Developers Site Pack

Clean water mains and services

WONDERFUL ON TAP

SEVERN TRENT

We're committed to making our water services as wonderful as the liquid itself.

We're Severn Trent and we think water is amazing. It's the shower that wakes us up, the hot bath that relaxes us before bed, we cook with it and grow gardens with it.

We know just how important water is and that's why we put all our energy into helping over 4 million homes and businesses - from the Welsh borders to East Midlands and the Humber - enjoy the wonders of water every day.

We are the UK's second biggest water company, delivering almost 2 billion litres of water every day – that's enough to fill 640 Olympic swimming pools. We also take away 2.6 billion litres of waste water and make it clean again!

The wonder of water should be readily available to everyone; today and for future generations and we're continually investing in our network to make sure our customers can get water today and tomorrow.

Our communities are at the heart of what we do; providing additional support to customers who need it, inspiring the next generation through our education programme and encouraging everyone to come and experience our truly stunning reservoirs. We also love volunteering! It's a big part of what we do, and our Community Champions programme allows us to give back to our local communities, while making big improvements to the local environment and wildlife.

Water makes life wonderful. Together, lets deliver wonderful on tap.

WONDERFUL ON TAP

SEVERN TRENT

Contents

Introduction

This pack is here to support you through your journey with Severn Trent Developer Services. Outlining the process and timelines to install and commission new water mains and services.

If you have appointed a self-lay provider (SLP) to carry out mains and/or service installations, then please consult directly with your SLP. This pack is designed for developers opting to use Severn Trent to install mains and services. Processes and timescales will vary for SLP schemes.

This document is support for our terms and conditions outlined in our applications process. Please make sure you have an understanding of these as well as this pack. Construction drawings, supplied throughout the application and agreement process for each development will take precedence in every matter. Every site should adhere to the CDM regulations version April 2015 where applicable and work in accordance to HSE standards.

Once terms have been agreed for a new development your main point contact will be a local Customer Experience Manager, who will support you through the connection process. They will arrange a pre start meeting with you to discuss your scheme in more detail and a programme of works.

Contact numbers

In most cases your Customer Experience Manager will be your primary point of contact in relation to clean water mains and services.

Name: **Mobile Number:**

Email:

In the event of an emergency resulting from a live main being damaged please call:
Severn Trent 24hr Leak line: **0800 783 4444**

For any issues in relation to payments and finance please call:
Severn Trent Finance Team: **0247 771 5204**

Mains installation

This process takes 90 days

Overview

We aim to complete any new agreed mains scheme, or a phase of mains construction for an ongoing scheme, within 90 days in line with Water UK measures. This includes installation, commissioning, sampling and connection to the existing live network.

We will split each new mains scheme into off-site works and on-site works, both included in the 90 day timescale. Off-site works involve Severn Trent excavating in the highway or surrounding land to bring a source of water main on to site, also referred to as a spur main. The on-site mains are any mains laid within the developer's site, depending on the size of the site these will be installed in one phase or numerous phases as the development progresses. However as detailed below, the 90 day timescale can be much shorter or potentially even longer when large-scale off-site works are required.

Off-site works

Following on from your pre-start meeting, Severn Trent will plan in the off-site works required to bring a source of water main on to your development. This predominantly involves works in the highway. Timescales may vary from 3-4 weeks to a matter of many months, depending on the works required and traffic management involved. All we will need from each site manager is a line and level for where the source of water main is due to enter any proposed new development, including areas covered by any planned Section 278 works, along with the first few metres of the route excavated on site for us to lay into. We will install a wash out on the end of this source of water main which will be used to commission the following on-site mains installation.

On-site works

For the majority of new developments, on-site mains are agreed for lay only installation, meaning the developer will carry out the trench excavations and we will send our teams to lay the new mains only, leaving the developer to backfill the trench. This is explained in more detail on the following page.

If your on-site mains scheme has been agreed for open cut mains installation, we will carry out all the required excavation and back fill requirements for the mains installation.

Before each new section of on-site main is connected, either to the live off-site main or an already live on-site phase, we will have to pressure test, chlorinate and take water samples from the new mains to be connected. We will install wash outs back to back, one on the end of the new on-site main and one on the end of the live main. We will use this point to test and chlorinate from. The testing usually takes 2–3 days following the new mains installation.

Once testing is done, we will then submit the sample to our laboratory for analysis. It usually takes 5 working days for the results to be published, and if these results pass we will then return to site to remove the two back-to-back wash outs and piece the new main onto the off-site main. These back-to-back wash outs will need to be exposed to enable us to piece the main through. The teams on site or your CEM will keep you updated on timescales throughout this process.

To book in your on-site mains installation, please contact your CEM. We typically have a 8–10 week lead time, depending on our work volumes. If for any reason we cannot install our mains when arriving on site, for example if the trench is not dug out properly, you may have to wait a further 4–8 weeks for us to return.

Once each section of mains installation is complete, our teams on site will ask a site representative to sign a Line & Level form to verify that the mains we have installed are in the correct location and at the required depth in accordance with our construction drawing and the future finished surface levels of the development.

If the live on-site mains get damaged and start leaking please call **0800 783 4444** as soon as possible and inform your CEM secondly. If the mains become damaged before the main is made live then call your CEM.

Mains trench excavations

Dependant on your agreement signed your site could be Lay Only or excavate lay and backfill.

Lay Only means we will bed and surround the new main with fine fill during installation and install marker tape, we will also provide the required chamber sections, bases and lids for all the Severn Trent assets we install, these being wash outs, hydrants, sluice valves and air valves. These chambers will then become the responsibility of the developer to ensure they are constructed and line up correctly.

