Large Diameter Water Connection

Developer Services
January 2021

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SEVERN TRENT

Large Diameter Connection

1.1: General principles

You'll need to apply for a large diameter service pipe connection if the probable peak flow requirement to a single building is more than 1.0 Litre per second (1L/s). You should note that a standard 25mm service connection will provide 0.6 L/s and a standard 32mm service connection will provide 1.0L/s at the point of connection and at our normal mains operating pressure (please see section 3.2: operation of the mains distribution for more information).

You should consult your plumbing contractor for advice on your flow rate requirements before filling in the application form.

1.2: Circumstances that require a Large Diameter Connection

A large diameter service connection will typically be required if:

- The domestic water fittings detailed on your application require a probable peak flow greater than 1.0 L/s directly from the Severn Trent Water (STW) mains.
- If the minimum infill rate requirement to any domestic water storage cistern(s) is greater than 1.0 L/s. Please see section 3.3: Water storage for more information.
- If the requirement for any industrial process water (e.g. to a brewery, dairy or engineering process) is greater than 1.0 L/s.
- If the flow rate required to fill a full holding fire sprinkler cistern over 36 hours is greater than 1.0 L/s. Please see section 3.4: Sprinkler/fire fighting for more information.
- You'll need to consider if the STW mains standard minimum operating pressure of 1.5 Bar is sufficient to successfully operate your system. Please see section 3.2: operation of the mains distribution for more information.
- If the service connection is required for a multiple occupancy premises (block of self- contained flats) with a common entry point and where separate standard connections to the main are not practical. Note: separate meters will be required for each flat. Please see section 7.2: metering arrangements for multiple occupancy premises for more information. The developer will lay one common service pipe from the building to the highway boundary.

If more than one of the above examples is applicable for a single building, a LDC can be used to supply the total flow demand subject to suitably sized separate branch pipes (for domestic, fire fighting or process water) being laid and check valves being fitted.

1.3: Circumstances that don't require a Large Diameter Connection

A large diameter service connection isn't suitable and shouldn't be applied for under the following circumstances:

- To compensate for frictional loss of water pressure along the length of a long private service pipe due to the property being sited a long way from the STW main. It's the responsibility of STW to supply the required demand flow rate at the point of connection or site boundary. If the flow rate can be supplied via a standard 25mm or 32mm connection then a standard service connection application should be used. It's the customer/developer's responsibility to size the private supply pipe and to install a cistern and booster system if necessary to get the water to the property.

- In an attempt to supply the upper floors of a property that would normally only require a standard sized connection. If the demand flow rate can be supplied via a standard 25mm or 32mm connection then a standard service connection application should be used (application forms can be found on our website at stwater.co.uk/developers or by telephone 0800 707 6600)). Suitable internal storage and boosters should be used to supply the upper floors for any building above two storeys.

- Flow rates required for possible future use can't be included on your LDC application. Your application will only qualify for a LDC based on the domestic water fittings, process water or fire fighting flows that are quantified on your application.

2.0 Making an application

2.1 Application form and where to make your application to

If you want to submit a large diameter connection application, please complete our online form, or where this isn't suitable for your development, a copy of the application form can be downloaded from our website **https://www.stwater.co.uk/building-and-developing/regulations-and-forms/application-forms-and-guidance/** or attained by calling us on: 0800 707 6600.

The fully completed form and supporting information should be emailed to new.connections@severntrent.co.uk, or posted to
Severn Trent Water Ltd
Developer Services
Severn Trent Centre
PO Box 5311
Coventry CV3 9FL

2.2 What we'll provide you

Once we've received the completed application and carried out the network and site assessment, agreed the point of connection and established the ground conditions, we'll respond with the following information:

- A drawing showing the position of the existing water mains and the proposed point of connection for the new service.

- Details of any off-site and/or reinforcement works that will be required to service the development for water.

