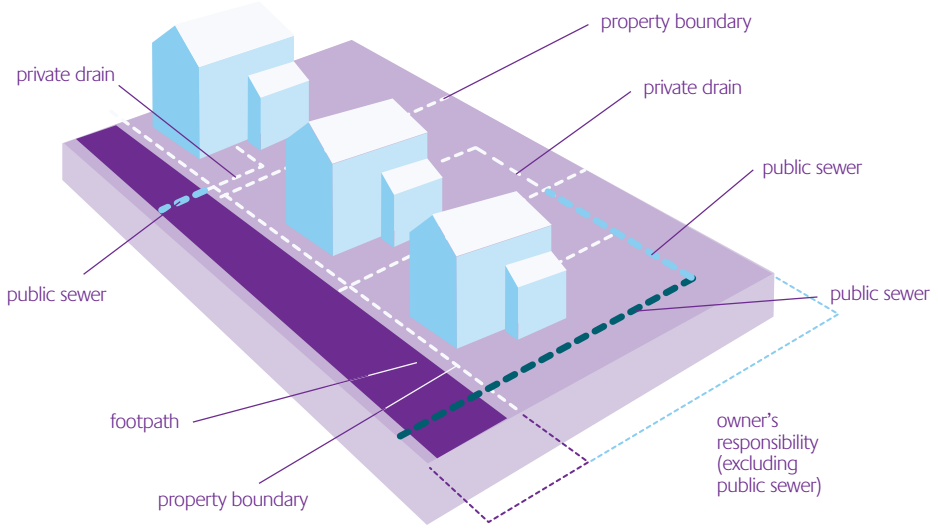
Every use of water, whether it is in the kitchen, the bathroom or the rainwater from your roof, dirties it. This used, dirty water is then known as wastewater.

Our wastewater services

At Northern Ireland Water we collect and treat wastewater from households, businesses and industry every day. It is then treated and discharged into streams, rivers, estuaries and coastal waters.

Our collection process begins with the private drains surrounding your property that are connected to the main public sewer network. We are responsible for the provision, operation and maintenance of the public sewer network, whilst the private drains remain the responsibility of the owner or occupier of the property that they serve.

To help demonstrate this, the diagram shows which pipes are likely to be public sewers and which are likely to be private drains.



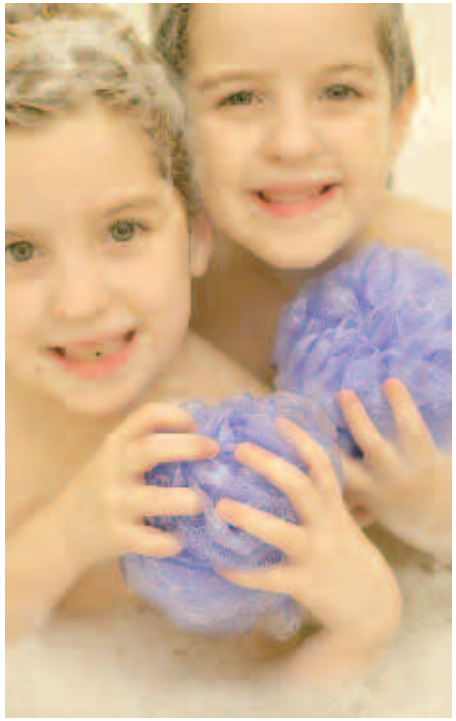
Sewers

If you would like to connect a drain from your property to the public sewer system or even see plans of the public sewer network, please contact Waterline on 08457 440088 for more information.

Environment and Heritage Service

European legislation has set high standards for protecting the environment, especially with regards to the discharge of wastewater into rivers and coastal waters. Northern Ireland Water is committed to this cause and as a result we are investing millions of pounds in upgrading and building new wastewater treatment works and wastewater systems.