In order for us to install our mains correctly, the trench excavations done by ground workers must be to an acceptable standard. All our mains will require 750mm cover from the top of the main to the finished surface level. The trench also needs to be the correct width; if a trench is too wide we can not achieve the correct line and will be unable to bed and surround the main effectively. If the trench is too thin we will be unable to install bends and valves properly.

For mains sizes from 63mm up to 180mm, a 1m depth trench excavated with 450mm bucket is ideal for new mains trench excavation. A step trench is best practice if you have other utilities due to install mains / cables following on from ourselves (see photo 1.1 and diagram 1.2).

It is very important that all new utilities are installed correctly to enable safe excavation and future maintenance. Please refer to National Joint Utilities Group (NJUG) for official guidance. Diagram 1.2 shows the correct location for new water mains and other utilities.

Diagram 1.1

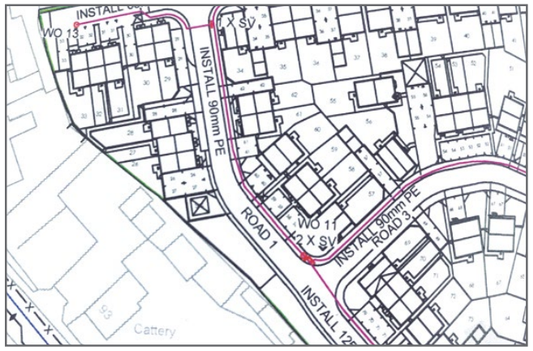
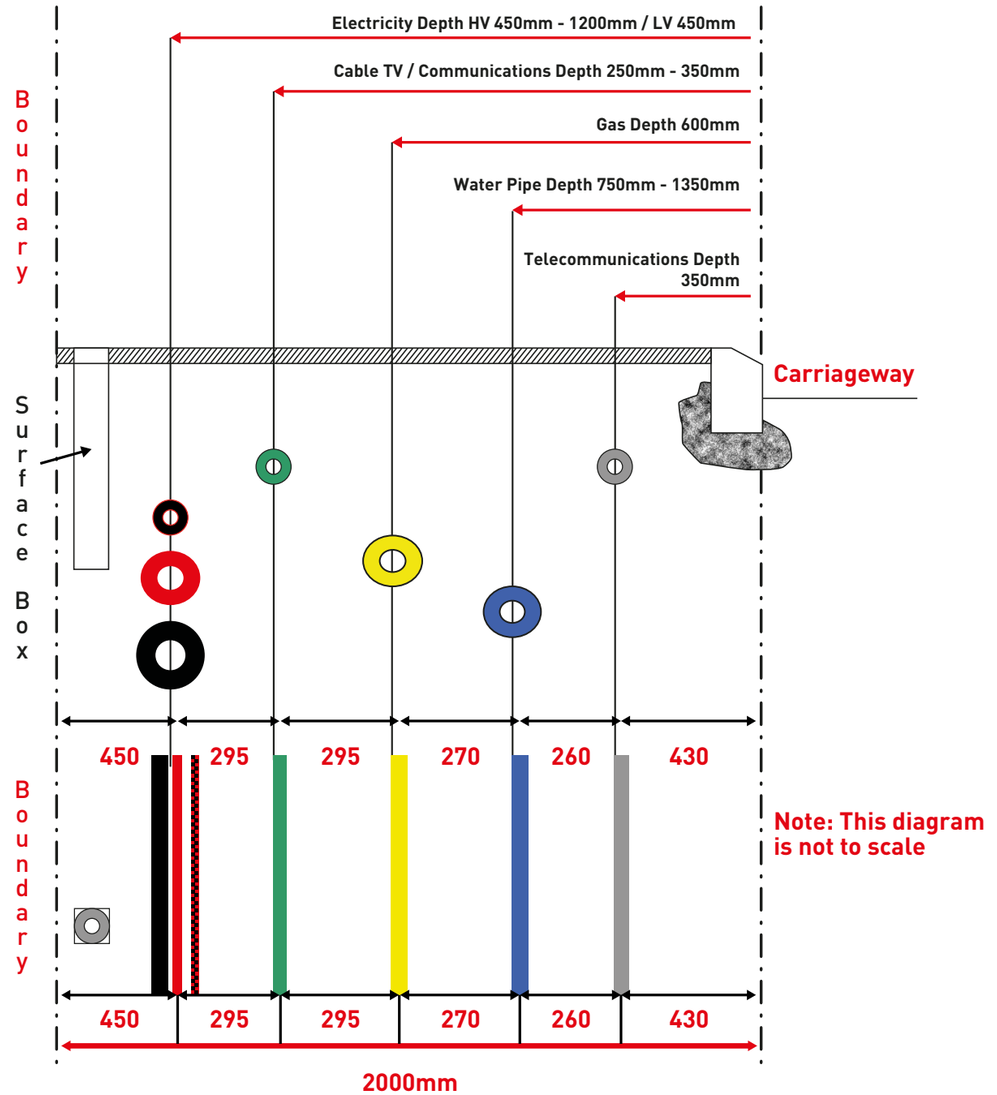


Photo 1.1

Diagram 1.2



NJUG Publication: Volume 2 Issue 4: 29.10.2013

Mains fittings

All new mains infrastructure will feature sluice valves for future mains isolation when required along with wash outs and fire hydrants for water extraction and injection.