- Details of costs for the connection including infrastructure charges and infrastructure credits, infrastructure discounts (if applicable), income off set (if applicable) metering costs, water for construction costs, off-site costs.
- Details of connection pipe size, material and flow rates.
- Details of meter size(s).
- Guidance on ground conditions and possible contamination issues.
- Any other site specific information.
- General conditions for connection.
- Details of timescales, notice periods, contact numbers and what to do next.

2.3: Service pipe connections costs

Rather than provide you with an indicative price we will visit you at your site address and **provide you with a bespoke, site specific quote**.

If the developer makes any changes to the service connections which requires us to rework either the technical appraisal or design stages, they'll be charged a re-quotation fee

Section 3: LDC water supply

3.1: STW service pipe sizing

The STW service pipe connection to the mains is sized to supply the required flow rate to your site/development. It's sized based on the probable peak flow required to supply the water fittings installed in a single building, taking into account any water storage that you've said you'll install and also the probable diversity pattern of the water usage. The STW service pipe will not necessarily match the pipe size that you requested or match the size of the pipe that you said you're laying on the private side. The STW service pipe will not normally be designed to supply a peak flow based on all of the water fittings being used at the same time unless your application indicates that this will be the pattern of use (e.g. within a sports facility with no storage and where multiple showers will be used simultaneously). Process water or fire fighting systems connections will be evaluated according to the actual flow request stated on your application but STW can't guarantee to meet your fire fighting or process water flow rate request.

3.2: Operation of the mains distribution system

We are required to maintain a minimum pressure of 10m head (1 Bar) in our distribution system. When designing new systems, we aim to achieve 15m head (1.5 Bar) at our controlling stop tap on the property boundary. Sometimes our networks do operate at higher pressures. When this occurs we routinely review the system and, wherever possible, seek to control pressures to our design standard. Hence all private plumbing systems should be designed to operate to the above pressure guidelines.

3.3: Water storage

Before we provide any new water supply connection (under the terms of Section 47 of the Water Industry Act 1991) you must, if our network doesn't have adequate pressure to supply all the development unaided, provide and install storage cisterns and boosters. This will apply to most buildings above two storeys, where the ground floor of the building is elevated more than 5m above the public highway or where the property is sited a long way from the STW main. Storage cisterns must be appropriately sized and correctly installed to ensure that there is no detrimental impact on the quality of water stored within them.

Our supplies are subject to occasional disruption due to maintenance work on the distribution system. Consideration should be given to providing adequately sized storage cisterns if proposals involve commercial processes or fire fighting systems which rely on mains water for their continued operation.

3.4: Sprinkler/fire fighting supplies

The developer will need to lay separate fire fighting supply pipes to the site boundary. Where a domestic supply is also included on the application we'll provide details on a fire/domestic split when we issue our quotation.

A fire sprinkler supply **won't** be metered, however you should ensure your sprinkler supply is designed to BS EN 12845:2004 and Amendment 2:2009. It needs to be of the "full holding capacity" type and include adequate storage to fully douse any potential fire on the site, without the need for make-up water to the storage vessels or a direct feed from STW mains. Please note, we'll generally allow a 50mm diameter connection to provide 75 litres/minute inflow to a sprinkler storage cistern.

Private fire hydrant supplies **won't require metering** but will require a single check valve to be installed on the private supply pipe as close as possible to the highway boundary.

Under normal operating conditions we'll aim to supply 8.0 litres/second for fire fighting hydrants. If this falls short of your anticipated flow rate you're advised to meet any shortfall by using on-site storage or by other means as agreed between yourselves and the Local Fire Authority. We're unable to guarantee specific flows or pressures for fire fighting as they may vary from time to time based on the demand upon the water supply network.

Our supplies are subject to occasional disruption due to maintenance work on the distribution system. Consideration should be given to providing appropriate storage facilities if proposals involve commercial processes or fire fighting systems which rely on mains water for their continued operation.

