

Protocol on Design, Construction and Adoption of Sewers in England and Wales

**Department for Environment,
Food and Rural Affairs**

**Department for Transport,
Local Government and the Regions**

Welsh Assembly Government

House Builders Federation

Water UK

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Published by the Department for Environment, Food and Rural Affairs. Printed in the UK on material containing 75% post-consumer waste and 25% ECF pulp (cover) and 100% post-consumer waste (text).

Product code PB 6427

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Published by the Department for Environment,
Food and Rural Affairs

April 2002

This Protocol has been developed and agreed by:

Department for Environment, Food and Rural Affairs

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Introduction

1. This protocol is aimed at putting into practice a common approach for designing and constructing all sewers in England and Wales to ensure that they fall within an adoptable standard. The intention is to prevent the proliferation of private sewers and the problems of ownership and maintenance associated with them. This can be achieved by harmonising the essential elements of the design and construction of sewers set out in the Approved Document to Part H of the Building Regulations 2000, 2002 Edition, ISBN 011 7536075, with the guidance in the 5th edition of "Sewers for Adoption", ISBN 1 898920 435 published by WRc on behalf of Water UK. This protocol applies to 'domestic foul sewage' arising from any type of development, including commercial and industrial, as well as housing. However, if there is trade effluent involved, this may be subject to trade effluent consent requirements set out in the Water Industry Act 1991 and the Water Resources Act 1991. Developers would need to check that, where appropriate, they comply with these requirements.
2. The protocol should be followed by all those involved in any aspect of the construction of sewers. In particular, there is a need for the developers and the sewerage undertakers to work in close liaison. Anybody considering a development likely to involve drainage works, should consult sewerage undertakers as soon as possible and, more importantly, before developing their proposals so that the site layout can be designed to avoid the building of sewers to a standard which may preclude their adoption. This consultation with the sewerage undertaker should ideally take place before a planning application is made so that due regard can be given to the drainage consideration at the conceptual stage of the design of the development, particularly its layout and the provisions for other infrastructure.
3. Following this protocol does not necessarily mean that all the sewers will automatically be adopted. However, it will ensure that such sewers cannot be precluded from adoption on the grounds of inadequate design and unacceptable construction standard.
4. The paragraphs below explain the essential elements of the provision of sewers that should form part of the common standard for designing and constructing all sewers. This information is confined to the key features to the common standard. The users of this protocol should refer to the 2002 Edition of the Approved Document to Part H of the Building Regulations, and to the 5th edition of the "Sewers for Adoption", for detailed requirements.

Hydraulic design and minimum pipe size

5. The hydraulic calculations for the design of separate foul and surface water sewers or combined sewers should accord with BS EN 12056-2, BS EN 752 Parts 3 & 4, and with the guidance in "Sewers for Adoption" 5th edition. **A dispensation to the minimum size requirements in Sewers for Adoption can be given by the regional sewerage undertaker for a 100 mm sewer where this is to serve 10 dwellings or less.** The minimum size of pipe for the sewer to serve more than 10 dwellings should be 150mm.

6. These criteria for the minimum pipe sizes will apply:
- a) when the sewer being designed will form a 'separate' system intended to carry **domestic foul sewage only**, and where adequate separate arrangements are to be made for the disposal of surface water so that there is no likelihood of the separate foul sewer having to serve as a combined or partially combined system. Any surface water sewer which is provided should be part of the public sewerage system.
Note: domestic foul sewage is effluent from toilets, washing facilities, kitchens for meal preparation (not food processing) and laundry using domestic type machines;
 - b) where, taking into account the local conditions and, if necessary, by consulting the local planning authority, it can be established that there is no likelihood of further flow discharging into the sewer from infill or further development in the area. If the density of the development is such that extra buildings or large extensions could be built, in spite of boundaries being fixed between properties, the sewer being considered should be sized to serve a notional number of dwellings rather than an actual number. The sewer being considered should be sized by the developer to serve a notional number of dwellings rather than the actual number;
 - c) where the sewer being designed receives discharges by gravity only and no pumped discharge is envisaged; and
 - d) when, under section 112 of the Water Industry Act 1991, the sewerage undertaker does not wish to enhance the requirement for the sewer to form a part of its general arrangement for drainage of the area as a whole. If an enhancement is demanded by the sewerage undertaker, they will be responsible for any additional cost involved.

