

Guidance for Developers producing Drainage Strategies

Appendix A (Version 1.5)

The South Yorkshire Interim Local Guidance for SuDS and CIRIA 753 The SuDS Manual is the minimum required standard to ensure a satisfactory scheme is constructed. There will be differences between each individual South Yorkshire Local Authority, with regards to what is acceptable, what will be adopted (if at all) and any commuted sums if applicable. This Appendix is supplementary to the Local Guidance, CIRIA 753 The Suds Manual, Supplementary Planning Document for Development and Flood Risk 2010 and the DEFRA Non-statutory technical standards for SuDS. It provides further information and guidance to developers when submitting a Planning Application in Doncaster.

SuDS Design Statement

When submitting your Planning application and considering SuDS for your development (only applicable to Major applications as defined in Section 2 of the Local Guidance) , it is expected (as a absolute minimum) that you will have taken into account and provided the necessary information as follows:

1. Considered hierarchically the drainage destination for surface water (section 6.3 Local guidance) and providing any options analysis for drainage solutions including discharge routes.
2. Description and plan of the development showing the characteristics of the site including topography ground conditions and flood risk.
3. Has consideration been given to the levels and layout of the site, as to how surface water (particularly exceedance flows) are managed both within and off site. (eg – Desk top exercise to provide details of the pre and post-development surface water flood routes)
4. Principles as to how storm return periods up to 1/100yrs plus climate change (30%) will be managed both on and off site. (eg – Indicative drainage strategy including storage estimates and discharge rates)

Table 1 below is the level of information which would need to be submitted for each type of application or stage within the planning process and will vary depending on the size of the development, flood risk, constraints, proposed sustainable drainage system and so on. It is appreciated that the Flood Risk/Drainage Strategy may not always be fully developed at this stage, but it is expected that the information will be provided at some stage for review and approval during the planning process for the development.

Table 1

Pre-App	Outline	Full	Reserved	Discharge	Document Submitted
X	X	X			Flood Risk Assessment/Statement
X	X	X			Drainage Strategy/Statement & Sketch layout plan
	X				Preliminary layout drawings
	X				Preliminary "Outline" hydraulic calculations
	X				Preliminary landscape proposals
	X				Ground Investigation report (for infiltration)
	X	X			Evidence of third party agreement for discharge to their system (in principle/consent to discharge)
		X		X	Maintenance programme and on-going maintenance responsibilities
		X	X		Detailed development layout
		X	X	X	Detailed flood & drainage design drawings
		X	X	X	Full structural, hydraulic and ground investigations
		X	X	X	Geotechnical factual and interpretive reports including infiltration results
		X	X	X	Detailed landscaping details
		X	X	X	Discharge agreements
		X	X	X	Development management and construction phase plan

The list below is a general guide (which might be included as informatives in the planning decision notice) as to the information required and also the standards required when considering flood risk and drainage design.

Further information and guidance is also available in the Doncaster MBC Supplementary Planning Document for Development and Flood Risk 2010, CIRIA 753 - The Suds Manual, South Yorkshire Interim Local Guidance for SuDS and the DEFRA Non-statutory technical standards for SuDS, but some of the information and standards in that document will be superseded by the information provided in this document.

1. Records indicate history of flooding in this area between 1947 and 2007.
2. Records indicate site to be in Environment Agency Flood Warning Area.
3. Records indicate that this area may be susceptible to surface water flooding. Please see Environment Agency indicative SW Flood Maps.
4. 2007 Records indicate that properties in this area were subject to:
 - External area flooding.
 - Internal flooding but properties remained habitable.
 - Major internal flooding which caused property to be temporarily inhabitable.
5. Flood resilience should be duly considered in the design of the new building/s or renovation. Guidance may be found in BRE Digest 532 Parts 1 and 2, 2012 and BRE Good Building Guide 84.
6. The applicant should provide a Flood Evacuation Plan which outlines:
 - The flood warning procedure.
 - A safe point of extraction.
 - How users can safely evacuate the site upon receipt of a flood warning.
 - The areas of responsibility for those participating in the plan.
 - The procedures for implementing the Plan.
 - How users will be made aware of the flood risk.
 - How users will be made aware of flood resilience.
 - Who will update the flood evacuation plan?
7. Surface water drainage plans should include the following:
 - Rainwater pipes, gullies and drainage channels including cover levels.
 - Inspection chambers, manholes and silt traps including cover and invert levels.
 - Pipe sizes, pipe materials, gradients and flow directions.
 - Soakaways, including size and material.
 - Typical inspection chamber / soakaway / silt trap and SW attenuation details.
 - Site ground levels and finished floor levels.

8. Surface Water Discharge From Brownfield Site

There should be no increase in surface water discharge from the site to existing sewers / watercourses. On site surface water attenuation will therefore be required if drained areas to existing sewers / watercourses are to be increased. A 30% net reduction to existing peak discharge (up to a 1/100 yr storm + 30% CC) will be required if the site is being re-developed. A full justification will be required where the development cannot achieve the 30% betterment on the existing run-off rate.

9. Surface Water Discharge From Greenfield Site

The total surface water discharge from greenfield sites should be limited to green field run- off rates - up to 1 in 100 years storm + climate change. On site surface water attenuation will be required.

