

## NATIONAL TECHNICAL ADVISORY GROUP ON FLOODING ISSUES

**Action:** SFM sub-group to discuss further a short scoping study into design tensions between LAs and Scottish Water over the interface between fluvial and urban drainage systems.

### Purpose

1. This short paper outlines a proposal for a scoping study to address conflict between LAs and Scottish Water (SW) over design criteria applicable to fluvial and urban drainage systems.

### Background

2. At the meeting of 5 February, NTAG called for the SFM sub-group to discuss further the need for a short scoping study into conflicts arising from the application of different design criteria to fluvial and urban drainage systems. These conflicts can arise when LA personnel believe sewer design criteria should be comparable with watercourse design criteria while SW personnel often believe watercourse investment should precede any sewerage investment where watercourse flooding is involved.
3. There are currently two distinct and very different sets of criteria for the design of drainage systems namely:
  - a). those pertaining to sewers owned and maintained by the water authority that are expected to accommodate curtilage runoff and surface water runoff from roads and other areas in agreement with the roads authority, and
  - b) those pertaining to watercourses and rivers, which may be owned by a number of riparian owners, but in terms of flood performance are the responsibility of the local authority.

For new areas and existing areas where there is no interaction between these two systems there is little cause for conflict and the application of modern design criteria is appropriate. New surface water sewers are expected to provide for the 1 in 30 year critical storm, while river systems are expected to contain the 1 in 100 year critical storm. These different criteria should be compared with Defras' indicative minimum standard for urban areas of 1 in 75.

However, for older towns and cities such as Glasgow where drainage systems have evolved out of the natural system and where rivers/burns have over time become sewers this dual approach does not hold and leads to a great deal of confusion. This confusion can be exacerbated when climate change impacts, overland flooding, secondary flooding and design exceedance issues are significant factors in a flood alleviation scheme. Importantly, this confusion can result in the public perceiving a lack of joined up thinking amongst professionals.

4. Generally, flooding from sewerage systems tends to be localised and affect fewer properties than flooding from watercourses. Watercourse flooding can affect large areas of development and this usually makes the cost benefit assessment more favourable compared with sewer flood alleviation schemes. Furthermore, sewerage systems tend to flood in response to relatively short duration events whereas watercourses tend to flood in response to long duration events. Trigger and target levels for sewerage and watercourse investment vary, see attached table. Target levels for sewer investment also varies amongst the Water plcs in England and Wales.
5. There are various ongoing UK research initiatives designed to address some of the issues associated with the above. UKWIR's report into climate change and the implications for the design of sewerage systems will be released in April 2004. The EPSRC/UKCIP funded AUDACIOUS and FRMRC projects will consider related issues but will not produce substantial reports until late 2005 at the earliest. CIRIA's "Designing for Exceedance" project that will report in mid 2005 is also relevant. Scottish Water is an active participant in each of the aforementioned. Irrespective of the foregoing, arguably, a case could be made for some additional research with a "Scottish" dimension. For example, an initial assessment of sewer and watercourse performance in Glasgow East End has shown the potential impacts of climate change will be of major concern and that secondary flooding and overland flow issues will be major factors for the White Cart project.
6. Taking all of the above into consideration, it can be seen that harmonising the design standards for sewers and watercourses is not straightforward and it could be argued that the current situation should be maintained. On the basis that lowering the standards for the design of flood prevention measures for watercourses would be unacceptable then harmonisation could only be achieved by raising the design standards for sewerage. There are practical as well as economic difficulties with bringing sewer system design standards up to the same level as watercourse standards and it could be considered more appropriate to apply more effort to the removal of surface water from sewerage systems and extending the application of SuDS wherever possible than attempt to achieve higher flood protection standards for sewers.
7. **Members are invited to:**
  - **Discuss the above**
  - **Consider the attached design criteria summary**
  - **Consider the contribution of ongoing research to the above**
  - **Consider the need for further research with a "Scottish" dimension**
  - **Consider the need for a scoping study to address design tensions between LAs and Scottish Water with respect to sewer and watercourse flood alleviation schemes.**

**SCOTTISH WATER**

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