Wash out and hydrant chambers

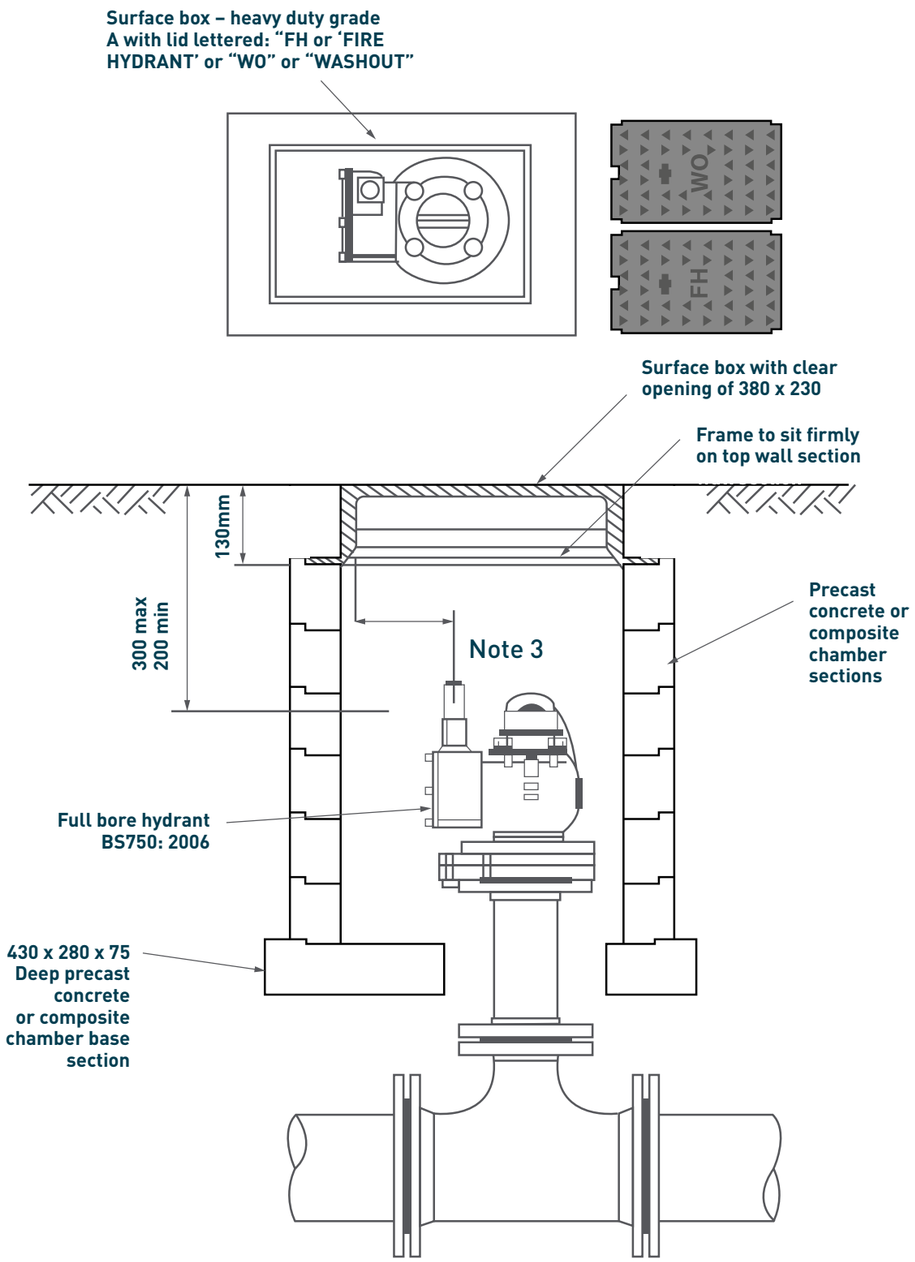
It is essential the chambers around wash outs and fire hydrants are built correctly and maintained throughout the progress of the site. Fire hydrants and wash outs are technically identical; the only difference is that fire hydrants are always adopted by the local Fire & Rescue Services. This means both Severn Trent and the local Fire & Rescue Services will undertake a full inspection of new fire hydrants, the chambers and the surrounding area to confirm it is fit for purpose.

Although Severn Trent supply the chamber sections, base and lid, it remains the developer's responsibility to ensure these are constructed and maintained to the required standard. For example, only Seven Trent approved precast concrete sections or Severn Trent approved moulded composite sections can be used, not bricks or edging kerbs. You cannot mix concrete and plastic sections either. Use of mortar, tiles, wood, metal etc. to achieve the correct finished surface level is also not acceptable. The correct lids also need to be installed, WO lids on wash outs and FH lids on hydrants. These chambers also need to be clear of all debris (see diagram 1.3 overleaf).

Any chambers defects identified by Severn Trent or the local Fire & Rescue Service at the time of inspection will be raised with the Developer who is responsible for repairing the hydrant. If this is not done within the agreed timeframe, Severn Trent will carry out the work and pass on the cost to the Developer.

The safety of our communities is paramount for Severn Trent and by working with our contractors and developers, we can ensure all our assets, including fire hydrants, are built to the required standards and can be used for firefighting purposes by the Fire & Rescue Services.

