

SOMERSET DRAINAGE BOARDS CONSORTIUM

LOWER AXE DRAINAGE BOARD LOWER BRUE DRAINAGE BOARD PARRETT DRAINAGE BOARD

Policy document

DEVELOPMENT AND FLOOD RISK IN DRAINAGE BOARD AREAS

1.0 Introduction

This document sets out the policy and approach of the Lower Axe, Lower Brue and Parrett Internal Drainage Boards to the development or change of land use in the Boards' areas. The purpose of this policy document is to inform developers and landowners of the standards and procedures required by the Drainage Board to prevent adverse impacts from development on flood risk and the proper drainage of a catchment. (This document is not designed to advise owners or developers wishing to undertake works on small plots for individual structures unless the plot area is greater than 0.25 hectare. For plot sizes under 0.25 ha please see Development for householders or small plots)

2.0 Background

- 2.1 Construction and changes in land management activity will have an influence on the runoff that results from rainfall within a river catchment. When this activity is significant and occurs in a catchment that lies within, or drains into, an Internal or District Drainage Board area then the Drainage Board for that area must be consulted on the proposed changes. (See catchment maps of Somerset.)
- 2.2 The Boards work to the principles set out in Planning Policy Statement 25 : Development and flood risk. In this respect therefore they will be adopting the precautionary principle and the need for sustainable drainage systems in their approach to development. The Boards will also be working to the risk based approaches contained within the Sequential Test and the Exception Test.

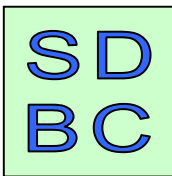
The Boards will be following the Key Planning Objectives (Paragraph 6) to

- **Reduce flood risk to and from new development through location, layout and design incorporating a sustainable drainage systems**
- **Using opportunities offered by new development to reduce the causes and impacts of flooding**

- 2.3 **In addition** any proposed construction or excavation work in or within 9 metres of a watercourse will also require consultation with and possible consent from, the local Drainage Board office.

3.0 Legal framework

- 3.1 Under Section 1(2) of the Land Drainage Act 1991 an internal drainage board has a duty to **'exercise a general supervision over all matters relating to the drainage of land within their district;**' The Boards therefore will take a pro-active approach to ensure that the flood risk to people and property in their area is not compromised by development or relevant land use change in that area.



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- 3.2 The susceptibility of land to flooding is also a material planning consideration. The Drainage Boards are therefore an organisation that has a role in the operation of the Town and Country Planning Act 1990 and the consultation process to determine the acceptability of development.
- 3.3 In Somerset the Drainage Boards work in conjunction with the Environment Agency to advise all planning authorities of the flood risk to existing and new development sites from tidal, fluvial and surface water. The Boards also work with the planning authorities to ensure that planning consents granted have the appropriate conditions and informatives attached to the development. In conjunction with the planning authority, the Boards will also seek to include their drainage requirements within the Section 106 T&CPA agreement that may be set up by the planning authority.
- 3.4 Internal Drainage Boards also have powers under Section 23 of the Land Drainage Act 1991 to control development which directly affects watercourses within its district.

Written consent of the IDB is required to

- (a) Erect any mill dam, weir or other like obstruction to the flow of any ordinary watercourse or raise or otherwise alter any such obstruction: or**
- (b) Erect any culvert that would be likely to affect the flow of an ordinary watercourse ; or alter any culvert in a manner that would be likely to affect such flow.**

For further details see Land Drainage Act 1991 Section 23.

- 3.5 All the Consortium Boards have made Land Drainage Byelaws under Section 66 of the Land Drainage Act 1991. These byelaws provide the Drainage Board with powers to control flows and development in or alongside watercourses in their district.

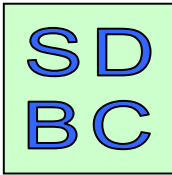
Byelaw 3 'Control of introduction of water and increase in flow or volume of water' of all Boards states that

No person shall, without previous consent of the Board, for any purpose, by means of any channel, siphon, pipeline or sluice or by any other means whatsoever introduce any water into the District or, whether directly or indirectly increase the flow or volume of water in any watercourse in the District.

