

## **A Guidance Note for Flood Risk Assessments**

The predominant cause of uncontrolled loss of water from the canal system is as a result of flooding, vandalism or structural failure causing a breach.

Canals are man-made structures and therefore they are controlled waters. British Waterways maintains the canal levels using reservoirs, feeders and boreholes, and thereafter manages the water by transferring it within the canal system. The level of the water in the canal is determined predominantly by the level of the weirs.

The canals are considered to be at normal level (full) when they are at the level of the weir which controls that pound of water (i.e. the water is at the same level as the weir crest).

When it rains or other water enters the canal, the level of the water in the canal rises. When it reaches the level of the canal control weir it begins to flow out of the canal over the weir, we refer to this as a canal being "on". If the level continues to rise it will reach the levels of the storm weir, typically these are set around 50 mm (2") above the control weir. Therefore for the water to flow over a flood weir the canal would have to be over 50mm on.

The control weirs and flood weirs are normally designed to take the water that legally enters the canal under normal conditions, however it is possible for unexpected water, i.e. a burst water main, to enter the canal or for the weirs to become obstructed i.e. vandalism. In this case the water in the canal will continue to rise until it finds a way to escape. Initially this will be by increased flows over the weirs, mitigated by British Waterways opening emergency sluices. Beyond this, the water will find the lowest point along the edge of the canal and overtop the canal bank at this point. In the case of a short pound with locks along it, this is likely to be the lock where the water will flow around it. If the canal has embankments and cuttings along its length, then the water may overtop the canal and flow down the embankment. Historically this has been known to, cause the canal to breach.

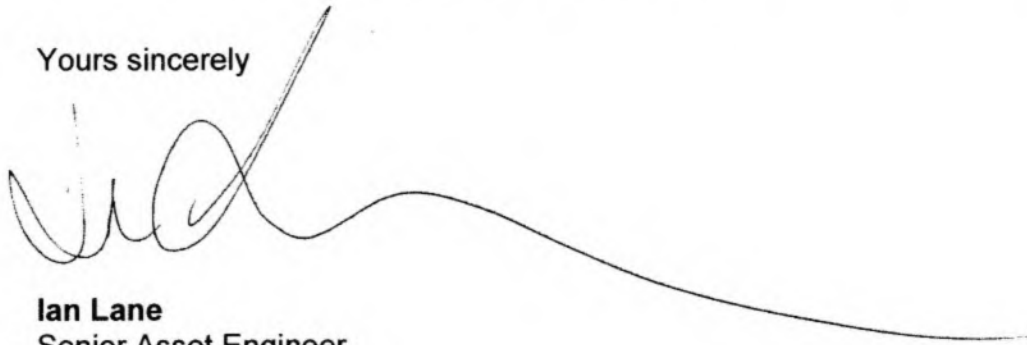
Within other causes of breach, the most common are culverts under the canal collapsing, regular inspections are undertaken to minimise this. Another cause is badgers or other animals borrowing into the embankments, again regular inspections are carried out. There is no historical precedence as to where canals breach.

If your risk assessment involves land that is above the canal level or separated by a significant area of low lying land, then flooding from the canal is practically impossible. If your risk assessment involves land on the same level as the towpath, then flooding is only likely to occur if the property is at a low point on

that pound. If your flood assessment involves land below canal level e.g. at the bottom of an embankment, then flooding from the canal is possible, but only in exceptional circumstances. Breaches occur on average at a rate of one per year over the whole of the British Waterways owned canal network (that's over 2,000 mile of canal).

We trust this is satisfactory, However if you do require any further information please do not hesitate to contact the undersigned.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Ian Lane', with a long, sweeping horizontal line extending to the right.

**Ian Lane**  
Senior Asset Engineer  
West Midlands Waterway