Diagram 1.3



1. Maximum depth of 300mm to facilitate standpipe shipping
2. Minimum depth of 200mm to facilitate pressure logger & similar installation (ST requirement)
3. Ensure standpipe does not foul inner edge of surface box frame
4. Priority concrete retaining ring (or 150mm width of concrete) to ensure frame is secured in unmetalled surface
5. Refer to spec. CL 2.60
6. All dimensions in millimetres

Information based on drawing STD5020, Rev 02, ST Design Manual 2007

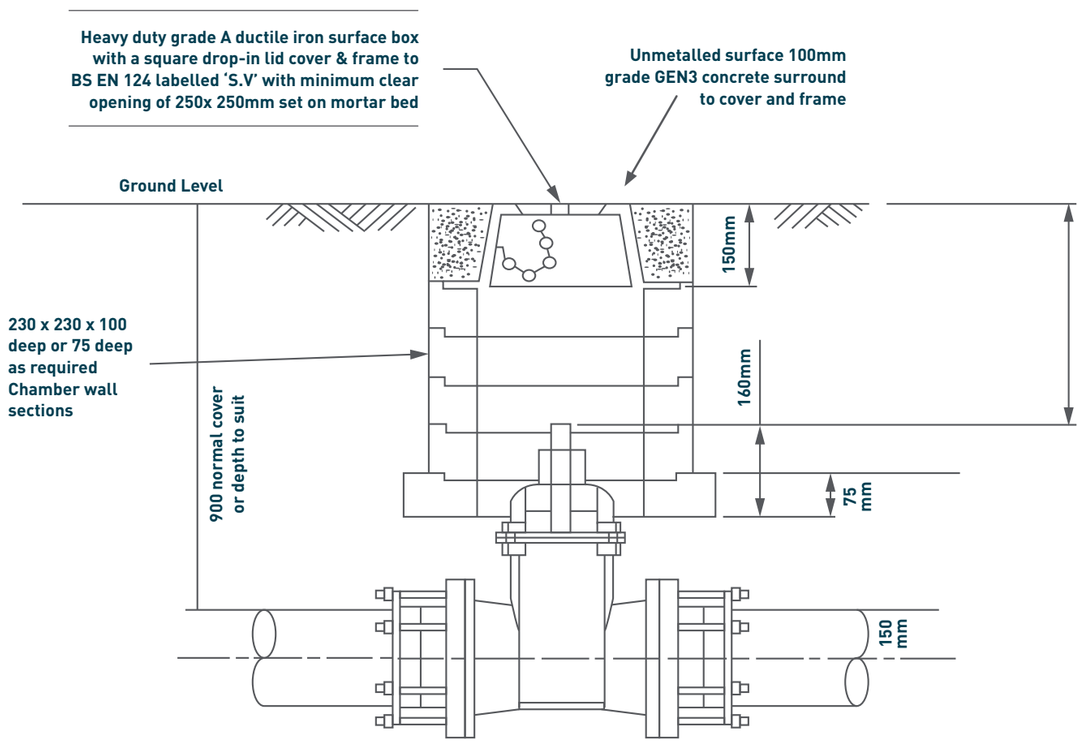
This is what a hydrant/ wash out chambers should look like.

These are **not** acceptable chambers, the hydrant/wash out should be central to the chamber. The cap should always be in place when not in use and the chamber should be clear of any debris. The frame of the chamber lid should rest directly on the top section; no concrete or packing can be used in-between the two.

Sluice valve chambers

Sluice valve chambers also need to be installed correctly to enable future use in the event of an emergency. Again these can only be built up using either Severn Trent approved precast concrete sections or Severn Trent approved moulded composite sections. We will supply these, it remains the developer's responsibility to ensure these sections are constructed and maintained correctly to the required standard (see diagram 1.4).

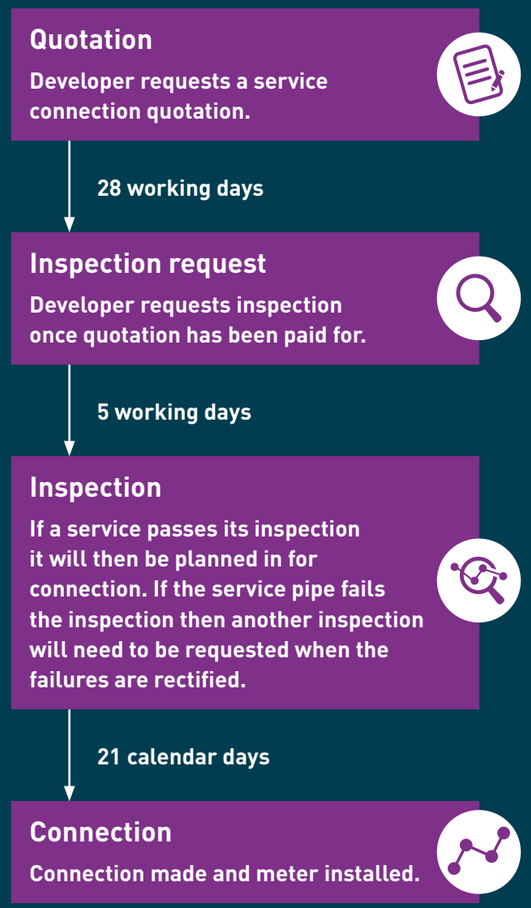
Diagram 1.4



Information based on drawing STD5040, Rev 02, ST Design Manual 2014

This is what sluice valve chambers should look like

Service connections



2

Overview

Similar to new mains, new services for each plot must be installed correctly to the required standards.

In this case, the services from the new properties to the highway boundary will be installed by the developer and we will install the new service pipe from the highway boundary to our main. We will have to carry out an inspection to ensure you have installed your pipe work correctly before we can install ours. In the event of mains being installed on shared drives, the developer will need to install new services from each property accessed by the shared drive to within 1m of the main. Shared drives without new mains will require the developer to install new services to the highway boundary at the base of the shared drive (refer to diagram 2.3 & 2.4 on page 17).

It is important to check the mains material on your site before installing any service pipes, if your site has been designed with barrier / protective pipework mains then you must install barrier / protective pipework services.