If the greenfield run-off for a site is calculated at less than 2 l/s then a minimum of 2 l/s can be used (subject to approval from the LPA)

10. On Site Surface Water Management

The site is required to accommodate rainfall volumes up to 1 in 100 year return period (plus climate change) whilst ensuring no flooding to buildings or adjacent land.

The applicant will need to provide details and calculations including any below ground storage, overflow paths (flood routes), surface detention and infiltration areas etc to demonstrate how the 100 year + 30% CC rainfall volumes will be controlled and accommodated.

Where cellular storage is proposed and is within areas where it may be susceptible to damage by excavation by other utility contractors, warning signage should be provided to inform of its presence. Cellular storage and infiltration systems should not be positioned within highway.

Guidance on flood pathways can be found in BS EN 752.

11. If infiltration systems are to be used for surface water disposal, the following information must be provided:

- Ground percolation tests to BRE 365.
- Ground water levels records. Minimum 1m clearance from maximum seasonal groundwater level to base of infiltration compound. This should

include assessment of relevant groundwater borehole records, maps and on-site monitoring in wells.

- Soil / rock descriptions in accordance with BS EN ISO 14688-1:2002 or BS EN ISO 14689-1:2003
- Volume design calculations to 1 in 30 year rainfall + 30% climate change standard. An appropriate factor of safety should be applied to the design in accordance with CIRIA C753 – Table 25.2.
- Location plans indicating position (Soakaways serving more than one property must be located in an accessible position for maintenance). Soakaways should not be used within 5m of buildings or the highway or any other structure.
- Drawing details including sizes and material.
- Details of a sedimentation chamber (silt trap) upstream of the inlet should be included.

Soakaway detailed design guidance is given in CIRIA Report 753, CIRIA Report 156 and BRE Digest 365.

12. Watercourse consent may be required by the applicant from DMBC Flood Risk Team OR the Local Internal Drainage Board for any works on the watercourses adjacent to / crossing the site.
13. Written evidence is required from the sewerage undertaker / Internal Drainage Board / Environment Agency to confirm any adoption agreements and discharge rates.
14. Car wash run-off should discharge to sewer only not to watercourse or soakaway. The applicant should demonstrate sufficient drainage on site to intercept the car wash run-off and prevent flows running on to neighbouring properties and the public highway. There should also be sufficient drainage arrangements in place to remove silt and oil from the car wash run-off (silt trap/s and oil interceptor). The applicant should contact the sewerage authority for a licence to discharge industrial waste to the public sewerage system.
15. A Flood Risk Assessment (FRA) should be provided for the proposed development site, in accordance with the NPPF (including Technical guidance and DMBC Supplementary Planning Guidance Document). Where the site is at risk of flooding (Fluvial and Pluvial), details of place of refuge/evacuation should be considered and also sign up to the Environment Agency Flood Warning Service.
16. The proposed development is within a groundwater source protection zone (SPZ_)

Where the development lies within SPZ 1 or 2, the applicant is advised to consult with the Environment Agency to ensure that pollution risk to aquifers is minimised.

All necessary precautions should be taken to avoid any contamination of the ground and thus groundwater. Guiding principles on the protection of

groundwater are set out in Environment Agency document GP3.

17. The proposed development is within the operating boundary of (Black Drain, Danvm and Doncaster East Internal Drainage Board – delete as appropriate), who should be consulted with regard to land drainage matters.
18. The written consent of the IDB may be required for any works on or near a watercourse.
19. No part of the proposed development shall be constructed within 5-8m of an ordinary watercourse and a minimum 3 m for a culverted watercourse (increases with size of culvert)
20. The written consent of DMBC may be required for any works on or near to an ordinary watercourse. DMBC have an anti-culverting policy.
21. The applicant may require written consent from the Environment Agency, for any proposed discharge to “controlled waters” (main river/watercourse)
22. The applicant shall submit for approval by the LPA prior to commencement of development, details indicating how additional surface water run-off from the site will be avoided during the construction works. The applicant may be required to provide collection, balancing and/or settlement systems for these flows. The approved system shall be operating to the satisfaction of the LPA before the commencement of any works leading to increased surface water run-off from site.
23. All Micro Drainage calculations and results must be submitted in .MDX format, to the LPA. (Other methods of drainage calculations are acceptable)
24. If the development is proposing to make a new highway drainage connection to an existing highway drainage system, detailed CCTV surveys and modelling of the existing highway drainage system will be required to determine the capability to accept additional flow. Discharge will be limited to greenfield run-off rates.
25. Any SuDS/Drainage system installed must not be at the detriment to the receiving watercourse or ground (infiltration), so managing the quality of the run-off to must be incorporated into any design in accordance with CIRIA 753 The SuDS Manual
26. The design of flow control devices should, wherever practicable, include the following features:
 - a) Flow controls may be static (such as vortex flow controls or fixed orifice plates) or variable (such as pistons or slide valves);

- b) Controls should have a minimum opening size of 100 mm chamber, or equivalent;
- c) A bypass should be included with a surface operated penstock or valve; and
- d) Access should be provided to the upstream and downstream sections of a flow control device to allow maintenance.