This byelaw also gives the Board the power to ensure that any changes in the runoff from land as a result of changes to that land must be the subject of a consent. In considering that consent the Board will seek to reduce flood risk. The Board will not consent to development in areas known to flood unless improvement works are undertaken by the developer to reduce flood risk.

Byelaw 10 'No obstruction within 9 metres of the edge of the Watercourse' states that

No person without the previous consent of the Board shall erect any building or structure, whether temporary or permanent, or plant any tree, shrub, willow or other similar growth within 9 metres of the landward toe of the bank where there is an embankment or wall or within 9 metres of the top of the batter where



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there is no embankment or wall, or where the watercourse is enclosed within 9 metres of the enclosing structure.

This byelaw is designed to ensure that unrestricted access to watercourses is available to a drainage board for the maintenance of the watercourse and the deposition of any dredged material (including cut weed.) It will also provide a corridor for wildlife movement and migration as well as provide a landscape amenity.

4.0 Development in IDB catchments

4.1 Historically drainage boards grew out of a need to manage water levels and flood risk in flood plain areas. In order to properly address issues of flooding, drainage and the environment within its area, the Boards seek to control all development activity that will impact on its area from sites both within its area as well as sites within the catchments that drains into its area.

4.2 Where development is proposed within a catchment that drains through a drainage board area but is located outside the board area, it is expected that the surface water arising from the development should be managed in a sustainable manner to mimic the surface water arising from the undeveloped site whilst reducing the flood risk to the site itself and elsewhere.

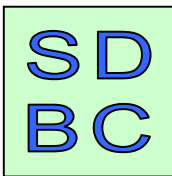
Within Somerset, a substantial proportion of drainage board districts fall within Zone 2 or Zone 3 of the Environment Agency's Flood Zones. It therefore follows that most developments being assessed against the Sequential Test and the Exception test (from Annexe D of PPS25) will have a drainage board involvement. Within the Exception Test it is a requirement that 'the development will be safe, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.'

The Boards take the view that it is possible for all new development to assist in the reduction of overall flood risk in an area and that every development will be expected to assist. Virtually all developments will have negative impacts based on the issues identified in 4.5 below. These adverse impacts will need to be mitigated by design and implementation of works on or off site.

4.3 The surface water drainage arrangement for any development site should be such that the volumes and peak flow rates of surface water leaving developed site are no greater than greenfield rates unless off site arrangements are made and agreed by the Board.

4.4 Flood plain and channel storage is a key component in the management of flood risk. In general to Drainage Board will require no net loss of flood plain and channel storage. Channel storage is particularly important in surface water management and the Board will not approve development or structures that reduce this storage. Proposals that improve watercourse habitats by the use of two stage channels and increased storage are preferred.

4.5 Development will create impacts on the existing watercourse network from debris, rubbish and increased usage in addition to the flow and volume aspects. These impacts will normally require additional and increased frequencies of maintenance and repair from the Drainage Board and will have associated additional operating costs.



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The Board may also need to vary or improve methods of channel maintenance and arisings deposition (eg disposal of arisings off site when site disposal was previously adequate) such that further additional costs are incurred.

- 4.6 All additional costs incurred from an individual development will not be borne by the drainage ratepayer or the special levy council.
- 4.7 In order for the drainage board to properly discharge its duty of supervision under Section 1(2) of the Land Drainage Act 1991, (see section 3.1 above) the Boards will need to properly understand the impact that the development will make in the local and larger catchment. In order for a Board to be able to make this assessment, the Boards will require full details of the drainage infrastructure and possible hydrological and hydraulic assessments to be made. This work can be undertaken by the developer or a contribution for its cost can be provided to the drainage board.

