

## Planning and Development – the challenge of Flooding from ‘other sources’

*This challenge comes from experience in Lancashire and Cumbria over the last 10 years. It seems to apply particularly to smaller city and urban areas, and sub-urban and rural sites, which fall outside the regional ‘flood management plan’ processes, because each is not ‘significant’ enough to qualify as a ‘Flood Risk Area’ (FRA). But such sites add up to affect many people, and much flooding misery.*

### Summary

- More and more ‘Zone 1’ development sites have complex ‘other sources’ flood risk to deal with. This will steadily increase, due to climate change and development pressures.
- Current guidance and practice throughout the development and planning process mentions these risks, but is not yet set up to respond to them effectively, or to incentivise developers to do so.
- So developments are not being designed properly to manage such flood risk, and this will increase ‘other sources’ flooding as a result.
- The reputation of SuDs as a drainage solution, of drainage professionals, and of the EA, CIWEM and CIRIA may suffer, through being seen as ‘collaborators’ engaged in an ineffective process.
- So EA, CIWEM and CIRIA need to engage now, pro-actively, through the NPPF review consultation and more widely with LPAs and LLFAs’, and apply their expertise in understanding and managing these new forms of flood risk, to make the development process effective in managing it.

### Drivers

1. Climate change (CC) is steadily increasing the intensity of rainfall and hence flooding, including more flood risk from ‘non-traditional’ (i.e. not ‘river’ and ‘coastal’) ‘other sources’:
  - from surface water [‘pluvial’], over-surface from upstream, and continuing downstream,
  - from ‘groundwater’, due to rising groundwater levels,
  - in ‘critical drainage area’ (where the capacity of existing drainage systems is exceeded),
  - from building on what were up-slope flood storage areas, which are not in the ‘flood plain’,
  - from ‘residual risk’ – when rainfall and run-off exceed design rates and flow over the surface.
2. Existing drainage systems and soil infiltration capacities are fixed; so this ‘other sources’ flooding - caused by increasing rainfall exceeding these capacities - is increasing *faster* than the climate change-driven rainfall intensity itself.
3. Local Planning Authorities (LPAs) are under great pressure to find enough development sites within Local Plans (LPs), within constraints (themselves under challenge) such as Green Belt protection. So they find it very hard to exclude sites from development because of these new, apparently lesser, ‘other’ flood risks.
4. LPAs, developers and their local drainage designers often do not have specialist flooding and drainage analysis knowledge, kept up to date, of these new flood risk concerns.
5. Lead Local Flood Authorities (LLFAs), who may have such knowledge, are over-stretched and under-budgeted to be able to take a more pro-active, leading role in site by site analysis.
6. Although drainage design allows for rainfall and sea level increases due to CC, standard EA allowances instructing developers lag behind their latest research; so designs are systemically underestimating the ‘future flood risk’ – i.e. for the (100 years plus?) developments’ life, that is required to be designed for<sup>1</sup>.
7. As instances and knowledge of these new flooding causes has grown, words referring to them have been inserted into the NPPF, and hence into LPs; but in a piecemeal fashion, lacking sufficient emphasis and urgency, which is not changing implementation practice.

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<sup>1</sup> The current EA allowance for CC-driven increases in rainfall intensity, for all England is +20 – 40% [<https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>]. Whereas hearsay from EA latest research suggests that allowances need to be different for different parts of the UK; with some areas warranting a +115% rainfall intensity increase.

### **The result of this, for Planning and Development**

8. In Local Plans (LPs), as well as the usual Zone 2 and 3 'Sequential Test' exclusion of flood risk sites, more and more sites are being identified in good SFRA as 'Zone 1 + 'other sources' flood risk'<sup>2</sup>.
9. Most of these will not be excluded from development by LPAs via 'Exception Tests', because of the huge pressure - via the national policy NPPF and LP's 'inspection' - for them to identify enough development sites in their LP to meet demand.
10. So, such sites are being made available for development, with the requirement that 'Site FRAs' must be done, now having to deal with this new 'flood risk from all sources'.
11. Developers are used to Zone 1 sites not having any real flood risk, even when they have to do a site FRA, with their drainage being solved in a conventional approach, often using some form of SuDs, that does not constrain site layouts, or the amount of housing that they can fit on the site.
12. The LLFAs have more detailed flood risk knowledge, and can provide early comments and FRA requirements to developers, and developers are referred to them by the EA's Guidance<sup>3</sup> [Feb 2017] for developers doing site FRAs; but there seems a disconnect between this and developers doing the very early, more sophisticated site FRAs that are needed.
13. So, new development sites are receiving too-simplistic site FRAs, relying too much on standardised SuDs solutions, which do not look at risks outside the site boundary. And they are done after site layouts (and hence numbers of homes, hence site sale value, and hence land price) have been assumed.
14. When such drainage designs are challenged by planning objections, usually from local knowledge, this happens late on in the planning process, leading to likely compromised 'add on' re-designed solutions, and causing delays to the development<sup>4</sup>.

