

This document states Wessex Water's self lay water mains and service pipes policy and guidance for developers and self lay organisations (SLOs), including Code of Practice (CoP) addendum.

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# PART 1 General

## 1.1 Purpose

This document sets out the terms and conditions under which Wessex Water will allow other bodies to install new water mains and make service connections for the servicing of new development using water for domestic purposes under the provisions of the Water Industry Act 1991 as subsequently amended by the Water Act 2003.

Such other bodies will be referred to in this document as Self Lay Organisations (SLOs).

This policy should be read in conjunction with a document entitled 'Self-Laying of Water Mains and Services – A Code of Practice for England and Wales – 2nd Edition' produced by WRc plc on behalf of United Kingdom Water Industry Research Ltd (UKWIR) and available from [www.webookshop.com](http://www.webookshop.com) or from:

WRc Plc, Frankland Road, Blagrove, Swindon, Wiltshire SN5 8YF. Tel: 01793 865012

The policy should also be read in conjunction with Ofwat publication 'Competition in providing new water mains and service pipes: guidance to companies – version 3' which is available at [www.ofwat.gov.uk](http://www.ofwat.gov.uk)

Part 2 details amended and supplementary clauses to the Code of Practice [CoP] which the SLO must adhere to in order to comply with Wessex Water's self lay policy.

## 1.2 Background

Wessex Water is the licensed water supply provider in the area shown below. We supply more than 1.25 million people in an area covering around 7,350 km<sup>2</sup> as shown below:



We are a regulated business. Our principal regulators in relation to self lay water mains and service connections are:

- Ofwat (The Water Services Regulation Authority) - for prices and general service standards
- Drinking Water Inspectorate (DWI) - for the quality of water we supply.

Traditionally, Wessex Water has installed all mains and made all service connections to provide new developments with a domestic water supply. This has been undertaken in accordance with requisitioning arrangements set out in the Water Industry Act 1991.

Domestic use is broadly defined as the use of water for drinking, cooking, washing, central heating and sanitary purposes.

Under these requisitioning arrangements, Wessex provides the mains and other necessary works (which might include a service reservoir, a pumping station or network reinforcements) and the developer funds, for up to 12 years, the annual financing costs for these works less the annual water charges Wessex Water collects from the properties served by the works. Security in the form of a deposit, bond or surety is normally required. Where developers prefer they may make a one off commuted sum payment as an alternative to deficit payments.

As an alternative to requisitioning, and as permitted by the Water Act 2003, SLOs may now install water mains and make service connections. Wessex Water will take over responsibility for (adopt) self-laid mains that meet the terms of its agreement with the developer or SLO which undertakes the work. Service pipes, which may also be laid by an SLO, will not be adopted by Wessex Water apart from any length which falls within a street. This length is generally known as the communication pipe.

Ownership, operation and maintenance of the water mains rest with the developer until the issue of a Vesting Certificate. Ownership, operation and maintenance of the service connection and communication pipe rests with Wessex Water from the time of connection to the new main. The Developer/SLO remains responsible for any defective materials and workmanship for an agreed Defects Liability Period (DLP). See section 1.12 for further details.

### 1.3 Our commitment

We are committed to developers having choice in the way their sites are provided with a water supply and to complying with all the requirements of competition legislation.

Whenever a new supply is sought, we will advise the developer or the SLO of the different ways of securing that supply - requisitioning or self-lay. Upon receipt of

all the necessary information, we will give a quotation or estimate, as appropriate, in a timely manner. We will also identify any offsite reinforcement works which will be necessary to make a supply available.

We will treat SLOs in the same manner as we treat our own contractors and we will not require a higher specification of workmanship or materials than we employ for our own work.

For SLOs seeking accreditation the number of inspections we will carry out will reflect the experience we have of the SLO. We would expect that as we gain confidence of the work undertaken by an SLO in our area, the level of inspection and checking would reduce to no greater than that employed for our own contractors. For accredited SLOs the level of inspection would then match that of our own contractors.

We will pay to the SLO upon satisfactory commissioning of the works an appropriate amount reflecting the value of the assets to Wessex Water.

In permitting self lay, our overriding objective is to safeguard public health and ensure we continue to provide wholesome water which complies with the Drinking Water Regulations.

### 1.4 Gaining approval to be a self-lay organisation

SLOs and their subcontractors shall as a minimum have achieved partial accreditation with the Lloyd's Register (LR) Water Industry Registration Scheme (WIRS) before any self-lay works may be undertaken, see [www.lloydsregister.co.uk/wirs](http://www.lloydsregister.co.uk/wirs)

Where prospective SLOs are not accredited, we will consider their applications to self lay taking into account the following criteria:

- Track record.
- Technical competence – sound knowledge and experience of designing and installing water distribution systems including method statements for all activities to be undertaken.
- Health and safety record and demonstration of safety management procedures.
- Environmental record.
- Compliance with hygiene code.
- Financial security.