Section 4: Site history and ground conditions

We need information on previous site usage to help determine if there might be any contaminants in the ground that will affect the pipe material to be laid. If the land is contaminated, the water connection may be refused until protective measures or remedial action has been undertaken by you. There maybe other circumstances where protective pipework needs to be laid.

If the previous use of the site is anything other than Greenfield/agriculture a soil analysis report will be required. Protected pipework may be required depending on the results of the soil analysis report and/or the type of development. If a soil analysis report is not provided, protected pipework must be laid.

If a soil analysis report is required but isn't included with the application we can continue to process the application based on the protected pipework being laid potentially increasing the connection and on-site costs. If a soil analysis report is provided after the quotation has been issued, a re-quote fee will be charged to process the soil analysis report and to revise the quotation costs if necessary.

Section 5: LDC requirements of the customer

Water supply connections for domestic purposes are provided under section 45 of the Water Industry Act 1991. Water supply connections for non domestic purposes are provided under section 55 of the same Act and where necessary will be subject to additional costs for providing off-site reinforcement to our existing network.

Unless otherwise agreed, each separate premise has to have its own separate supply and must be metered separately. There can't be a single supply that connects to two or more properties.

Before we provide any new water supply connection (under the terms of Section 47 of the Water Industry Act 1991) you must:

Agree that the supply to each new or substantially altered premises and communal area is metered. Unless agreed in advance, this will be through a meter installed inside the property within each unit for multiple occupancy premises or for other LDCs through a meter installed in a chamber at the site boundary on the private side. **Note** that if your meter installation work is not to our specification additional charges will be applied.

Lay a service pipe to the agreed point of connection at the highway boundary and arrange self-certification or inspection by us before back filling.

Ensure that all private pipework and fittings conform with the Water Supply (Water Fittings) Regulations 1999.

When the supply pipe is laid, a 1m length of pipe should be left at the point where the property boundary meets the back edge of the public footpath or verge, or to the point where we have agreed to make the connection.

The end of the pipe must be marked to show the premises(s) it will supply. The pipe tail should be capped off using a mechanical fitting to prevent dirt from entering. The other end of the pipe should enter the property in an appropriately sized duct sealed at both ends and insulated against frost.

In addition, a suitable compliant stop tap must be fitted internally where it enters the building. The stop tap should be left in the closed position until the water has been connected. Prior to connection, the supply pipe installation will be subject to inspection for compliance with the regulations.

Please note that we need 5 days notice to complete an inspection

The developer, immediately before the installation of the service connection, must locate and expose the ends of any associated road ducts if applicable.

In addition, where multiple new metered connections are to be made to the main at the same position, or within close proximity of each other, it will be necessary for the top and tail of the supply pipes to be labelled with the relevant plot number. This is to prevent the possible cross connection of supply pipes.

5.1: Double Check Valves & Meter Installations

Non-Household Connections
A double check valve is required on all supplies to non-household premises, either on the main supply (if supplying a single property) or in the case of a LDC being split into individual supplies a double check valve should be installed either at the point in which the supply enters each property or downstream of any internal manifold supplying them.

Please note all double check valves ≥ 50mm must be installed in the horizontal orientation.

Household Connections
A double check valve is only required on supplies to household premises in the case of a LDC being split into individual supplies. The double check valve should be installed either at the point in which the supply enters each property or downstream of any internal manifold supplying them.

For internal meter installations the double check valve should be installed between the water meter and upper stop/drain valve.

For external meter installations the double check valve should be installed at the point in which the supply enters the property. This should be above the internal stop tap / valve but below the drain valve. If an external meter chamber is installed on your land you should provide unrestricted access at all times as you'll be responsible for the adequate upkeep of the cover and frame to the meter chamber.

We require the following;

(i) a stop tap either side of the location where the water meter is to be fitted
(ii) a drain valve downstream of the meter (internal meters only)
(iii) where the meter is fitted, an approved electrical cross bond between the incoming and outgoing pipework, either side of the stop taps (A sketch detailing the installation requirements is available on request).