### **Consequences**

15. Where developers *do* have to carry out a drainage re-design, this can change the site layout, and reduce the number of homes, lowering the site's total sale value. Currently this can be used by the developer, via the process of 'Viability Appraisal', to argue with the LPA for a reduction in its Section 106 obligations to the community, including Affordable Housing numbers, as no longer viable. So the LPA is being forced to trade-off between two of its key planning control obligations: meeting community needs and standards, and managing flood risk<sup>4</sup>.
16. The reputation of SuDs as a sensible drainage approach is being undermined, in the minds of local people concerned about flooding, who blame SuDs when it fails to cope with 'other sources' flooding, or is used in 'inappropriate' situations.
17. For the same reasons, the reputation of drainage and flooding professionals, and their guidance and manuals (EA, CIWEM, and CIRIA) is being questioned. They appear, from the outside, to be collaborating in a development control system that may have good words in the policy framework, but is failing to be implemented in a way that actually manages flood risk effectively.
18. Overall, the system is already failing to ensure that 'future flood risk' on developments – meaning flooding from all sources, for the expected life of the site (100 years, at least?) – is properly managed. This 'systems' failure will get steadily worse, as CC develops, and pressure to use more 'at risk' development sites continues, causing much unnecessary misery.

### **Recommendations**

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<sup>2</sup> E.g. in the Lancaster City Council SFRA [Feb 2018] for their draft Local Plan: the Main Table identifies 335 'Zone 1' sites for development, out of which 227 are 'Zone 1 + SW' flood risk, from Surface Water.

<sup>3</sup> <https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications> If you are in Zone 1: <https://www.gov.uk/guidance/flood-risk-assessment-in-flood-zone-1-and-critical-drainage-areas>

<sup>4</sup> This has happened for Site ID H2.10 in Halton, Lancashire. A late redesign for surface water flood risk required making space for an infiltration pond, reducing house plots from 84 to 77, and possibly contributing to the developer's viability test justifying a reduction in affordable housing provision from 40% to 20%.

19. **NPPF.** The revised text needs to:

- better organise the wording on ‘other sources’ of flooding, and add emphasis on the new approach needed to deal with them;
- insist on the very early application of this approach to sites; and
- require that any ‘extra’ flood management analysis and solution costs will be *dis-allowed* in any developer’s site ‘viability assessment’ of a site, as they should be assessed right from the start, and will be expected (since they are an inherent property of that site) to have reduced the land price paid.
- Recognise and emphasise that up-front clarity about flood risk management costs will minimise site ‘surprises’, and the need for re-design and protracted ‘viability assessment’ negotiations, reducing the developer’s delay and cost in gaining planning approval and site implementation.

20. **LPAs and their Local Plans.** These need to:

- follow through on and implement such a NPPF revised approach, at their greater and local level of detail;
- ensure that their SFRAs take ‘other sources’ risks, and latest EA CC data, properly into account, and label Zone 1 sites which have ‘other sources’ flood risks;
- insist upon very early site FRAs, before site ‘homes’ capacity and land price is assumed; and for these to explicitly assess ‘other sources’ risk from the site and upstream, and risk from groundwater; and to model over-ground (‘exceedance’<sup>5</sup>) flows, both upstream of, through and downstream of the site, until it safely reaches a watercourse.
- make it very clear that late site adjustments for proper flood risk management will not allow reductions in developers’ Section 106 and affordable housing obligations.

21. **LLFAs.** These need to:

- Ideally, carry out ‘level 2’ FRAs on all the sites identified as Zones 3, 2, or 1 + ‘other sources’, to assess the implications for site layout and houses capacity, to provide developers with this information at the start of their site planning;
- Or, if this is not feasible, due to lack of detailed site information, or of time, skills or funding: at least to specify in detail the site FRA components and methods that must be used by the developer to deal properly with ‘other sources’ flood risk, with the requirement that both the methods and the outcome design must be ‘signed off’ and accepted by the LLFA.

22. **EA, CIWEM and CIRIA.** They need to:

- Acknowledge that the current implementation of flood risk management for developments, using their research, guidance and manuals, is failing to deliver the well managed flood risk outcomes that the system needs; and that this could damage their reputation and public trust;
- Collaborate together, to work with and influence the NPPF, LPAs and LLFAs, to update their guidance and manuals; and provide a detailed flood risk assessment methodology, which covers all ‘other sources’ risks, for site FRAs by developers; but also, set these within the policy framework, so that developers have a direct incentive to use this in a timely way;
- EA: spend more effort, as the collector of flooding information, the updater of Flood Maps (including that for Surface Water) and, critically, the certifier of the increasing number of ‘critical drainage areas’, in collecting information and keeping it up to date.

23. **Developers, and landowners.** They need to:

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<sup>5</sup> See CIRIA, [Designing for exceedance in urban drainage - good practice \(C635\)](https://www.ciria.org/Designing_for_exceedance_in_urban_drainage_-_good_practice_(C635))

Free online at: [https://www.ciria.org/Resources/Free\\_publications/Designing\\_exceedance\\_drainage.aspx](https://www.ciria.org/Resources/Free_publications/Designing_exceedance_drainage.aspx)

- Recognise that many of the sites now being given permission for development will now need more sophisticated flood risk assessment, and drainage/flood management designs, at higher costs than in the past, to deal with these increasing 'other sources' flood risks;
- Accept that those extra flood management costs, which are fundamental to each site, must be borne by a reduction in the land sale price – not by a developer's reduced profit, nor by the LPA's loss of the required community commitments and standards from the site.
- Therefore, carry out the site FRAs very early on, in the new way specified, so as to have these results built-in to their site financial planning and pricing from the start. This will minimise later extra cost, and delays in obtaining planning permission, and in realising their financial returns.

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