SLOs' performance will be fed back to LR. Failure to perform to the required standards and to follow correct procedure may result in accreditation being cancelled by LR.

## 1.5 Work that may be undertaken by SLOs (contestable work)

It will be for an SLO to decide which work it wishes to undertake but we will permit an SLO to do any or all of the following contestable works under a self-lay agreement:

- Design of on-site water systems in accordance with the Code of Practice and Wessex Water specifications but not including the sizing of pipework which will at all times remain the responsibility of Wessex Water.
- Installation of on-site mains for domestic supplies on a development site.
- Installation of off-site mains that extend to a point of connection to the existing network to be determined by Wessex Water. Such works may be undertaken by an SLO unless there are valid engineering or public health.
- Reasons why Wessex Water should undertake them. Installation is subject to the SLO having obtained all necessary easements, street authority approvals and satisfied any other legal requirements. The SLO may also design such off-site mains but Wessex Water reserves the right to modify the route or sizing of the mains (see 1.11).
- Routine in-line mains connections (often referred to as piece-throughs) subject to the relevant safeguards and accreditation.
- Installation of mains extensions and the new-laid part of mains diversions on new development sites where the developer or SLO has the necessary permissions, where no existing customers will be affected and where there are no engineering reasons why this work should be non-contestable.
- Installation of service pipes to new mains.
- Connection of service pipes to new mains once those mains have been commissioned by Wessex Water provided the appropriate standards are met and there are no risks to existing customers. Note that an SLO may also make service connections to a new main laid on a development site either by Wessex Water or by another SLO.
- Connection of service pipes to existing off-site mains subject to the appropriate accreditation and caveats.
- Swabbing, pressure testing and disinfection of new mains, under the supervision of Wessex Water.
- Provision of as-laid drawings to Wessex Water specifications.
- Installation of water meters to Wessex Water specifications and subject to Wessex Water approval.

## 1.6 Work which Wessex Water will always undertake (noncontestable work)

Wessex Water will retain responsibility for the following non-contestable items for reasons of network security and public health. We will undertake these activities and, where appropriate, make a charge to recover our reasonable costs:

- Sizing of on-site water mains.
- Approval of all on-site water system designs.
- Design of off-site water systems to reinforce the existing network.
- Inspection and auditing of SLO work.
- Off-site work to reinforce the existing network - unless we are satisfied that work by an SLO would not impact upon existing customers during construction and commissioning.
- Mains connections that involve undue risk to existing customers.
- Mains connections other than those specified as contestable work.
- Determination of the timing of service pipe connections to new or existing mains that involve risks to existing customers.
- Water sampling and quality testing prior to connection of newly laid mains to Wessex Water's existing network.
- Decommissioning of redundant mains following a mains diversion.
- Assessment and ongoing audit of an SLO's competence to the same degree that Wessex Water's own staff or contractors might be assessed or audited.

Whilst we will permit SLOs to design on-site water systems in accordance with our own specifications, we generally find that SLOs ask us to undertake this design work. Where we undertake the design work this will, of course, include liaison with the relevant authorities, i.e. the local fire brigade and highway authority.

## 1.7 Stages in the process and target levels of service

These are as detailed in the CoP.

## 1.8 Phased implementation

Where the developer plans to phase the development, details of the phasing and phased adoption of the new mains must be contained within the Legal Agreement.

If the new main is laid and commissioned in more than one phase, we must be notified of each section made 'live' in turn and the final section must be clearly identified to denote the conclusion of a specific agreement. Furthermore, 'as-laid' drawings as per Section 3.7.5 of the CoP, should be supplied at the same time.

For each notice received, we will issue a Vesting Certificate of interim or overall commencement of the Defects Liability Period.

## 1.9 Off-site mains

Where SLOs can obtain the necessary street authority approvals/third party easements, they can install off-site water mains. These are new mains that need to be installed as part of the development but are not within the boundaries of the developers' land.

Where the off-site mains cross private third party land, the SLO must obtain Deeds of Grant of Easement which will be assigned to Wessex Water before adoption of the new mains.

Where difficulty is encountered in obtaining third party easements, the developer should contact Wessex Water for further advice.

## 1.10 Network reinforcement

Demands from a new development may impact on the capacity of the existing infrastructure to an extent where reinforcement of the network (e.g. by construction of new mains, tanks, service reservoirs, pumping stations) is required to maintain service levels to customers.

We will inform the SLO as soon as this is known along with justification of the need for and costs of reinforcement by providing a detailed explanation of our requirement.

We retain the right to carry out any network reinforcement work and to recover our reasonable costs.

Where the network reinforcement will provide more capacity than required by the new development, the proportion associated with the demands of the new development will be assigned to the SLO.

There may be occasions, for example on large development sites, where it is more efficient for us to

phase off-site reinforcements in line with development progress. We will estimate the full costs at the start, estimate the triggers and timescales for phased implementation and calculate the estimated charge to the developer.

If several developments are the cause of the necessary network reinforcement, costs will, where possible, be apportioned fairly between the different parties.

