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Supplementary Requirements for Surface Water Drainage Proposals

National Planning Policy requires Local Planning Authorities to ensure that flood risk is not increased due to development. To ensure this requirement is met and that developments are adequately drained, we have adopted the West Sussex County Council (WSCC) Policy for the Management of Surface Water https://www.westsussex.gov.uk/media/12230/ws_llfa_policy_for_management_of_surface_water.pdf. We have also developed a surface water drainage proposals checklist for planning applicants and their consultants.

This checklist clearly outlines our expectations and requirements for surface water drainage proposals. When submitted with a surface water drainage proposal it will enable our drainage engineers to review and evaluate the submission quickly and efficiently.

The checklist should be used when completing discharge of conditions applications or if the applicant wishes to avoid pre-commencement conditions relating to surface water drainage. Before completing this checklist please read the guidance notes below.

In order to satisfy the surface water drainage verification planning condition, please read the surface water drainage verification report for information. The checklist and verification report guidance note can both be found on our website.

Any proposed surface water scheme must consider sustainable drainage principles.

SuDS Selection

The following destinations must be considered for surface runoff in order of preference:

1. Discharge into the ground (infiltration).

2. Controlled discharge to a surface water body.

3. Controlled discharge to a surface water sewer.

Surface water must not be discharged into the foul sewer system. Infiltration structures include soakaways, basins, swales and permeable paving. Open SuDS features are encouraged. Structures that span individual property boundaries are discouraged. Discharge to surface water bodies and surface water sewers must be restricted to an agreed rate.

SuDS selection hierarchy based on:
CIRIA C753 - The SuDS Manual
BS8582:2013 – Code of Practice for Surface Water Management for Development Sites
Approved Document H of the Building Regulations

Infiltration Drainage Design

Any infiltration drainage design must include adequate winter groundwater monitoring data to determine the highest winter groundwater table. Residential developments of ten properties or more (major applications) will require groundwater monitoring to be carried out between October and March inclusive. The extent of monitoring required for smaller developments will be subject to agreement with our engineers but will need to capture likely peak groundwater levels during the winter period. This is likely to be during January or February but is dependent on factors, including the weather up to that point.

Adequate freeboard must be provided between the base of the soakaway structure and the highest recorded groundwater level identified in that location.

Infiltration rates for soakage structures are to be based on infiltration tests undertaken at an agreed time during the winter period and at the location and depth of the proposed structures. The infiltration test depth is also dependent on the peak groundwater levels recorded at that location, ensuring that the test depth does not exceed the depth to the peak groundwater level recorded. The infiltration tests must be carried out in accordance with BRE 365, CIRIA R156 or a similar approved method.

For the design, the infiltration rate must be applied to the sides of the infiltration structure only and the rate for the base must be zero, unless otherwise agreed. For infiltration basins or permeable pavements, the percolation rate is generally applied to the base only.

All design storms must include a climate change allowance on stored volumes or rainfall intensity. Infiltration structures must cater for the critical 1 in 10 year storm event, (plus 40%) between the invert of the entry pipe to the soakaway and the base of the structure. The design must also have provision to ensure that there is capacity in the system to contain the critical 1 in 100 year storm event (plus 45%) on site.

The infiltration design should also drain 50% of its total volume in 24 hours or less for the 1 in 10 (plus 40%) critical storm event and also the 1 in 100 year (plus 45%) critical storm event if possible, to provide spare capacity for subsequent storms.

All major applications must also include a 10% allowance for urban creep applied to the design.

Restricted Discharge

Discharge to a watercourse or surface water sewer must be restricted to the estimated mean greenfield runoff rate (Q_{bar}) for all design storm events. The calculations must be based on the positively drained area, rather than the entire greenfield site area. Runoff rates can be derived from IH124 or a similar approved method.

For brownfield sites, the same criteria applies. If it is deemed that this is not achievable, evidence must be provided and flow should be restricted to as close to Q_{bar} as possible, with a minimum requirement of 50% betterment.