Layout and routeing of sewers and miscellaneous construction details

7. In order to facilitate proper maintenance and repair of sewers, it is necessary to locate them so that they are easily accessible both manually and with equipment. To allow this, and to enable others to make connections, the sewers should, where practicable, be laid in highways and public open spaces. Only where it is impracticable to do otherwise, should the sewers be located in private land. In such situations, priority should be given to routeing the sewer through accessible frontage of the property where it is unlikely that future building extension will encroach on to the sewer. Only in exceptional circumstances when there may be technical, legal or other constraints, should the sewers be routed through less accessible areas such as rear gardens. For the purpose of this guidance, 'highways' includes private individual and shared access roads.
8. Planning Policy Guidance Note 16, Archaeology and Planning (and in Wales, Welsh Office Circular 60/96), sets out some of the constraints which local planning authorities may need to impose when considering the routeing of sewers. It sets out the Secretary of State's policy on archaeological remains on land, and how they should be preserved or recorded both in an urban setting and in the countryside. It gives advice on the handling of archaeological remains and discoveries under the development plan and control systems, including the weight to be given to them in planning decisions and the use of planning conditions.

9. Other miscellaneous details to which regard should be given are set out in the following table together with a reference to where relevant advice may be found.

Detail	Source of advice
<p>a) Sewers should be laid at an appropriate distance from buildings so as to avoid damage to the foundations.</p>	<p>Approved Document H, H1-2.17, H1-2.25 and Diagram 8. The distance from foundation to any drain is set out in Approved Document H, H1-2.25. When building over a sewer the recommended minimum distance is 3m. (Approved Document H H4-1.6)</p>
<p>b) The manholes and chambers, especially in private land, should be located so that they are and continue to be easily accessible manually or, if necessary, with maintenance equipment such as pipe jettors or mini-excavators. This is of particular importance where the depth would justify mechanical excavation to undertake repair work. Although design codes indicate that access points may be up to 200m apart it is unlikely that it would be possible to rod <i>or safely pressure jet small diameter pipes</i> over such a distance; 100m is more appropriate.</p>	<p>Approved Document H. H1-2.51 Consult sewerage undertaker about access for plant.</p>
<p>c) The last access point on the house drain should be sized to allow man entry and should be located in an accessible position. This access point should as far as practicable be located adjacent to the curtilage and preferably form an interface with the connection to the lateral where it runs outside the curtilage of the property to discharge into a sewer in a highway, public open space or third party land. As this final manhole is likely to be in a position where vehicle or plant loading is anticipated its construction should accord with Sewers for Adoption.</p>	<p>Approved Document H. H1, 2.51</p>
<p>d) House 'collector' drains serving each property should normally discharge into the sewer via a single junction or a manhole.</p>	<p>Approved Document H. H1-2.13 to 2.16</p>
<p>e) Sewers should not be laid deeper than necessary, but in all cases the structural integrity of the pipe needs to be maintained. This can normally be done by providing a cover to the top of the pipe barrel of 1.2 m and 0.9 m in highways and private land respectively. If these depths are not practicable special protection measures such as concrete slab should be provided.</p>	<p>Approved Document H. H1-2.27 and BSEN 1295-1</p>
<p>f) Sizing and design of manholes and chambers should depend on the depth and on whether man entry is required. Manholes on or near highways or other roads need to be of robust construction.</p>	<p>Approved Document H. H1-2.48</p>

Detail	Source of advice
g) Sewers should be laid in straight lines both in vertical and horizontal alignments.	Approved Document H. H1-2.19
h) The first preference should be to provide separate foul and surface water sewerage systems . Where 'combined' or 'partially combined' sewerage is unavoidable, the sizing and the design of that sewer should be enhanced in accordance with the current codes and design methodologies to make additional provisions to deal with the runoff.	Approved Document H. Requirement H5, H1-2.35 and H3.-3.5 See also BSEN 752 Parts 3 & 4 – particularly note Annex ND in BSEN 752 Part 4.

Copies of the 2002 edition of the Approved Document to Part H of the Building Regulations are available from:

The Stationery Office. Tel: 0870 600 5533. <http://www.thestationeryoffice.com>

The Approved Document can also be viewed on the Department for Transport, Local Government and the Regions (DTLR) website.
<http://www.safety.dtlr.gov.uk/bregs/brads.htm>

Copies of the 5th edition of Sewers for Adoption are available from:

Water Research Centre. Tel: 01793 865138. E-mail: publications@wrcplc.co.uk

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