## 1.11 upsizing on-site and off-site mains

We may ask the SLO to lay a larger main than is necessary for the current development, in anticipation of meeting future demand. In this situation, we will specify the material, size and depth of pipes and pay the SLO the reasonable extra expense it incurs by meeting these requirements.

We will recover oversizing costs from those developers and SLOs who connect their developments to the oversized mains under future requisitions and self lay agreements.

## 1.12 Defects liability period

A Defects Liability Period (DLP) of one year shall apply to the water mains and services. Wessex Water reserves the right to insist upon a longer DLP where appropriate.

During the DLP, we will expect the SLO to rectify defects notified by us in writing, except in the event of emergencies which may compromise service levels to customers or public health when we will undertake the repairs as quickly as possible and inform the SLO thereafter in writing as soon as practicable.

In this situation our costs will be invoiced for the work completed.

We reserve the right to uncover and inspect any work undertaken in connection with the new mains or services at any time during the DLP. The SLO will be given seven days' notice of the intention to uncover any work. The cost will be met by Wessex Water if all standards of materials and workmanship have been met, and by the SLO if any work is unsatisfactory.

Prior to completion of the DLP, we will inspect the self-lay works. This will be done jointly with the SLO. The SLO will pay for any damage to service pipes, meter boxes, street furniture or marker posts prior to completion of the DLP.

If improper work, materials or variations are found, we will agree these with the SLO without delay and confirm in writing. Defects shall be remedied or substituted with the minimum of delay.

Following satisfactory inspection, completion of the DLP and rectification of any defects (if any), we will sign off the DLP and assume responsibility for the maintenance of the water main and/or service.

Under the New Roads and Street Works legislation, the liability on the SLO for highway reinstatement for pipes laid to a depth of up to 1.5m is 2 years (3 years for pipes laid to a greater depth).

Where highway defects require remedying, the SLO will be responsible for a further defects liability period in accordance with the New Roads and Street Works legislation.

### 1.13 The legal agreement

Before the commencement of the works, Wessex Water will enter into a Legal Agreement with the SLO for the Self Laying of Water Mains and Service Pipes.

We will not be responsible for any obligations established by contract or otherwise between the SLO and the developer.

### 1.14 Financial arrangements

#### 1.14.1 General

Wessex Water are committed to transparency in charging so that developers and SLOs can readily understand what we will charge for, how the total cost is made up and how the charges might vary as a project progresses.

Each estimate and quotation for self-lay, and service connections where appropriate, will provide a breakdown of our charges for the non-contestable items. We will also give a breakdown for any contestable items that the SLO wishes us to undertake. Should the SLO subsequently vary the contestable works it wishes to undertake and request us to do the remainder, we may amend the charges for individual items and asset value payable accordingly to reflect variations in economies of scale and complexity.

If requested we will also provide charges for specified contestable items if a developer or SLO wishes to decide whether to ask us to undertake some contestable elements.

We will also estimate the value of the works to us and calculate an Asset Value which we will pay to the SLO within 20 working days of the issue of the Transfer Deed.

We will also deduct from the asset value payment the cost of those elements of work which we undertake as part of the contract with the SLO.

#### 1.14.2 Charges

Note: Wessex Water will charge for the following:

1	Installation costs of all non-contestable works eg connections, network reinforcement	non-standard
2	Standard infrastructure charges	see Charges information on <a href="http://www.wessexwater.co.uk">www.wessexwater.co.uk</a>
3	Service connection charges: First connection Second and subsequent connections	£100 £61
4	Building water at our standard rates	see Charges information on <a href="http://www.wessexwater.co.uk">www.wessexwater.co.uk</a>
5	Late notification by SLO of meter installation details	£45 charge plus assessed value of lost charges revenue

We will reserve the right to charge for estimates and quotations where either a developer or an SLO requests one purely for the purposes of comparison and their scheme does not proceed.

### 1.14.3 The Asset Value Payment

We recognise that an SLO is providing assets which, subject to satisfactory design and installation, will become part of our water supply network and provide us with metered water charges income. We will therefore pay the SLO an amount which properly reflects the value of these assets to us. In assessing this value, we will take into account the income stream we will derive from the properties to be served by the new mains.

We will do this by calculating what the costs would be if the mains were to be requisitioned and we provided them.

We will assess the likely income stream from the properties to be connected using the average annual household consumption for new properties in the Wessex Water region. We will make adjustments for other types of water usage where appropriate.

We will calculate the annual financing costs for us providing the mains in accordance with the Water Industry Act 1991 as amended by the Water Act 2003.

We will then summate the projected amount of water charges income for each of 12 years. Where it exceeds the financing cost for any year, we will take the financing cost as the income.

We will then commute this projected future income to a net present value using a discount factor equivalent to the interest rate for borrowing for requisitions prescribed by Ofwat.

We will deduct from this commuted lump sum the charges for the non-contestable works and services we have provided as well as any contestable items we have been asked to undertake. We will pay the balance of the commuted lump sum (known as the Net Asset Value Payment) to the SLO within 20 working days of the issue of the Transfer Certificate.