You'll also need to make sure that the Chlorination/Flushing/Disinfection and Pressure Testing of the private supply pipe is carried out. Further information on this will be provided on our site assessment visit. All private supply pipes greater than 32mm external diameter will require Chlorination/Flushing/Disinfection and Pressure Testing.
Where evidence is required, the customer must provide a Chlorination Test Certificate, a Pressure Test Certificate demonstrating that the pipework meets the standard laid out in IGN 4-01-03 and Bacteriological Sample pass results provided by a UKAS accredited laboratory.

Please note that your application for a new water supply is also deemed to be your notice to us for the erection of a building or other structure as required by Regulation 5 (Notification) of the Water Supply (Water Fittings) Regulations 1999. Consent to which is granted subject to the work being done in accordance with our new supply connections conditions and specification and the above Regulations.

Section 6: Metering

6.1: Water meters

We require a water meter to be installed in every new property. Meters will be provided by us for installation by your contractor. A commissioning fee as detailed in our current Developer Charges Booklet will be charged.

We'll size the meter to supply and accurately measure the flow rate required by a single building. The meter size will not match the size of your supply pipe but it **won't** restrict the flow rate below what's required to supply the building. Individual meters within multiple occupancy premises (e.g. blocks of self-contained flats) will be sized for each unit based on flow requirements.

NOTE: If you'd like a dual pulse meter for an onsite management system please note this on the cover letter of your application form.

6.2: Metering arrangements for multiple occupancy premises

Individual premises, communal areas or landlord supplies in the building are required to be individually metered.

At the cost of connection acceptance stage, the developer must submit drawings for approval for each floor identifying:

- Each plot with plot number.
- Any communal or landlord area with a water supply.
- The proposed exact location of every meter.
- The site connection will not be progressed until this information has been received and agreed.

If any changes or additions are made to the number and/or position of the separate units/premises, landlord or communal supplies, the developer must provide amended drawings immediately.

6.3: Location and installation of meter multiple occupancy premises

The meter must be installed immediately at the point of entry where the water supply enters the unit, before any branch tees. This will normally be in the kitchen but shouldn't be in areas that may be inaccessible.