Timescales

The first thing you will need to do is request your plot quotations. These need to be requested in good time and paid prior to your required inspection and connection dates. We work to a 28 calendar day turnaround on quote requests and cannot inspect or connect any services until we have received payment or signed acceptance for the relevant quotations. Quotes will only be valid for 6 months so quotes must be requested in line with your build programme to avoid any delays.

We work on a 'first come, first served' basis for inspections and connections. When requesting inspections, we work on a 5 working day lead time, which can vary depending on work volumes. Please contact your CEM to request inspections.

For connections, we work to a 21 calendar day lead time following a passed service inspection, again depending on work volumes. This lead time is in accordance with Water UK measures; however, the majority of the time we manage to bring this lead time down to 7 days. Our schedulers will contact you direct with your planned connection dates.

These lead times are for no-excavation lay installations only. Off-site service installations requiring excavation and / or highways notification may take longer depending on the requirements for each connection.

More information on Water UK and Developer Services performance measures can be found on the Water UK website **water.org.uk/developer-services**

Water regulations

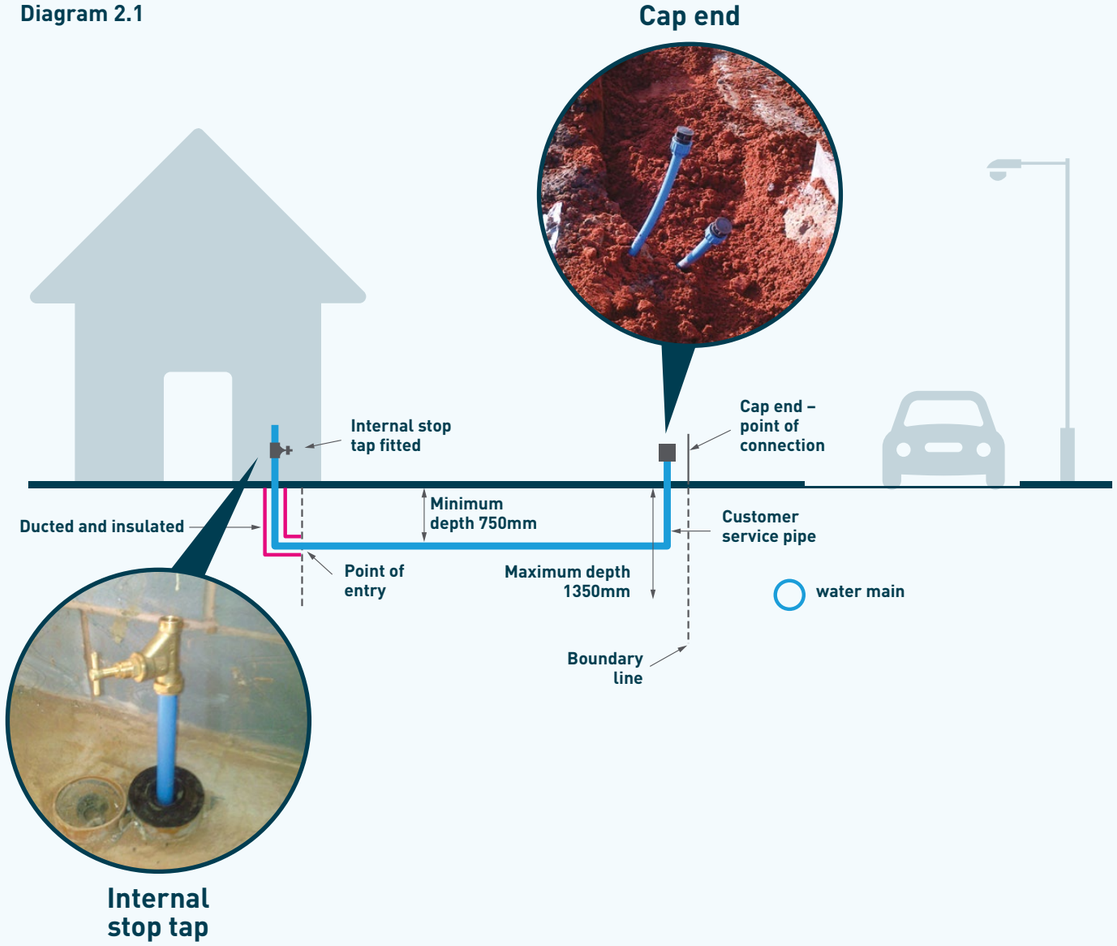
Water regulations and Inspection of new services for each plot

All service pipes must be installed to Water Supply (Water Fittings) Regulations 1999. This means all fittings used must be approved for use and installed correctly. Before we can book in your service connections we will need to inspect each service. We can only connect to secure buildings, meaning roofs, doors and windows in place and all scaffolding must be removed.

- We will need to see that the service has been capped off with a mechanical cap end at the property boundary; this should be attached when the pipe is installed.
- We will need to see proof that each service has been installed at the correct depth. This can be done with viewing eyes left every 10–15m or for shorter services just one half way between the property and the property boundary. All services must be laid between 750mm and 1350mm deep. [Cont. overleaf]

- We will need to see that the point of entry into the building has been installed at a minimum depth of 750mm deep and a maximum of 1350mm deep. This should be ducted from the point of entry in the footings up to the internal floor level.
- The ducting used must be one complete duct and not separated or split ducting. 100mm twin wall blue flexible ducting is ideal and easy to install correctly. The duct must be sealed at either end with a bung inside the property and either a bung or sand and cement externally after inspection.
- If the distance between the point of entry in to the footings of the building and the point at which the duct enters the internal floor level is less than 750mm or if the duct passes through an air gap under a suspended floor, then all the pipe work within the duct must be insulated. The insulation used must be approved for use; it must be closed-cell insulation type complying with BS 5422 and be the required thickness. The required thickness varies depending on the pipe size and thermal conductivity rating of the insulation used, as a general rule 19mm wall thickness is adequate for both 25mm and 32mm pipe work.
- The end of the pipe on the internal side will need to be capped off with a mechanical cap end or have an approved BS1010 stop tap installed (please see diagram 2.1).