It is important that a realistic estimate is made of the likely water charges income stream. We will review historic build rates and current market conditions in the area of development. We may also consult the local authority planning department to satisfy ourselves that the SLO's assumptions over build and connection rates are valid. We will reserve the right to amend the asset value payable should there be a significant reduction in the projected income stream during laying of the mains. Similarly we will also review the calculation at the request of the SLO if the rate of connections is likely to be significantly above that assumed at the time the contract was entered into.

### 1.14.4 Example asset value calculation

An example of how we will calculate the asset value payment is given below:

Capital cost of mains if requisitioned, ie, provided by Wessex Water, say **£100,000**.

Financing costs per annum over a 12 year period = **£11,124** per annum.

These are calculated using the prevailing borrowing rate prescribed by OFWAT, the industry regulator. The borrowing rate (as at April 2009) was 4.75% per annum which translates into an annuity factor of 0.1112. This factor is multiplied by the capital cost to calculate the annual financing cost.

Assume a profile of new houses being connected to the mains over a 12 year period. See table 1 below. Connections are shown cumulatively.

Assume that each house uses the company's average household metered volume for new properties – 93 m<sup>3</sup>/year. Convert consumption to annual income by multiplying by Wessex Water's standard metered charges including an annual standing charge.

For the year ending 31st March 2010 these are:

Volume charge = **171.07 pence** per cubic metre

Standing charge = **£17** per meter per annum

Income for years post-2009/10 is based on the assumption that our 'K' value (the rate at which average prices may rise above general inflation) is zero. This will be revised in November 2009 when final price limits for the period 2010-15 are announced by Ofwat. General inflation is applied to the post-2009/10 prices as follows: -2% for 2010/11, +1% for 2011/12, +2% for 2012/13 and +2.75% per annum thereafter.

Table 1 below shows the details of the asset value calculation.

**Table 1 Calculation of gross asset value payment**

Year	Annual Financing Charge	Build rate	Cumulative build rate	occupancy	Income	Asset value payment	Discounted asset value payment
1	£11,124.02	15	15	3	£528	£528	£504
2	£11,124.02	15	30	18	£3,112	£3,112	£2,837
3	£11,124.02	20	50	34	£5,932	£5,932	£5,161
4	£11,124.02	20	70	54	£9,592	£9,592	£7,967
5	£11,124.02	40	110	78	£14,277	£11,124	£8,820
6	£11,124.02	20	130	114	£21,384	£11,124	£8,420
7	£11,124.02	0	130	130	£25,121	£11,124	£8,039
8	£11,124.02	0	130	130	£25,744	£11,124	£7,674
9	£11,124.02	0	130	130	£26,514	£11,124	£7,326
10	£11,124.02	0	130	130	£27,172	£11,124	£6,994
11	£11,124.02	0	130	130	£27,978	£11,124	£6,677
12	£11,124.02	0	130	130	£28,672	£11,124	£6,374
	£133,488.22	130			£216,026	£108,157	<b>£76,793</b>

The Net Asset Value Payment is then calculated by deducting the actual cost of any non-contestable items or contestable items which Wessex Water was asked to carry out (say for example £5,000).

Therefore the asset value payable to the SLO when Wessex Water takes on operational responsibility for the mains = £71,793.

## 1.15 How to contact us

All enquiries and requests relating to the provision of water supplies for new development should be made to:

**Telephone** 01225 526222

**Letter** Developer Services, Wessex Water, Claverton Down, Bath BA2 7WW

**Email** [developer.services@wessexwater.co.uk](mailto:developer.services@wessexwater.co.uk)



## 1.16 Complaints and disputes

If an SLO or prospective SLO is unhappy about the way we have handled any aspect of self-lay, in the first instance this should be taken up with the Manager of our Developer Services - address on the previous page.

If this cannot be resolved to your satisfaction, you should write to our Chairman and Chief Executive at the same address.

If they cannot resolve this, you should then write to:

The Director General  
Ofwat  
Centre City Tower  
7 Hill Street  
Birmingham  
B5 4UA  
Telephone 0121 625 1400

The Director General will be able to deal with complaints on the interpretation of the Water Industry Act 1991 as amended by the Water Act 2003 and also to consider any complaint about anti-competitive behaviour under the Competition Act 1998.

Any disputes regarding the legal agreement should be directed in the first instance to the Manager of our Developer Services.

If a resolution is not forthcoming, and with the agreement of both parties, the dispute should be referred to mediation in accordance with the Centre for Dispute Resolution (CEDR) Model Mediation Procedure.

If the parties do not agree to mediation, the dispute shall be referred to the decision of a single arbitrator mutually agreed upon or, failing such agreement, to be appointed by the President of the Chartered Institute of Arbitrators.

## PART 2 Design and construction guidance

The guidance in the CoP shall be adhered to by the SLO except where the clauses are amended or added to below, in which case Wessex Water's clauses shall take precedence.