5.0 The policy in operation

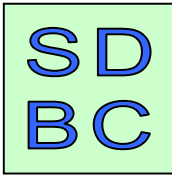
- 5.1 The Boards will therefore expect that, in most cases, the Sequential and Exception Tests will be applied to development in their districts. Where the Environment Agency considers development to be acceptable in a drainage board area the Board will make recommendations on the works necessary to satisfy paragraph D9 of the Exception Test. This requires the development to make a positive contribution to reducing or managing flood risks.
- 5.2 Where it is deemed acceptable to construct property and buildings in flood plain areas, the minimum finished level of the floors should be constructed to the 1% AEP (annual exceedance probability) flood level plus climate change plus 600mm. **However** minimum ground levels are not specified as the developer will need to assess the impact of any ground raising or building access arrangements on adjacent properties

With the overall aims of PPS25 to reduce flood risk to communities, all development **will need to** show that it is actively contributing to flood risk reduction in the area. All developers should contact the Board at any early stage of development to seek guidance on the acceptability of their risk reduction proposals.

- 5.3 Development of land outside of drainage board areas, yet within a catchment that discharges into a drainage board area, will also be subject to control by the drainage board. In this situation any major development (10 houses or more) within a contributing catchment will be expected to manage its discharging surface water to the principles set out in Section F6 of PPS25. The use of Sustainable Urban Drainage Systems (SUDS) and on site storage should be installed and seek to reduce downstream flood risk.

Unfortunately within the drainage board areas themselves the application of SUDS may not be a practicable option due to the likelihood of high groundwater levels within the flood plain areas.

Due to the potential problems associated with SUDS in Drainage Board districts most developments will result in the introduction of additional surface water by flow and/or volume into the drainage network. The Boards will expect that compensatory storage is provided on site and that a contribution is made to the improvement of the local drainage infrastructure.



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- 5.4 Where the constraints of the site or the impacts are more widely dispersed, the design and construction of site specific flood defence or drainage works may not be practical. In this situation the Boards, in common with other drainage boards in the east of England, operate a system of fixed rate single financial contributions to the Boards based on the planning permission 'redline' area of the development site. (Details of the current contribution rate should be obtained from the Board.)

Brownfield sites will be treated in the same way as greenfield sites and no allowance will be made for previous drainage practices or run off characteristics from that site.

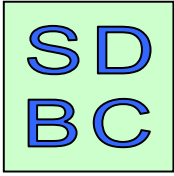
6.0 Surface water management

- 6.1 The Boards work in conjunction with the local authorities and the local water company to ensure that the drainage of surface water in all areas is managed in an integrated way.

- 6.2 Most existing public and adopted surface water sewers discharge into open or culverted watercourses. (Only a limited number will discharge direct to tidal waters.) In drainage board districts the Board has a duty of general supervision of all matters relating to the drainage of land. The Board will wish to see that the surface water discharged from all sites in their districts can be managed to provide betterment to the developed site and the area.

Although a surface water drainage system may be piped it will not necessarily have been adopted by the water company and many culverted lengths of watercourse exist where the riparian owner is still the owner of that culvert. No proposed discharge from a development site will be acceptable unless it is made to a publicly adopted drainage network either open or culverted. It will be necessary to satisfy the requirements of both the water company and the drainage board to ensure discharge arrangements are acceptable.

- 6.3 Many surface water drainage networks are of unknown ownership, condition and capacity. The developer will need to establish the most appropriate discharge arrangements with the water company and the drainage board. The developer should anticipate providing this information to the Board or to contribute to an investigation by the drainage board.
- 6.4 The Board would also expect the developer to minimise the pollution load that the stormwater will create for the receiving watercourses.
- 6.5 Within the current approach to surface water drainage, sustainable urban drainage systems give a strong emphasis on infiltration systems. The success of this approach in lowland floodplain is very much dependent on the conditions of the receiving soil and ground water levels. Within drainage board areas in Somerset, these conditions are normally unfavourable when the engineered infiltration systems need to work hardest. It is likely that only storage based SUDS solutions will be acceptable in Board districts. Alternatively arrangements can be put in place for the Boards' receiving watercourse systems to accept the increased site discharge.
- 6.6 The Boards do not consider that Rainfall Capture methods provide adequate and reliable methods of surface water attenuation or disposal. If a developer wishes to deal with surface water run off in conjunction with rainfall capture then it will be necessary to demonstrate that the system will provide the appropriate attenuation and that there will be a very low statistical likelihood of conflict of storage requirements.