Diagram 2.1



Water mark scheme

If your site opts to use WaterMark-approved plumbers to install the new plot services from the property to the highway boundary, then we will not need to inspect and put each plot straight through to connection when required, speeding up the whole process. The WaterMark scheme is run by Severn Trent and falls under the national WaterSafe scheme, which includes approved plumbers whose work is verified to be to the correct standard negating the need for inspection. We recognise any other certification included from the WaterSafe scheme as well as ours. For further information please contact your CEM.

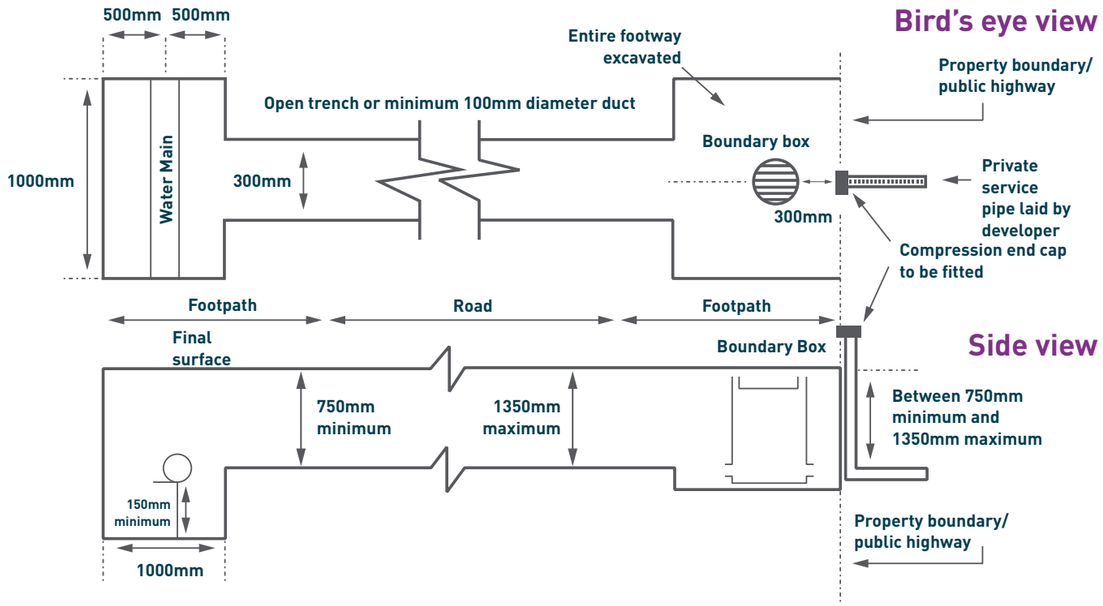
Service trench excavations

Service trenches must be excavated properly to enable us to install the new services to the required standard.

For connections where the main is located in the near side footway, please ensure the entire width of the service strip/footway is excavated (see photo 2.1). A clearance of 150mm will be required all around the main, not just the top of the main. (See diagram 2.1 on page 14).

For connections when the main is located in the footway on the far side from the property, the entire carriage way and footways in-between will need excavating from the main to the property boundary. Most sites will install ducts across the carriage way to avoid future excavation. In this case a 1m square excavation around the main on the opposite footway/service strip with access to the duct will be required and then the entire footway/service strip on the near side (see diagram 2.2). The ducting used must be appropriate twin wall ducting that is blue in colour, installed at the correct depth of 750mm–1350mm and have marker tape installed on top.

Diagram 2.2



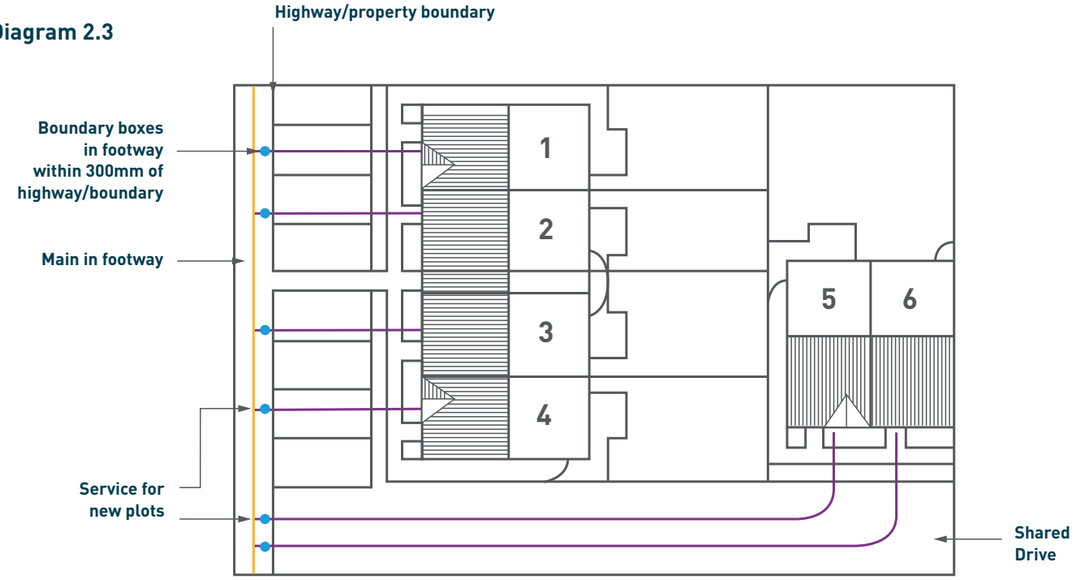
All boundary boxes must be installed within 300mm of the property boundary and at least 150mm from other boundary boxes and any other below ground assets. They must also be at least 1.5m from any other street furniture, for example above ground cable boxes and lamp-posts.