Numbering of the clauses below is the same as in the CoP where possible.

### 3.2.1 Design requirements

*Add the following clause:*

The pipework system must be designed to ensure that Wessex Water's standards of service with regard to water supply pressure are maintained.

### 3.3 Design drawings

*Add the following to clause 1:*

Two copies of the plans should be on paper or film and in addition in DWF file format for use with CAD systems.

*Add the following to clause 2:*

The location plan should be provided at 1:2500 scale.

*Add the following to clause 3:*

Widths of road, footpaths and service strips, should be annotated in each location. High and low areas should be shown by spot heights or contours that do not obscure development detail.

### 3.5.1 Mains Design

*Add the following to clause 2:*

Sluice valves should be installed on all branch connections and on the delivery side of main line tees where more than 20 properties are to be supplied beyond that point.

*Add the following clauses:*

Mains will be laid in highway adopted areas or public open spaces. Where there is a footpath, adoptable verge or service strip, these must be at least 1.8 metres wide.

The number, size and position of valves at the point of connection to the existing main will be determined by Wessex Water.

### 3.5.2 Depth of Cover

*Add the following to clause:*

Depth above crown in excess of 1300mm must be agreed in writing by Wessex Water.

### Ductile Iron Pipes and Fittings

*Add the following clauses:*

Ductile iron pipes, in the size range DN80 to DN800, for potable water laid in normal or aggressive soils (natural soils with a resistivity above 1500 ohm.cm with water

table) shall be externally coated with an 85/15% w/w zinc-aluminium alloy applied at a minimum 400g/m<sup>2</sup>, and with a final coat of epoxy applied at a mean thickness of 100 microns. Other coatings shall require the pipes and fittings to be polyethylene sleeved, factory-applied.

For highly aggressive soils (resistivity <1500 ohm.cm) further protection measures will be necessary and should be agreed with Wessex Water.

All ductile iron pipes for potable water shall be lined with cement mortar, and those in the size range DN80 to DN800 shall have a factory-applied seal coat to the cement mortar lining.

Fittings, in the size range DN80 to DN800, shall be internally and externally coated with epoxy to 250 microns average thickness and 200 microns absolute minimum thickness, applied internally holiday free, Class A, and externally at < 20 holidays/m<sup>2</sup>, Class B.

All pipes and fittings shall have BSI Kite mark accreditation.

### Polyethylene Pipes and Fittings

*Add the following clauses:*

Polyethylene pipes used for underground water supply purposes should be coloured blue.

### Flanges for Pipes and Pipeline Fittings

*Add the following clauses:*

All flanges shall be PN16 unless otherwise stated by Wessex Water.

### Nuts, Screws, Washers and Bolts

*Add the following clauses:*

Nuts bolts and washers should be stainless steel, or mild steel coated with epoxy resin, Rilsan nylon, or zinc plating.

All joints, threads and uncoated metalwork should be protected with an approved system of protective mastic and tape (Denso products or similar).

### Valves

*Add the following clauses:*

Wedge or gate Isolating valves shall comply with BS EN 1074-1 and 2, with operational and design features contained in BS 5163 for Type B valves.

The direction of closing shall be ANTI-CLOCKWISE for Water Supply installations. All valves shall have the direction of closing clearly indicated on the body (or hand wheel as appropriate).

The valve body shall be ductile iron.

For nominal bores up to DN300, valves shall be resilient seated with the gate of ductile iron, fully coated with EPDM. For nominal bores from DN350 upwards, valves shall be metal seated with gunmetal body seat rings and wedge rings.

Stems shall be one-piece with integral collar, non-rising, in stainless steel, and stem sealing shall be by toroidal ("O" ring) sealing rings, replaceable under pressure. Each valve shall be fitted with a stem cap, unless Wessex Water specifically requires a fitted hand-wheel.

Valves shall be internally lined with epoxy to 150 microns absolute minimum thickness, holiday free, Class A, and externally to 150 microns absolute minimum thickness, < 20 holidays/m<sup>2</sup>, Class B. All flange bolts shall be "Sheraplex" or "Rilsan" coated.

All wedge or gate isolating valves shall be clearly marked in accordance with BS EN 1074 or BS 5163, as appropriate.

All wedge or gate isolating valves, accessories and joints shall be fully tested in accordance with BS EN 1074.

All wedge or gate isolating valves shall have BSI Kitemark accreditation.

Air valves shall comply with BS EN 1074-1 and 4, and be self-acting, double-orifice, complete with a drain cock and a 900 bevelled geared isolating valve. The body may be ductile iron, grey iron, or aluminium. Grey iron parts shall be close grained, grey iron complying with BS EN 1561 EN-JL-250.

Air valves shall be coated externally to WIS 4-52-01, or with a bitumen coating solution to BS 3416 1975 Type II (cold applied). The nominal pressure rating shall be PN16.

### 3.6.1 Service Design

*Add the following clause:*

Connection to the main will be by electrofusion saddle or mechanical (gunmetal) ferrule strap.

