The Changing Face of Sewers for Adoption

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Introduction

Private sewers and lateral drains are sewers and laterals that have not been adopted by Water and Sewerage Companies (WaSCs) as part of the public sewerage system (the part for which they are responsible under the Water Industry Act 1991). Most properties are served by private laterals and many also by private sewers where sewers have not been offered for adoption or could not be adopted for a number of reasons.

The transfer of private sewers aims to address a range of problems associated with the current ownership arrangements, which cause difficulties for owners (mainly householders) and a lack of integrated management of the wider sewerage system.

On Tuesday 26 April, draft regulations to implement the transfer of private sewers to the statutory sewerage undertakers in England were laid before Parliament for approval. At the time of writing, the Welsh Assembly Government anticipated laying regulations before the Welsh Assembly as soon as possible following the Assembly Government elections. The draft regulations apply to all existing private foul sewers and lateral drains that communicate with the public sewer system from 1 July 2011 and the date of vesting for these is 1 October 2011, subject to approval of the draft regulations by parliament. The draft regulations state that the date of vesting for foul pumping stations must be no later than 1 October 2016.

In order to prevent the proliferation of new private sewers and laterals, changes to the Water Industry Act made through the Flood and Water Management Act 2010 is likely to see mandatory adoption of all new sewers and lateral drains. If this is implemented, developers will be required to enter into a Section 104 adoption agreement covering all new sewers and laterals that will connect to the public sewer system. A condition of the agreement would be a requirement to meet any standards published by the Secretary of State, or in Wales, by the Welsh Minsters. The next edition of Sewers for Adoption would provide guidance on how to satisfy any standards published by the Secretary of State.

At present, guidance is provided by each WaSC to developers with the nationally prepared Sewers for Adoption used as a common basis. Sewers for Adoption, currently in its 6th edition, has been in use since the 1980's by developers looking to have their sewers adopted by the WaSCs. However, company addenda to Sewers for Adoption contain substantial regional variations. The WaSCs have worked to unify their requirements for foul gravity drainage in anticipation of new standards being published by the Secretary of State.

With mandatory adoption of all new sewers and lateral drains in place, the next edition of Sewers for Adoption would have to take into account a range of new issues. Adoptable sewers have traditionally been located in the carriageway but WaSCs will be adopting far more small-bore pipe systems and systems in close proximity to buildings.

There are currently many small private pumping stations which were not offered for adoption because they were not built to an adoptable standard. This was due to the requirements in the 6th edition of Sewers for Adoption being unreasonable for such small pumping stations.

Technical Issues

Many of the layout and access requirements from the 6th edition of Sewers for Adoption have been relaxed in the next edition to reflect the change in what will be considered a typical adoptable sewer or lateral drain.

The gravity foul drainage section has been unified, removing the need for tables showing regional variations for such things as stand-off distances and opening sizes. A pragmatic approach has been taken to define minimum distances between pipes and buildings/structures. A pipe of any size may be situated 1.2 m away from a building, although this distance is linked to the depth of the pipe. A pipe with a nominal bore of 150 mm or less may be as close as 100 mm to a building, again depending upon its depth. This is quite a change from the minimum distances of 2.5 m to 6 m given in the 6th edition of Sewers for Adoption, which illustrates the flexible approach taken when drafting the next edition.

Acceptable layouts for adoptable sewers can include running through gardens, between buildings and through archways (e.g. mews developments) provided the requirements for access are met. Minimum depths of cover to the crown of pipes have been reduced to as low as 350 mm when located in domestic gardens without any possibility of vehicular access. The minimum depth of 900 mm given in Sewers for Adoption 6th edition would be impractical when in such close proximity to the property the pipe is serving,

A much bigger emphasis is placed on the provision of non-man access chambers. Large manholes would be impractical in many cases where the sewer is small and in close proximity to a property. Guidance on eight types of access chamber (two of which are manholes) is given and a decision tree has been developed to aid selection of the correct type of access chamber.

There has been some guidance in the current 6th edition of Sewers for Adoption on planting distances for trees of different sizes, but this has proved impractical to apply in the context of the often conflicting design objectives of new developments.

Tree root intrusion into sewers is a problem which leads to a significant number of sewer flooding incidents each year. There is some frustration that, on occasions, there is no linkage between the landscape design and the sewer design so that developments are constructed with trees planted sometimes directly over the sewer. This can cause problems with the sewer and with access for repair and maintenance.

The Sewers for Adoption group has therefore been considering if there are any ways to improve the situation, by encouraging more integrated design and/or the use of improved construction methods or materials that might be more resistant to tree root intrusion.

There is on-going research on tree root intrusion across Europe; however the results so far have not led to any improved understanding of how to prevent the problem. There are a number of root barrier products available but there is currently only very limited experience of their use in controlling tree root intrusion into sewers. A conclusion has not been reached at this stage on the way forward and any suggestions on this topic would be welcomed.

