



Bury your head underground

Local authorities need to be sure they've got their drainage infrastructure mapped, says Rod Beardshall



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As the Derwent waters recede and Cumbria counts the gargantuan cost of restoring its bridges, homes and businesses, the finger-pointing will already be well under way. Just how could this happen – again – after all the recommendations of the DEFRA/Pitt Review, following the similarly devastating floods across Gloucestershire in 2007? Wasn't Britain supposed to be on alert, proactively ready with pre-emptive defences?

Apparently not. But we shouldn't be surprised. The sheer work that this demands is colossal, and not something that can be achieved overnight.

The floods that have caused such damage and heartache across North-West England and beyond, as well as the comparable scenarios in Tewkesbury and surrounding areas in 2007, were exacerbated by inadequate and damaged water-drainage systems. Part of the reason such community impacts keep happening (the UK has now had three 'once in a lifetime' events in less than five years) is because the complex underground infrastructure that makes up this vital system is poorly understood. As such, how can it be managed effectively?

Much of the country's drainage system is around 150 years old and poorly mapped, so that no-one really knows what lies where, how it's connected together, and where problems may lurk. This is why,

when an emergency situation presents itself, it so often catches the infrastructure authorities off guard. When the local authorities (LAs) post flood warnings, the best they can do is rally the emergency services to be on standby, and begin stockpiling the sandbags.

The issue of who is responsible has undoubtedly been a significant part of the problem, though Pitt Review recommendations and subsequent Bills that are going through Parliament are now providing greater clarity. These specifically ensure that LAs and local highways departments are made directly accountable for the upkeep of the infrastructure in their own areas. Avoiding the brunt of future incidents (of which there are likely to be many, if we assume that three major events in five years is no coincidence), relies on decisive action being taken now – even if this will take a lot of time and investment.

Mapping the problem

The first priority must be to build up a detailed map of local drainage networks, showing how these intersect and interact with other key infrastructure components, such as highway embankments. Only by knowing what's there, and where vulnerable or problematic assets are, will the LAs be in a position to focus investment and proactively avert future problems. This is a huge task but, if it is never started, it will never be completed, and this is the only way councils will be able to effectively manage and reduce risk.





Gloucestershire and Wiltshire are among the counties that have now heeded the warnings and begun the process of mapping out their drainage infrastructure, so they can focus proactive repairs in known areas of risk. By acting 'early', they have availed themselves of government grants from Defra. By recording and mapping the sources of common public complaints (about excess surface water, blockages and low-level flooding), they are gradually building up a picture of potential problem areas, so they can act now to avert more serious incidents.

The technology is also available now to send miniaturised gyroscopic (instruments now in production derived from guidance technologies) devices down into the drainage systems to track what's there and identify emerging problems in time to mitigate risk. By combining such facilities with specialist infrastructure and asset mapping and planning software, the LAs have their best chance of getting on top of the situation once and for all.

Not that they have a choice now: accepting responsibility

The Flood and Water Management Bill, which has now been introduced into Parliament and is highly likely to be enacted, will ensure that LAs can no longer plead cost and lack of resources as excuses for not improving their infrastructure maintenance and proactive flood risk management. Defra will now require LAs to step up to their responsibilities in much the same way that the utilities have to keep detailed records of their underground assets to justify capital expenditure plans to regulators. Their duty of care extends to good record-keeping of their assets, something that will now be asked of LAs.

This is likely to lead to the creation of more local 'Surface Water Management Boards' including district councils, which act as the planning authority in their area, so that the burden for developing asset management plans extends beyond local Highway Authorities and contractors.

Traditionally, flooding issues have been the domain of two organisations: the Environment Agency (EA) and the various water companies. The new Flooding and Water Bill transfers duties away from both the EA and the water companies, with new duties going to local

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drainage 'partnerships' or boards: the EA will retain responsibility for coastal flooding and policy formulation; water companies will retain responsibility for alluvial (river) flood management; and the remaining duties – which will be extensive – will rest with LAs. Highways Authorities will be responsible for surface water and drains leading to rivers or watercourses.

'People first'

In any case, LAs have a moral responsibility to look after their citizens. The Pitt Review urged local government to 'put people first' in their flood planning, since the experience of 2007 was that LAs appeared to have little or no knowledge of the impact on people or their homes in the event of significant localised flooding.

A so-called '100-year storm' – the most intensive for planning – should occur *once* every 100 years. Yet Britain has experienced two such events between 2007-2009 (the most recent deemed a '1,000-year' event), and climatologists are forecasting other similar events over the next 50 years.

But, to understand the risk of downstream impacts, it is imperative to visualise and understand the network below ground, as well as the surface details. Which is why LAs across the UK and Ireland are, for once, being encouraged to bury their heads underground.

For more information on points raised in this article, contact nicolam@itpr.co.uk

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