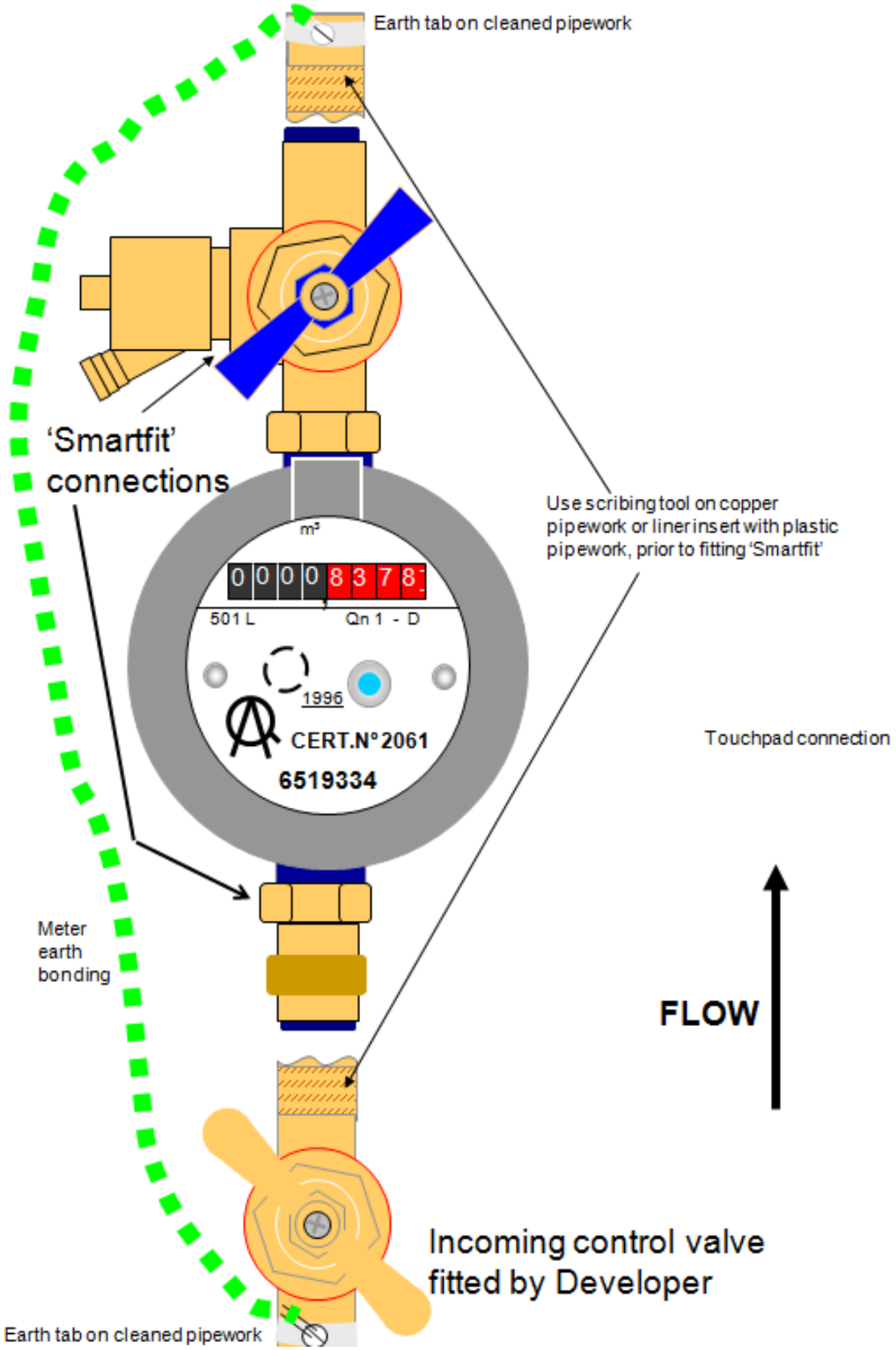
To facilitate meter installation the meter will be supplied with a Warwick Smartfit (see diagram) which includes an internal stop tap, drain valve and adaptor. The Smartfit is designed for connection to 15mm pipework. It can also be connected to 22mm pipework with appropriate reducer couplings (not supplied).

Use of the Smartfit is optional, but if not used the developer must fit their own, a drain valve and a stop tap immediately downstream of the meter.

However, whether the Smartfit is used or not, the developer must still fit a compliant stop tap (not provided by Severn Trent) upstream of the meter and ensure adequate earth bonding across the space where the meter is fitted.

The developer must ensure sufficient room to accommodate the meter and Smartfit, which needs to be fitted onto a straight run of pipe (horizontally or vertically) 250mm to 400mm in length.

Care must be taken to make sure that the flow direction arrow shown on the stop tap casting is correct so the meter is not fitted the wrong way round. The meter will also come complete with a Radio module and again care must be taken to make sure that this is not removed or damaged during installation **Note: Care should be taken with 'Smartmeter' meters to ensure the loop is not aligned so that installed meter face is upside down.**


Earth tab on cleaned pipework
'Smartfit' connections
Use scribing tool on copper pipework or liner insert with plastic pipework, prior to fitting 'Smartfit'
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Touchpad connection
Meter earth bonding
FLOW
Incoming control valve fitted by Developer
Earth tab on cleaned pipework

Section 7: Self lay

7.1: Self construction

We operate a scheme which allows developers to appoint competent accredited installers; Self Lay Providers (SLPs) to self construct new mains and services up to and including 63mm diameter pipe. Work must be carried out in accordance with the current UK Water Industry Research (UKWIR) Self-Laying of Water Mains and Services Code of Practice for England and Wales and the STW Addendum to that Code of Practice. It must also be noted that self construction work must not start until the appropriate agreements between the customer and STW are in place.