All mains tapings must be at least 300m apart. Please ensure all service pipes are labelled with the correct plot number on. The service route from the main to the property must adhere to Water Regulations.
As a rule all services must enter the property on a 90' angle in straight line from the main.

For shared drives that will not be adopted by the highways, services must be installed in a straight line from the main, in a straight line down the shared drive then bend on a slow 90' angle towards the property and then head straight into the property in a straight line. This must be one complete piece of pipe from boundary box location to the property, joints are not acceptable. Both 25mm and 32mm pipe work is flexible within reason to achieve the slow 90' bend towards a property (see diagram 2.3).

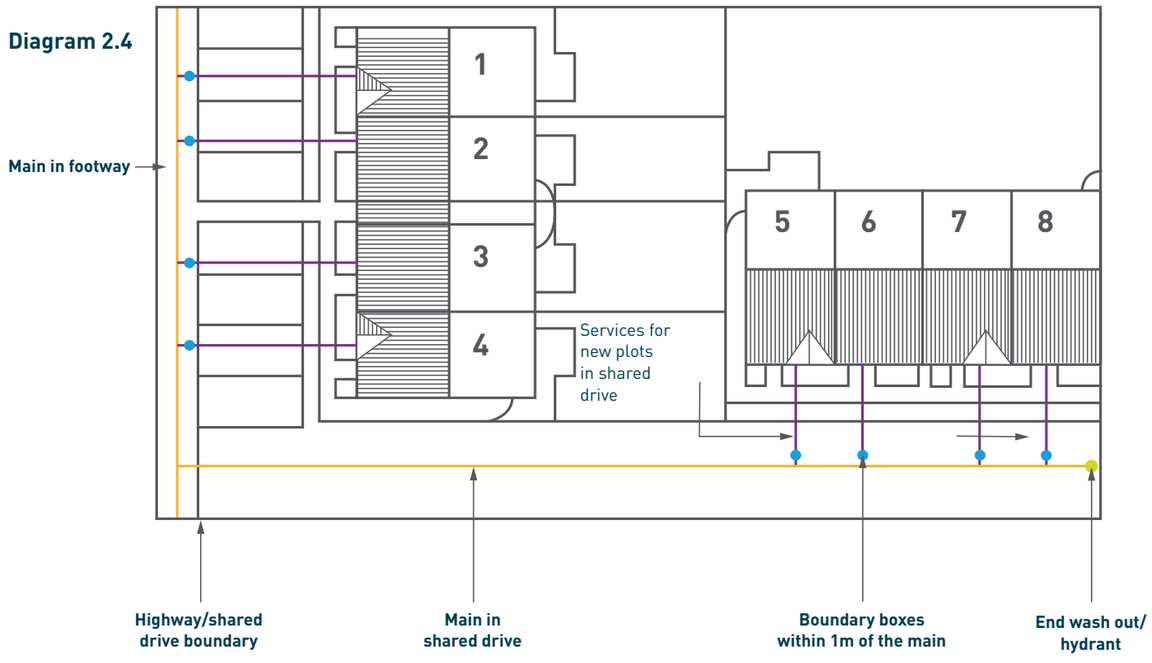
If for any reason you feel you can not achieve this please call your CEM as soon as possible.

Diagram 2.3



On some sites you may well have mains installed on private shared drives; in this instance the boundary boxes will need to be installed within 1m of the main outside each property with the service running in a straight line to the property (see diagram 2.4).

Diagram 2.4



Boundary box chambers

Please ensure you supply a correct line and level to our teams when we carry out your service connections, this will allow us to install the boundary boxes in the correct location at the correct depth. The boundary boxes feature a variable height adjustment of 150mm to aid in reaching your finished service level. These chambers cannot be cut down or extended with additional materials, any kind of modification to the boxes to achieve more than the designated 150mm height adjustment will result in a defect. If Severn Trent has to attend site to repair or replace any damaged, defective or modified boundary boxes then the additional cost will be charged in full to the developer. Also please ensure only Severn Trent approved lids are used on every boundary box and only Severn Trent approved metal lids are used where applicable.

