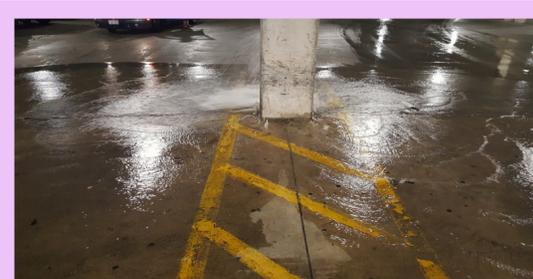


Flash Flooding

Flash floods are generally associated with short bursts of intense rainfall and are subject to location, topography, ground conditions and the capacity and condition of drainage infrastructure.

Built Environment

The hard surfacing that is used in our urban areas stops the natural process of surface water infiltrating into the ground. Paving over gardens and building car parks and housing estates reduces the capacity of our towns and cities to drain surface water.



Drainage

Drains may become inundated by large amounts of water in a relatively short period of time and simply not have the design capacity to cope.

Roadside gullies are designed to keep the carriageway free from surface water but can become covered with leaves and litter, limiting the drains ability to take in water.



Ground Conditions

When lawns and fields have been dry for long periods of time the ground becomes hard and surface water runs over land, contributing to flash flooding. Conversely if the ground is saturated from previous wet weather it may be unable to absorb any more water, leading to large amounts of surface water runoff.



Topography

A large area may receive the same amount of rainfall but only flood in one place as the water will collect and drain to a common outlet. How the land lies will dictate where the water goes.



Millom, Cumbria

The town of Millom in Cumbria developed around the local mining industry in the 19th century, some of the the drainage infrastructure that was put in place to support the area is still in use today.

On 30th September 2017, 261 homes and businesses were affected by flash flooding as a narrow band of intense rainfall descended on the area. There were no weather warnings in place on the day of the flood although one had been issued for the following day.

The area is served by an old surface water and foul combined system although where possible more recent development in the area has separate foul and surface water, the latter of which feeds into a local watercourse. The flash floods were caused by a large amount of localised rainfall which was greater than the design capacity of the drainage, some of which also collapsed as it was in poor condition. There was a topographical issue where properties had been built lower than the height of the highway drainage gullies, which meant that once water had run off the highway and into and around property, it could not drain away.