A key element of the scheme is that SLPs must be able to demonstrate their competence. Current membership of the Lloyds Register with the Water Industry Registration Scheme (WIRS) will satisfy this requirement. A list of accredited installers can be found at **lloydsregister.co.uk**

For further information on the self lay option, please contact New Connections on: Telephone: 0800 707 6600 Email: **new.connections@severntrent.co.uk**

7.2: Self lay supervision

Where either the mains or services are to be self constructed a pre-start meeting between the developer, the SLP and a STW representative will be held. The purpose of the meeting is to:

Confirm what is being constructed both self lay and by STW.

Agree the timings and inspection arrangements.

Agree that the SLP has the required competence and hygiene requirements for self lay works.

It's a condition of the self lay agreement that this pre-start meeting must be held before any self construction works take place. Failure to comply with this requirement could result in us refusing to adopt any mains already constructed or allow services to be connected to our network

Section 8: New Connection conditions

8.1: Terms and Conditions

Here are the conditions of connection with the water main in accordance with section 47 of the Water Industry Act 1991.These conditions must be met before we will make the connection.
Specifications explaining how to comply with these conditions were enclosed with your application form and will also be supplied with any future correspondence.

The Water Industry Act 1991 Section 47 Conditions of connection with water main:
Subject to subsection (3) and sections 48 to 50 below, where the owner or occupier of any premises ("the relevant premises") serves a connection notice on a water undertaker, the undertaker may make compliance with one or more of the requirements specified in subsection (2) below a condition of its complying with the duties to which it is subject by virtue of that notice.

The requirements mentioned in subsection (1) above are:
a requirement that such security as the undertaker may reasonably require has been provided for the discharge of any obligations imposed by virtue of section 45(6) or 46(7)(b) above on the person who served the connection notice;

a requirement, in a case where the connection required by the connection notice is necessary as a consequence of a disconnection made by reason of any person's failure to pay any charges, that the person serving the connection notice has paid any amount owed by him to the undertaker – (i) in respect of a supply of water to the relevant premises; or (ii) in respect of expenses reasonably incurred in the making of the disconnection;

a requirement that a meter for use in determining the amount of any charges which have been or may be fixed in relation to the relevant premises by reference to volume has been installed and connected either – (i) by the undertaker; or (ii) in accordance with specifications approved by the undertaker;

a requirement that – (i) subject to section 51D(1) below, so much of the service pipe to the relevant premises as does not belong to, vest in or fall to be laid by the undertaker; and (ii) the plumbing of the premises, comply with specifications approved by the undertaker for the purpose of ensuring that it will be reasonably practicable for such a meter as is mentioned in paragraph (c) above to be installed and connected as so mentioned;

a requirement that a separate service pipe has been provided – (i) to each house or building on the relevant premises; or (ii) where different parts of a building on the relevant premises are separately occupied to each of those parts or to any of them;

a requirement, in relation to the relevant premises – (i) that such a requirement as may be imposed under section 66 below has been complied with; or (ii) in a case where such a requirement could be imposed but for there already being such a cistern as is mentioned in that section, that the cistern and its float-operated valve are in good repair;

a requirement that there is no contravention in relation to the water fittings used or to be used in connection with – (i) the supply of water to the relevant premises; or (ii) the use of water in those premises, of such of the requirements of regulations under section 74 below as are prescribed for the purposes of this paragraph; and

a requirement that every such step has been taken as has been specified in any notice served on any person under section 75 below in relation to the relevant premises.

2A. No condition shall be imposed by a water undertaker under subsection (2)(e) above unless it is reasonable to do so in order to ensure that the undertaker will be able to perform its functions, in relation to the supply of water to the relevant premises or any part of those premises, efficiently.

