

- 9.12.5 The Environment Agency's Thames River Basin District **Flood Risk Management Plan** is part of a collaborative and integrated approach to catchment planning for water. Measures to address flood risk should be integral to development proposals and considered early in the design process. This will ensure they provide adequate protection, do not compromise good design, do not shift vulnerabilities elsewhere, and are cost-effective. Natural flood risk management in the upper river catchment areas can also help to reduce risk lower in the catchments. Making space for water when considering development proposals is particularly important where there is significant exposure to flood risk along tributaries and at the tidal-fluvial interface. The Flood Risk Management Plan should inform the boroughs' Strategic Flood Risk Assessments.
- 9.12.6 In terms of mitigating **residual risk**, it is important that a strategy for resistance and then resilience including safe evacuation and quick recovery to address such risks is in place; this is also the case for utility services. In the case of a severe flood, especially a tidal flood, many thousands of properties could be affected. This will make rescue and the provision of temporary accommodation challenging. Designing buildings such that people can remain within them and be safe and comfortable in the unlikely event of such a flood, will improve London's resilience to such an event.

Policy SI 13 Sustainable drainage

- A Lead Local Flood Authorities should identify – through their Local Flood Risk Management Strategies and Surface Water Management Plans – areas where there are particular surface water management issues and aim to reduce these risks. Increases in surface water run-off outside these areas also need to be identified and addressed.
- B Development proposals should aim to achieve greenfield run-off rates and ensure that surface water run-off is managed as close to its source as possible. There should also be a preference for green over grey features, in line with the following drainage hierarchy:
- 1) rainwater use as a resource (for example rainwater harvesting, blue roofs for irrigation)
 - 2) rainwater infiltration to ground at or close to source
 - 3) rainwater attenuation in green infrastructure features for gradual release (for example green roofs, rain gardens)

- 4) rainwater discharge direct to a watercourse (unless not appropriate)
 - 5) controlled rainwater discharge to a surface water sewer or drain
 - 6) controlled rainwater discharge to a combined sewer.
- C Development proposals for impermeable surfacing should normally be resisted unless they can be shown to be unavoidable, including on small surfaces such as front gardens and driveways.
- D Drainage should be designed and implemented in ways that promote multiple benefits including increased water use efficiency, improved water quality, and enhanced biodiversity, urban greening, amenity and recreation.

- 9.13.1 London is at particular risk from surface water flooding, mainly due to the large extent of impermeable surfaces. Lead Local Flood Authorities have responsibility for managing surface water drainage through the planning system, as well as ensuring that appropriate maintenance arrangements are put in place. **Local Flood Risk Management Strategies and Surface Water Management Plans** should ensure they address flooding from multiple sources including surface water, groundwater and small watercourses that occurs as a result of heavy rainfall.
- 9.13.2 Development proposals should aim to get as close to greenfield run-off rates¹⁷³ as possible depending on site conditions. The **well-established drainage hierarchy** set out in this policy helps to reduce the rate and volume of surface water run-off. Rainwater should be managed as close to the top of the hierarchy as possible. There should be a preference for green over grey features, and drainage by gravity over pumped systems. A blue roof is an attenuation tank at roof or podium level; the combination of a blue and green roof is particularly beneficial, as the attenuated water is used to irrigate the green roof.
- 9.13.3 For many sites, it may be appropriate to use **more than one form of drainage**, for example a proportion of rainwater can be managed by more sustainable methods, with residual rainwater managed lower down the hierarchy. In some cases, direct discharge into the watercourse is an appropriate approach, for example rainwater discharge into the tidal Thames or a dock. This should include suitable pollution prevention filtering measures, ideally by using soft engineering or green infrastructure. In addition, if direct discharge is to a watercourse where

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The runoff that would occur from a site in undeveloped natural state.