All discharges into water courses must comply with quality standards set by Environment and Heritage Service (EHS). You can contact EHS directly for guidance, data, regulations and reports on environmental issues on www.ehsni.gov.uk



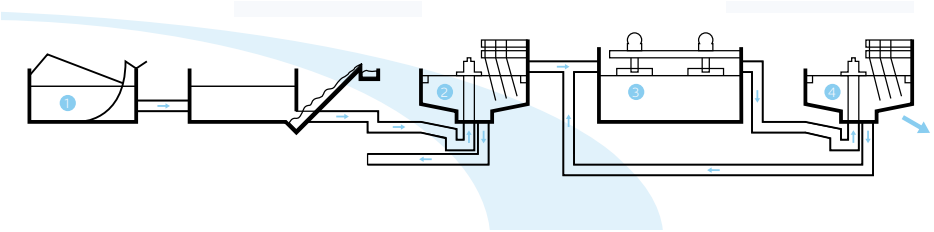
How do we treat your wastewater?

Your wastewater passes down your drains into the sewer network and from there our vast network of pipes and pumps transport it on to our wastewater treatment works, illustrated in the diagram over the page. Across Northern Ireland our wastewater treatment works reduce contamination in the water to environmentally acceptable levels before returning the treated water to rivers and the sea.

Contact us:

Waterline 08457 440088
email waterline@niwater.com
www.niwater.com

Textphone users please call 0800 0515446



A typical treatment process

1 preliminary treatment

Screening
Untreated wastewater arrives at our treatment works and is passed through screens to remove rags, paper and other debris. This matter is then buried in approved landfill sites or burnt in incinerators.

Grit removal
The wastewater is then passed through specially designed channels or tanks to remove any grit and sand that it may contain from the rainfall washed into the sewers from the roads. These inorganic solids fall to the bottom of these tanks and are then removed and disposed of, in approved landfill sites.

2 primary treatment

Sedimentation
Continuing its journey, the wastewater now passes through primary sedimentation tanks to remove any of the suspended solid matter that it contains. The wastewater is retained in these large circular or rectangular tanks for about six hours. During this time the solid particles settle to the bottom and form a sludge. This sludge is collected and passed for further treatment prior to disposal or recycling.

3 secondary treatment

The secondary treatment of wastewater is usually carried out by one of two main processes: Biological filtration, or Activated sludge.

Both of these processes use naturally occurring bacteria to break down organic substances and, if necessary, remove ammonia.

Biological filtration

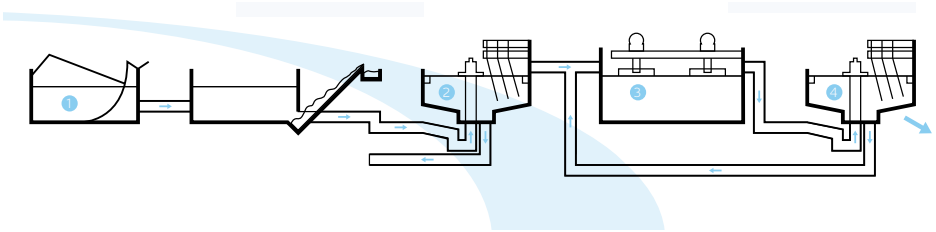
In round tanks, the settled waste water is sprayed from moving distributor arms over a deep bed of small stones called a percolating filter. Bacteria, fungi and other organisms living in the gaps between the stones, feed on the wastewater as it passes through the bed. This helps to purify the water as it trickles down to the bottom of the filter.

Activated sludge
In this alternative process, the settled wastewater goes into tanks that contain specially grown bacteria which feed on the waste particles. This bacteria needs a supply of oxygen to function properly, so air is fed into the tanks.

4 Final treatment

Final settlement
In the final stage of the treatment process the wastewater is then passed into settlement tanks, known as humus tanks. These tanks allow any suspended matter produced in the previous stage to settle out.

The treated water is now clean and can be returned safely back into the environment.



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