A condition shall not be imposed by a water undertaker under this section on a person who has served a connection notice except by a counter-notice served on that person before the end of the period of fourteen days beginning with the day after the service of the connection notice.

3A. Any dispute as to whether any requirement of a kind mentioned in subsection (2)(a), (b), (e) or (f) above has been complied with may be referred to the Authority for determination under section 3A above by either party to the dispute.

3B. Any dispute between a water undertaker and any other person as to whether – (a) any security required by a condition imposed under subsection (2)(a) above was reasonably required,

the expenses referred to in subsection (2)(b)(ii) above were incurred reasonably, or

in a particular case, subsection (2A) above prevents a water undertaker from imposing a condition under subsection (2)(e) above, may be referred to the Authority for determination under section 3A above by either party to the dispute.

This section shall be without prejudice to the provision of sections 233 and 372 of the Insolvency Act 1986 (conditions of supply after insolvency).

8.2: New connection terms and conditions for connecting multiple occupancy properties

These conditions apply where the properties to be connected are in multiple occupancy, i.e. where separate units, either residential or non-residential, are accessed through a common entrance whether or not the properties are supplied separately or through a shared service. These conditions apply in addition to our standard terms for connecting new properties:

Unless we have otherwise agreed in writing each individual unit in the building shall be individually metered in accordance with the specification provided in our document entitled ‘Meter Installation Technical Specification for Multiple Occupancy Properties’. The landowner or, if different, the occupier of the site (unless the occupier is merely a contractor).

Will provide STW at the application stage with a drawing showing the proposed layout details of all floors, units and communal supplies and the location of all meters, Acceptance of the application is conditional on this information being provided.

Must keep STW informed of building progress to enable timely ordering, delivery and commissioning of meters, and related apparatus.

Immediately after connection the landowner (or leaseholder, where relevant) shall ensure we are provided with:

Full access to the building for meter installation, commissioning and verification.

The full postal address of each unit as soon as they have been confirmed, irrespective of whether the premises are sold, occupied, not sold, unoccupied, rented or leased etc.

The name of the occupier of, or responsible person or body for each unit as soon as the occupant, owner, leaseholder or tenant takes possession.

Shall immediately after the first meter installation in the building is commissioned or first occupied or leased (whichever is the sooner) conclude an agreement giving us access for verification, maintenance and meter reading. This agreement will include the identification and location of any apparatus related to the metering installation and provision of any keys and security codes etc to enable full, unhindered access to the building and any utility area by ourselves or our contractors. (NB: sample access agreement available on request).

Shall accept responsibility and pay for connection, meter fitting and commissioning charges, Infrastructure Charges, and water and foul sewerage and surface water drainage usage at the rate or amount stated in our annual 'Scheme of Charges' until meter details have been verified, postal and occupier and owner information provided, and a workable access agreement concluded and complied with for each unit.

Irrespective of any access agreement the landowner (or leaseholder, where relevant) will allow access to our staff or our contractors for inspection and auditing of the external and internal plumbing and meter installation for compliance with the Water Supply (Water Fittings) Regulations 1991, BS6700 and our specification.

Shall immediately, on any amendment, provide STW with an updated drawing giving layout details of all floors and issue STW with an amended drawing if any changes or additions are made to the number, identification and position of each unit.

Shall be liable and pay for any rectification or additional work we deem necessary to ensure that the meter installation complies with our specification and for any abortive work caused by layout changes etc

Section 9: Complaints

9.1: What to do if you are unhappy about the service you have received.

If you feel your initial enquiry has not been properly answered or you still have a problem which our staff can't resolve, please telephone, email or write to us. If you're still not satisfied, you can have your enquiry reviewed by our customer service team.

Please write to:
Severn Trent Water
Customer Care Team,
PO Box 5309,
Coventry
CV3 9FH

Phone: 0800 783 4444
Email: customercare@severntrent.co.uk