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7.0 Standards

- 7.1 The design of drainage within a site will normally be to a standard to comply with the current version of 'Sewers for Adoption' now the 5th Edition. This will mean that the site pipework will need to cater for a 30-year event with the system surcharged to ground level and no flooding to property from overload flow to the 100-year standard.
- 7.2 In undertaking any assessment of the run off from a site, the developer will need to build into the design an allowance to take account of the uncertainty resulting from the effects of climate change.

Working on the basis of a precautionary approach it will be necessary to increase the current calculated flows and rainfall amounts by the following factors.

Peak rainfall intensity should be increased by 20%
Peak river flow should be increased by 20%

- 7.3 Overall the Boards will wish to control the discharge rates and volumes from any proposed drainage system into a receiving watercourse (or culverted watercourse.) The Boards will wish to achieve a reduction from the greenfield response of the site over an extended range of storm probabilities.

The systems installed will need to:

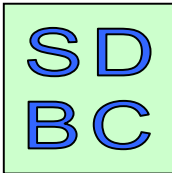
1. Control the peak rate of stormwater run off.
2. Reduce the volume of run off.
3. Minimise pollution input to receiving drainage system.

For 1, the urbanised run off flows of the new development will mimic the greenfield flows for the same return period events.

For 2, any additional volume of water (as a result of less infiltration caused by paved surfaces on the developed site) should be disposed of by designed infiltration methods on the site. In Somerset however high water tables and impermeable soils are likely to prohibit this option. In these circumstances any water discharged to the receiving watercourse will need to be limited to rates below 2 litres/sec/ha in conjunction with attenuation.

8.0 Contributions

- 8.1 If a development meets the target for peak flows and no additional volume is discharged from the site, the Board will not seek any further on or off site work (or equivalent financial contributions) from the developer. There may however be additional costs that the Board will incur as a result of increased maintenance requirements and costs associated with urban environments.
(See Section 4.4)
- 8.2 Development of a site will usually produce downstream effects. As a minimum this is likely to be an increase in the total volume of water running off the site. In order to compensate for this increased volume or other possible increases in flow, the developer will have to make a



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contribution to improvements to the drainage infrastructure in the vicinity or beyond. This will normally take the form of a payment per site area based on the planning permission 'red line' boundary. The cost of the contribution is based on a standard rate calculated by the King's Lynn Consortium of Drainage Boards and regularly updated by that Consortium.

9.0 Adoption and commuted sums

- 9.1 When flood defence or drainage assets are constructed as part of a development, the future effectiveness and security of operation of these assets will need to be demonstrated to the Statutory Operating Authorities especially where their failure would increase flood risk to other parties.

There is thus an expectation that any significant drainage or flood defence infrastructure designed, constructed or financed by development will be adopted by a public authority. The Boards are generally receptive to the adoption of drainage infrastructure that they have considered a necessary part of the development but the future operational or repairs costs will have to be funded by the developer for a period of 50 years. These costs can be written off by the payment of a commuted sum to the Board that will be based on the average annual cost discounted at current interest rates for the 50 year scheme life.

- 9.2 Where the impacts from development are more dispersed, the Boards will apply their Development Levy as an hectareage charge applied to the area to be developed.

10.0 Environmental impacts

- 10.1 The Boards, as Competent Authorities under environmental legislation, will need to be satisfied that in consenting or approving works the proposals do not contravene environmental duties or damage protected habitats or species. The Boards will therefore be scrutinising all proposals for both their drainage impacts as well as their impacts on habitats and species associated with the Boards' watercourse work.
- 10.2 In any proposal the Board will require no net loss of habitat but expect to see environmental gain as part of the development proposals particularly relating to watercourse or wetland habitat.
- 10.3 The Boards have also produced further polices and guidance on environmental mitigation which is also held on the website.

NWS
Version final Sept 07