### 3.6.5 Meter Boxes

*Replace clause 1:*

Wessex Water's preferred metering option is the use of boundary boxes.

*Add the following to clause 2:*

The boundary box should consist of a stop tap and meter facility to accommodate a standard meter (currently Sensus 620) in a concrete section (min 150 x 150 inside) or a purpose made plastic housing.

*Add the following clause:*

Where wall mounted (Intex type) stop tap and meters are used, the service pipe should be installed in a continuous duct (minimum 50mm internal diameter) from the main to the entry point of the building.

## 3.7 Construction

### Excavation

*Add the following clause:*

The minimum trench width should be the external pipe diameter plus 150mm either side. All trenches and connection holes should be kept clear of water. No new or existing pipes should be used for carrying water away from the excavations.

### Pipe Surround

*Add the following clause:*

Pipes and fittings should be bedded on and surrounded with a minimum of 150mm granular material either graded 3mm to 6mm size or 6mm single size.

### Completion of Pipe Surround

*Add the following clauses:*

The material should be compacted by hand.

It is not acceptable to lay the pipes on the trench bottom, cover with bedding material and lift the pipes to form the bed.

### On-site Welding of Polyethylene Pipes

*Add the following clause:*

All electrofusion fittings shall be of integral wire construction. All fittings shall be of automatic type and fitted with recognition resistors, identifiable by an automatic electrofusion control box, complete with electronic data acquisition facility for joint data analysis and quality assurance.

### Location of Other Utility Equipment

*Add the following clause:*

Water mains must have a separation of a minimum of 300mm in all directions from other pipes, ducts or cables.

Testing of Ductile Iron, PVC, GRP and Steel Pressure Pipelines in Accordance with BS EN 805

*Add the following clauses:*

Ductile iron or rigid plastic pipes shall be subject to a 1-hour static test at a pressure of 1.5 times the working pressure or 12 bar, whichever is the greater.

Test Certificates shall be supplied upon completion of each test, detailing the method, location, monitoring and pressure readings.

During and on completion of the test all valves shall be checked and adjusted as necessary.

During pressure testing, air valves shall be isolated and valve gland packing tightened down. Air valves shall be re-adjusted and opened upon completion of the successful test.

## Testing of Polyethylene Pressure Pipelines

*Add the following clause:*

The whole test should be recorded by a pressure logging system attached to a suitable hydrant and set to record pressures at 1-minute intervals over the period required by the manufacturer's instructions.

## Swabbing of Water Mains

*Add the following clause:*

Clear wash water shall be defined as having a turbidity of less than 1 NTU (Nephelometric Turbidity Units).

*Add the following clause:*

Prior to hydraulic testing, each length and branch of the main should be swabbed with foam swabs driven by water fed into the main by an approved system of temporary pipework which must incorporate a double check valve to ensure there is no possibility of back siphonage into the existing main.

## Foam Swabs

*Add the following clauses:*

Swabs have a density of 20 - 25 kg/m<sup>3</sup>, minimum tensile strength 95 kN/m<sup>2</sup> and a hardness (at 50% deflection to BS 4443 Parts 1, 2 and 4) of 19 to 23 kg.

The diameter of the swab shall be as follows:

- Hard swabs: nominal bore of main
- Soft swabs for mains less than 200 mm: nominal bore + 50mm
- Soft swabs for mains greater than 200 mm: nominal bore + 75mm

The length of the swab shall be 1.5 times its diameter.

## Water for Testing, Swabbing and Disinfection

*Add the following clause:*

Any additional water needed to repeat the procedures as a result of any failure on the part of an SLO may be charged at Wessex Water's prevailing metered rate.

## Disinfection, Sampling and Operation of Water Mains

*Add the following clauses:*

Disinfection shall not commence until the cleaning and flushing process has been completed satisfactorily.

When inspection of the flushing water shows its appearance is clear, the new main shall be disinfected by filling it with water containing not less than 30 mg/l free chlorine. Chlorinated water shall be drawn through to the ends of all branches of the new main by opening washouts or hydrants and monitoring of the presence of chlorine until a residual of at least 25 mg/l chlorine is measured at each outlet. Where practicable, all valves and hydrants shall be operated to bring chlorinated water into contact with their components.

When filled with highly chlorinated water at the correct chlorine concentration, the new main shall be left isolated for a contact period of 24 hours. After this period the chlorinated water shall be displaced with mains water.

As highly chlorinated water is displaced its chlorine residual shall be checked at the end of each branch, or at suitable sampling points along its length, if the new main comprises a long un-branched length. If the residual at any point is less than 20 mg/l free chlorine the main shall be cleaned again and re-disinfected.

When satisfactory chlorine residuals have been measured as above, the new main shall be flushed with mains water until the chlorine residual measured at the end of each branch is no greater than that of the mains water being introduced. When this is achieved, the main shall be left filled with mains water and isolated. After a further 24 hours, it shall be sampled for aesthetic, bacteriological and chemical tests. These test results shall be submitted to Wessex Water for approval.

