

APPENDIX F

Minimum Development Control Standards for Flood Risk

MINIMUM DEVELOPMENT CONTROL STANDARDS FOR FLOOD RISK

Basic Information to be submitted

Indicative Drainage Strategy required for all sites

Flood Risk Assessment (incorporating off-site impact) required for all sites – proportionate to the risk and appropriate to the scale, nature and location – taking account of flooding from any source

On-site Standard

Demonstrate compliance with Building Regs H3 – i.e. check infiltration feasibility, give preference to soakaways

Basically **Sewers for Adoption** standard

- 1 in 2 year pipe full (with exceptions)
- 1 in 30 year no site flooding (PPS25 PG, 5.51)

No property flooding for 1 in 100 yr (+ CC) (PPS25, PG 5.51)

For **SUDS** the same standard (CIRIA C609, p80)

Freeboard above 1 in 100 years fluvial flood level should be: 600mm for dwellings, 400mm for office & commercial, 300mm for industrial and warehousing, 300mm for entrance to u/ground car parks. These figures can be halved where CC is taken into account (Leeds SFRA, para.223)

Off-site Impact

Flows beyond 1 in 30, but up to 1 in 100 years (+CC), should be stored on site (e.g. in car parks, hollows, etc) unless run-off from site has no unreasonable adverse impacts compared with the existing situation) (PPS25, PG 5.54)

No Soakaways where history of groundwater flooding or where flows could re-emerge to flood lower level property

Green field

(allowable discharges)

To watercourse or to sewer

- **Green field rates** up to 1 in 100 years (+CC)
- **Volume** control as per ICOP, p48
- Additional downstream works may be required

Brown field

(allowable discharges)

Reduce run-off rates as much as is reasonably practicable (PPS25, PG 5.50)

New connection to watercourse or sewer

- As green field

Existing connection to watercourse or sewer

- A minimum 30% reduction to existing peak flow rates up to 1 in 100 year storm (+CC)

NOTES

Soakaways

BRE365 standard of 1 in 10 years is not acceptable (C609, p80).

Climate Change

Developers should assume an increase in rainfall depth and peak river flows in line with PPS25 Table B2, taking account of the development lifetime (e.g. 100 years for residential – PG 3.102).

Green field run-off

For sites < 1ha a maximum discharge rate of 5 l/s can be used for all storms up to 1 in 100 years +CC.

For larger sites the table of methods in ICOP can be used

Brown field run-off

Existing peak discharge can be taken as 140 l/s/ha of connected roofs and paving, in lieu of detailed calculations

Flow Control Orifices

Generally must not be less than 75 mm in diameter (C609, p75)

Point of Connection

To a watercourse or sewer must be such that it will not create additional flooding due to increased flow rates or volumes

Water Quality

Car park petrol interceptors to be agreed with the EA

Adoption/Maintenance

Clear-cut provisions for future maintenance. Major features (e.g. balancing tanks and ponds) to be maintained by a corporate body

SURFACE WATER MANAGEMENT – CALCULATION & DRAWING REQUIREMENTS

Purpose: To assist developers in demonstrating that they are complying with latest guidance on managing surface water run-off the following calculations and drawings shall be submitted:

1) General Drainage Information

A summary sheet (1 page max) showing the global variables which have been used in the design of the surface water sewerage system.

For Leeds, the following values are typical: M5_60 = 19.0mm, Ratio_R = 0.348, Cv (Summer) = 0.750, Cv (Winter) = 0.840.

Note: The values of Cv may be increased by 20% to model the effects of climate change, if there is no other provision in the developer's software.

Pipe roughness: As per *Sewers for Adoption* guideline values.

The Following Key Data must be provided:

- (a) The total impermeable area of the whole development
- (b) The existing impermeable area and the allowable peak discharge from the site.
(Refer to Guidance Note)
- (c) The total volume of attenuation storage which will be provided both above and below ground.

Provide a drawing showing a schematic of the drainage layout, with all pipes, manholes, ponds, etc clearly numbered or referenced to the model output.

On-Site Standards

2) No Surcharge up to 1 in 2 year return period

Provide a *summary sheet* demonstrating compliance

3) No Flooding up to 1 in 30 year return period

Provide a *summary sheet* demonstrating compliance

Off-Site Standards

4) Maximum Discharge

Provide results of peak flow from the downstream pipe, which must be \leq allowable discharge

5) No Additional Run-off from site up to 1 in 100 years + Climate Change

Provide results showing the peak water level in any pond, or tank (and hence volume)

Provide a drawing showing the size and location of all the attenuation storage provided.

Where attenuation storage is located above ground, provide details of finished ground levels and demonstrate flood pathways to the storage areas.

Note: We do not need to see reams of hydraulic calculations. We do not have the means to check these in detail anyway, but we do require the developer to demonstrate compliance with the Leeds City Council's *Minimum Development Control Standards for Flood Risk*, which is based on the provisions of PPS25.