Flow restriction is to be achieved using a suitable controlled outflow with a minimum outflow of 2 l/s, unless otherwise agreed, with satisfactory blockage mitigation measures specified.

Any storage design must be submitted with winter groundwater monitoring data and where applicable, floatation calculations, to ensure there will be no detrimental effect on the structure or storage.

The design must have provision to ensure that there is capacity in the system to contain the critical 1 in 30 year storm event (plus 40%) within the network/ storage features and the 1 in 100 year storm event (plus 45%) safely on site.

All major applications must also include a 10% allowance for urban creep applied to the design.

Flow Exceedance Routes

The drainage design should show flow routes through the proposed development, demonstrating where surface water will be conveyed for three types of flow:

1. Low flow routes

Regular flow from source control features such as permeable pavements should travel in low flow channels through the development in a controlled way contributing to landscape quality.

2. Overflows

In the event of local blockages or surcharge a simple overflow arrangement should allow water to bypass the obstruction and return to the management train sequence until conditions return to normal.

3. Exceedance routes

When SuDS are overwhelmed by exceptional rainfall, then exceedance routes are required to protect people and property. These provide unobstructed overland flow routes from the development and should be considered for all drainage schemes. Exceedance routes should also be protected from future changes in land use.

Landscaping and Drainage

All sites must demonstrate that root potential areas of existing and proposed trees do not conflict with the proposed surface water drainage network. This is to ensure no future detriment to the infrastructure in terms of its structure and functioning. Furthermore, no woody stemmed plants are to be located within 3.5m of the top of bank of swales or basins.

Water Quality

All developments must demonstrate provision of adequate treatment of surface water prior to discharge. Treatment at source and via a treatment train should be provided. Please refer to CIRIA C753 Chapter 26 for further details. For example, permeable paving is encouraged wherever possible.

Culverting a Watercourse

Culverting (piping) a watercourse is not advised unless there is no alternative. The resulting reduction in storage volume, flow capacity and habitat potential would be unacceptable. Culverted watercourses are also more difficult to maintain due to the limited accessibility.

Land Drainage Consent must be sought from the Lead Local Flood Authority (WSCC), or us acting as their agent (engineers@adur-worthing.gov.uk), prior to starting any works (temporary or permanent) that affect the flow of water in the watercourse. Such works may include culverting, channel diversion, discharge of flows, bank reinforcement, connections, headwalls and the installation of trash screens.

Please also refer to the 'culvert policy' and consent application form available on the WSCC website; https://www.westsussex.gov.uk/fire-emergencies-and-crime/dealing-with-extreme-weather/dealing-with-flooding/flood-risk-management/ordinary-watercourse-land-drainage-consent/

The development layout must take account of any existing watercourses (open or culverted) to ensure that future access for maintenance is not restricted. A minimum 3 metre access easement is normally considered adequate.

See also:
Land Drainage Act 1991 (amended 1994)

Maintenance and Management

Details of the maintenance and management of the SuDS system, including any watercourses for which the landowner is responsible, are to be set out in writing in a site-specific maintenance manual. This manual shall include details of the financial management and arrangements for the replacement of components at the end of the manufacturers recommended design life. This document is then to be submitted as part of the planning process.

References

The Building Regulations 2000
Drainage and waste disposal
Approved document H
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Soakaway Design – Digest 365 (BRE 365)
ISBN: 978 1 84806 918 6, 2016

Centre for Ecology and Hydrology
Flood Estimation for Small Catchments - IH Report 124
Marshall, D.C.W. & Bayliss, A.C.
ISBN: 0948540621, 1994

CIRIA
C753 The SUDs Manual
Woods-Ballard, B.; Kellagher, R. et al
ISBN: 978-0-86017-760-9, 2015

CIRIA

R156 Infiltration Drainage – Manual of Good Practice
Bettess, R.
ISBN: 0 86017 457 3

British Standards Institution
BS8582:2013 – Code of Practice for Surface Water Management for Development Sites
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