A new main shall not be connected to the existing mains until the written approval of Wessex Water is given that all test results are satisfactory.

Should a satisfactory test result not be obtained on any parameter, that length of main shall be re-cleaned by flushing or swabbing as appropriate, then be re-disinfected and re-tested for all parameters.

The disposal of chlorinated water must be carried out so that it does not cause damage to watercourses, sewage works operation (if discharge is to a sewer), or to the environment.

Water shall not be discharged to road gullies or surface water drains until it is dechlorinated to a zero chlorine residual.

Before discharging to sewer the agreement of the staff responsible for the sewerage system must be obtained.

In the absence of suitable alternative agreements for disposal and especially where the discharge is direct to a watercourse the water shall be de-chlorinated to produce a zero chlorine residual before discharge.

All temporary works shall be provided, installed, maintained and removed to facilitate the disinfection of the main. This shall include excavation, stop-ends and backfilling where necessary.

During the disinfection process of new mains, precautions must be taken to ensure that highly chlorinated water cannot enter the existing mains.

Water shall only pass between the existing and new main through temporary connections, e.g. a flexible hose between two hydrants, with a non-return valve fitted to the upstand on the hydrant on the existing main.

The flexible hose shall be disconnected when not in use.

A shut valve is not sufficient to isolate the new main from the existing one. If the two mains are to be directly connected prior to disinfection, a blank end (spade) shall be fitted between them.

### 3.7.3 Hydrants

*Add the following clause:*

Hydrants shall comply with BS 750, and be screw down Type 2. The direction of closing shall be CLOCKWISE.

The outlet shall be 2 1/2" London gunmetal or copper alloy, and the body ductile iron. An automatic frost valve shall be incorporated in the body. The stem shall be one-piece with integral collar in stainless steel, and fitted with a loose stopper.

Hydrants shall be internally lined with epoxy to 150 microns absolute minimum thickness, holiday free, Class A, and externally to 150 microns absolute minimum thickness, < 20 holidays/m<sup>2</sup>, Class B.

All hydrants shall have BSI Kitemark accreditation.

## Appendix 1 Developer services – our promise

We are committed to giving you a first class service that exceeds the standard required by law.

### Supply – we will respond

- Within 28 calendar days for new supply service connections.
- Within 28 calendar days for new water main requisitions, or 42 days for larger sites or off-site reinforcement.
- Within 28 calendar days with comments on self-lay water mains proposals, or 42 days for larger sites.

### Sewerage – we will respond

- Within 5 calendar days to acknowledge sewer requisitions.
- Within 14 calendar days to acknowledge sewer diversion applications.
- Within 21 calendar days for applications to build over or near a sewer.
- Within 21 calendar days for new sewer connections.
- Within 28 calendar days for sewers offered for adoption, with either technical approval or rejection once a full application is received.
- Within 14 calendar days we will provide a draft legal agreement for a sewer adoption, once a full submission is technically approved and we receive all the information necessary.

### Asset enquires – we will respond

- Within 7 calendar days to general asset enquires.

### Planning - we will respond

- Within 21 calendar days for specific sites needing a detailed answer.
- Within statutory timescales for planning matters.

### Our fees and charges are clear

These are reviewed annually. All fees and charges are published in relevant booklets, leaflets and guidance notes which are available to download from our developer services pages.

### Putting things right

If you feel we have not met the standards of service you would have expected, you can contact us in one of three ways:

On receipt of your complaint we will aim to make a substantive response within 10 working days.

**Telephone** 0345 600 4 600  
(Monday - Friday, 8am - 6pm)

**Letter** Developer Services, Wessex Water,  
Claverton Down, Bath BA2 7WW

**Email** operational.enquiries@wessexwater.co.uk  
(non emergency only)

If you are still dissatisfied, we will co-operate with an independent review by the Water Services Regulations Authority (Ofwat).

Please note: our guarantees do not apply if we are prevented from meeting our standards by third party actions or exceptional circumstances such as severe weather, major operational problems or industrial action.

## Appendix 2 Water supply (water quality) regulations 1989 and subsequent amendments

### Water mains and pipes approved for use in the public water system

Materials for water mains and communication pipes must meet the requirements of Regulation 25. Failure to meet this requirement is an offence under Regulation 28.

The Drinking Water Inspectorate (DWI) enforces these regulations.

Mains and pipes which have been so approved are listed by the DWI. The list is published twice a year, and can be obtained from the DWI. Tel. 020 7944 5956 or web site [www.dwi.gov.uk](http://www.dwi.gov.uk)

The list is in the Water Fittings and Materials Directory which is published by the Water Regulations Advisory Scheme (WRAS) Tel. 01495 248454 or web site [www.wras.co.uk](http://www.wras.co.uk)

Whilst materials may comply with the Regulations, the appropriateness of a material and fitting for particular site conditions will be subject to the agreement of Wessex Water.