The Secretary of State is expected to publish National Standards for Sustainable Drainage in accordance with Schedule 3 of the Flood and Water Management Act 2010. Where these apply, approval of the surface water drainage system will be required from the SuDS Approval Body (SAB), who will be the Unitary or County Council, prior to the start of construction of any development that has drainage implications. The completed surface water drainage system will also be adopted by the SAB on satisfactory completion. These new arrangements are likely to be phased in from 2012. Until this time WaSCs can continue adopting surface water systems and so the next edition of Sewers for Adoption contains guidance on this. This guidance could be subject to amendment following publication of the National Standards.

Guidance is given on the provision and design of pumping stations. Very large pumping stations (i.e. those exceeding 30 kW per pump unit) remain outside of the scope of Sewers for Adoption. Pumping stations have been classified into the following three types:

- Type 1 Having an incoming peak design flow of ≤ 0.25 litres per second (typically 5 dwellings or less);
- Type 2 Having an incoming peak design flow of > 0.25 litres per second but less than 1 litre per second (typically 6 to 20 dwellings); and
- Type 3 Having an incoming peak design flow of ≥ 1 litre per second (typically more than 20 dwellings).

This allows Sewers for Adoption to take into account different requirements based on the size of the pumping station, especially for the smallest type of pumping stations, and ensure that the guidance given is not too onerous. Two Water Industry Specifications (WIS) have been developed for package pumping stations, these WIS refer to Sewers for Adoption and so cannot be published yet. A developer can either use the guidance in Sewers for Adoption to build a pumping station or they can buy and install a package pumping station which has been built and tested in accordance with the relevant WIS.

Guidance on pumping stations has been unified as far as possible at this stage but individual company addenda will remain, these will continue to be available on the Sewers for Adoption website (http://sfa.wrcplc.co.uk/).

The civil engineering specification in the next edition of Sewers for Adoption has been updated in line with the recent revision of the Civil Engineering Specification for the Water Industry (CESWI) which is now in its 7th edition.

Way Forward

The Secretary of State has the power to introduce new standards for the design and construction of new sewers and lateral drains. These standards would not contain a high level of technical detail. Therefore, if the Secretary of State publishes standards, the next edition of Sewers for Adoption would provide guidance on how best to meet the requirements of those standards. In this case, the next edition of Sewers for Adoption would

have a new format to incorporate the Secretary of State's new standards and guidance as these would apply to gravity foul drainage only.

The proposed new format of the next edition of Sewers for Adoption is akin to that of the Water Regulations. The gravity foul drainage section (i.e. the section covered by any new Secretary of State standards) would be split into the following three components:

- A grey box containing the Secretary of State's standards, these clauses would be a legal requirement and mandatory.
- A clear box containing the Secretary of State's guidance, these clauses help interpret the Secretary of State's standards.
- Underneath the two boxes described above, Industry recommendations which would be deemed to satisfy the Secretary of State's standards. These clauses are not mandatory but provide the technical detail which WaSCs accept meet the requirements of the Secretary of State's standards.

The other sections of Sewers for Adoption (i.e. surface water drainage, pumping station design, pumping station mechanical and electrical specification and civil engineering specification) would not be covered by the new Secretary of State's standards. Therefore these sections would contain only the industry recommendations, as in previous editions of Sewers for Adoption, and may be subject to individual company addenda.

Individual WaSC requirements for gravity foul drainage have been unified in anticipation of new standards from the Secretary of State. During this process, individual WaSC requirements for surface water drainage and pumping stations have also been unified as much as possible. However, some differences between WaSCs remain (particularly in the pumping station M&E specification) and the aim is to work to reduce these differences further over the life-time of the next edition of Sewers for Adoption so that the use of individual company addenda can be minimised going forward.

When there is clarity regarding any new standards for new sewers and lateral drains, a set of consultation seminars will be announced in Summer 2011, prior to the publication of the next edition of Sewers for Adoption,

In conjunction with the next edition of Sewers for Adoption, a refined (slimmer) version is being developed to give guidance for small developments only. This document has a scope based on a set of criteria such as gravity drainage only, housing developments of less than 10 dwellings and no chambers greater than 3 m in depth. Therefore the developer of small schemes will have simplified guidance to work with that has unnecessary complexity removed.

At the time of writing, an Interim Technical Addendum to Sewers for Adoption 6th edition is due to be published shortly to cover the period until the next edition of Sewers for Adoption is published later this year. The aim of this addendum is to give early sight of the key layout and access requirements for gravity foul drainage going forward. This addendum contains technical guidance only and should make the transition to using the next edition of Sewers for Adoption smoother.

The Interim Technical Addendum will be used as a consultative document to gather views on the technical guidance it contains. These views can then be considered in drafting the next edition of Sewers for Adoption.