### Water supply (water fittings) Regulations 1999

In 1999 the Water Supply (Water Fittings) Regulations replaced the Water Byelaws in England and Wales. They are intended to prevent the waste, misuse, undue consumption and contamination of public water supplies in domestic and commercial plumbing installations.

Copies of the Regulations are available from the Office of Public Sector Information (OPSI) web site at [www.opsi.gov.uk](http://www.opsi.gov.uk)

Wessex Water enforces the Regulations in its area of supply. Our Developer Services will provide advice. Alternatively, advice may be sought from the Water Regulations Advisory Scheme Tel. 01495 248454 or web site [www.wras.co.uk](http://www.wras.co.uk)

The scheme in partnership with DEFRA has also produced the Water Regulations Guide to provide more detailed explanation of the requirements. Copies are available.

### Approved Contractor Schemes

The Regulations introduced approved contractors. Approved contractor status carries certain statutory responsibilities. Under the Regulations, water undertakers are entitled to run approved contractor

Schemes, as well as any other organisation appointed by the Secretary of State or National Assembly for Wales.

Wessex Water currently supports the Water Industry Approved Plumbers Scheme (WIAPS). This scheme covers most work for internal and external plumbing, but not for connection to Wessex Water's existing mains.

All work undertaken by an approved contractor must comply with the requirements of the Regulations, confirmed by a certificate. Approved contractors are excused some of the pre-installation notification requirements of the Regulations, since their certified competence reduces the need for Wessex Water to check that proposed work will not pose a risk of contamination.

Further details of WIAPS is available from Tel. 01495 248454 or web site [www.wras.co.uk](http://www.wras.co.uk) or write to Water Industry Approved Plumber Scheme, Fern Close, Pen-y-Fan Industrial Estate, Oakdale, Gwent NP11 3EH

## Appendix 3 Glossary

**Adoption:** This is the process by which water companies take over responsibility for infrastructure such as mains.

**Brownfield site:** A site that has previously been built upon (as opposed to a greenfield site that has never been built upon).

**Commissioning:** The process of filling the mains with water so that the supplies are available for customers to use. This will be after the necessary quality tests have taken place.

**Communication pipe:** That part of the Service pipe owned by the water utility.

**Contestable:** Open to competition.

**Developers:** Those who organise the purchase of land, construction of new buildings and their sale.

**Disinfection:** The process of treating water with, for example, small amounts of chlorine to ensure that it complies with water quality regulations.

**Easement:** A legal right of way over another person's property, which may cover the laying of pipes in that land.

**Extension to the network:** A single pipe that is laid from the existing network to serve new customers.

**Existing mains/existing network:** The parts of the system already in place before a SLO starts installing pipes. These will include off-site and on-site pipework, some of which may supply existing customers.

**Live main:** A main connected to the water network and filled with water.

**Multi-utility infrastructure provision:** This is where one SLO installs more than one utility service to a site (which could include gas, electricity, water and telecommunications), sometimes in a single trench.

**Network reinforcement:** Modifications necessary to an existing network in order to provide the required water to a new development without compromising existing levels of service to existing customers. Network reinforcement can include such things as mains reinforcement/upsizing, booster station and service reservoir construction etc.

**New main:** A main laid by the SLO as part of a development.

**Non-contestable:** Not open to competition.

**Off-site:** In the public highway or in land owned by people other than the developers.

**On-site:** Land owned by developers.

**Pressure testing:** Testing to make sure that the new mains have been constructed and joined correctly and that they will carry the working pressure required.

**Piece-ups:** Pipes connecting one phase of a development site to another phase.

**Reinstatement:** Work carried out to restore the surface of the ground to its original condition; for example, resurfacing a road after work to lay water mains.

**Requisition:** Water companies must provide water mains that are sufficient for domestic purposes when required to do so by a notice under sections 41 to 44 of the Water Industry Act 1991. This is known as a requisition. Water companies must provide the mains once the financial conditions of compliance are satisfied and the water company has agreed the places for connecting the new pipes to its existing main or network.

**Self-lay:** Where developers, or their contractors, install new water mains and service pipes instead of asking the water company to do the work.

**Self-lay organisations (SLOs):** Contractors and multi-utility infrastructure providers laying mains for the developers.

**Service pipes:** A pipe supplying water from a main to any premises (whether in the highway or in private land).

**Supply pipe:** That part of the Service pipe owned by the property owner.

**Swabbing:** A process to clear mains of dirt and materials before they are filled with water.

**The Water Supply (Water Quality) Regulations 2000 and any subsequent amendments:** These Regulations specify the standards used to define the wholesomeness of drinking water and also specify, under Regulation 31, the requirements for using approved substances and products. The DWI enforces the Regulations.

**The Water Supply (Water Fittings) Regulations 1999:** These Regulations are requirements for the prevention of contamination of water supplied, and it is the statutory duty of the water companies to enforce them.

**Upsizing mains:** When a water company decides to lay a larger main than is needed to supply a new development. This might be because the water company considers that the demand for water will increase in the future.