A boundary box should look like this

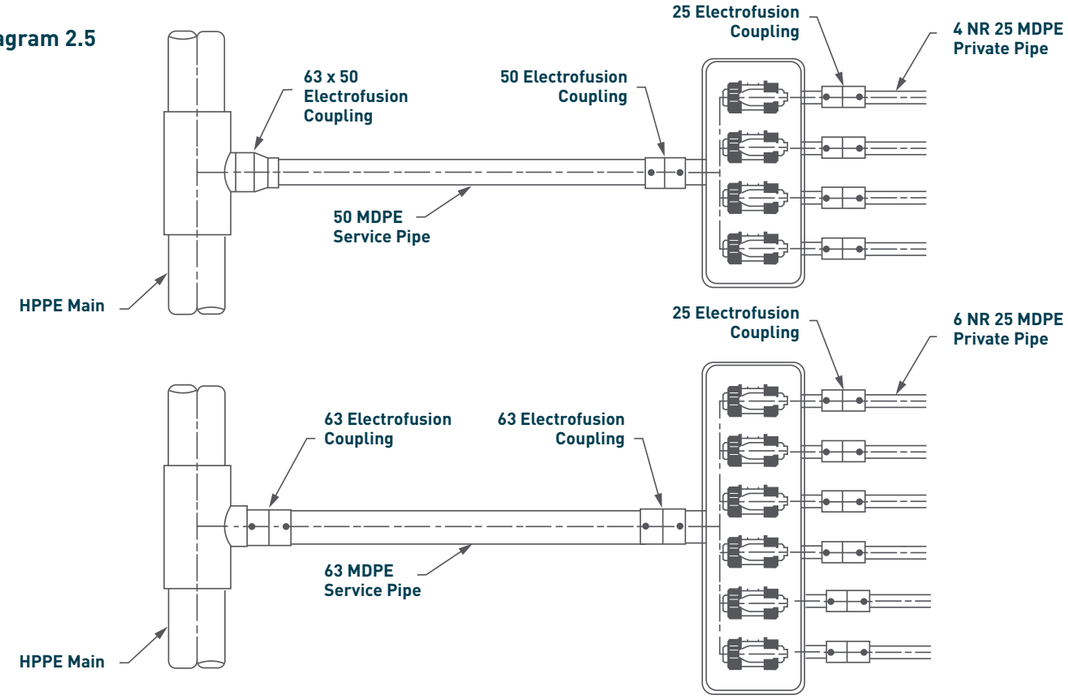
These are not acceptable

Manifolds

Manifolds are a popular choice for ease of installation, particularly in shared drives. We can install manifolds with 2, 4 and 6 service ports. This enables you to bring a group of services to one position without having to separate them. Please ensure these are labelled correctly with the right plot numbers.

For 4 port manifolds we will need to install a 50mm service pipe back to the water main and for 6 port manifolds a 63mm service pipe. The required excavation will follow the same principle as a singular service just on a slightly larger scale, a 1.5m^2 excavation will be required at the location of a 4 port and a 2m^2 excavation for 6 port manifolds as well as the 1m^2 excavation around the main. For far side connections, the 50mm and 63mm service pipes can be ducted and each manifold must be installed within 300mm of the shared drive boundary.

Diagram 2.5



Large diameter connections

For some commercial buildings and large domestic properties such as a block of flats, a Large Diameter Connection (LDC) can be an option, an LDC is any service connection that is greater than 32mm in diameter. Typically 50mm, 63mm or 90mm in size.

If you have any LDC's on your site then the process is mostly the same as a standard connection (25mm/32mm), with a few additional requirements. Firstly when the quotation is paid for an LDC we will dispatch the required meters to site for you to install. This may be a large bulk meter which you will need to install in a suitable chamber on the plots land within 1m of the highway boundary prior to inspection or a batch of smaller internal meters for you to install in a designated internal communal location or within each flat or apartment as per our metering policy prior to inspection.

Once you have been given a connection date for an LDC you will then need to chlorinate your pipework in accordance with BS6700:1997 and send the certificates for this work to your CEM before the connection date, these certificates are only valid for 10 days so they must be done ensuring they are valid for your planned connection date.

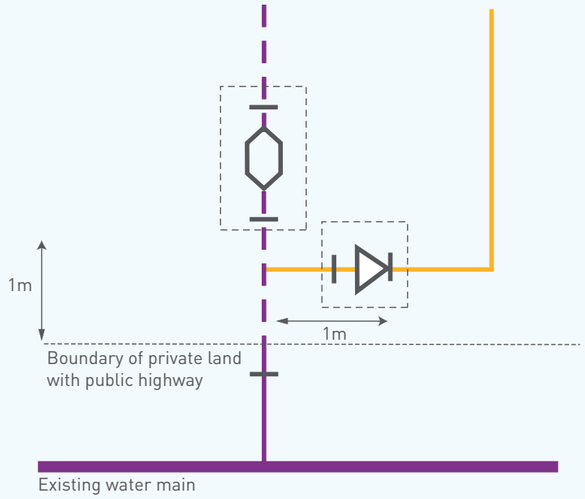
Fire supplies

Where a water supply for firefighting is required, there are various types of set ups to consider depending on the requirements of your development. Fire supplies can be used to feed hydrants, direct feed sprinklers and tank fed sprinkler systems.

Typically a fire supply will be connected in conjunction with the domestic water feed for the property in what we would call a fire domestic split. This meaning we supply a service connection that will then be split into separate feeds for fire supplies and domestic supplies. This can be done on both LDC connections and standard service connections depending on the flow rates required. Diagram 2.6 shows this arrangement on LDC's. This split is installed by the developer and will need to be inspected by Severn Trent before we plan in the connection in addition to the normal inspection requirements. For a fire domestic split on a standard 25mm or 32mm connection the developer will need to install two separate service pipes to the boundary, one for the domestic feed and one for the fire supply. The fire supply service will need to have a single check valve installed by the developer on the end of pipe, we will then connect both via a tee from a singular mains tapping, diagram 2.7 shows this arrangement. Diagram 2.8 shows an example of a tank fed set up which is another potential option.

Please note all pipe sizing and flow rates will be agreed through the application process for these connections. **For more information on LDC's or fire supplies visit: stwater.co.uk/developers**

Diagram 2.6



KEY

- Existing water main
- New ST communication pipe
- New customer supply pipe
- New fire main
- Chambers
- Control valve
- Meter
- Single check valve

Notes

- Meter chamber to be constructed by developer to ST specification.
- Fire supply SCVA chamber is private asset. ST recommend that chamber is constructed to allow maintenance of SCVA.
- All fittings to be WRAS approved in accordance with water fittings regulation 4.

Diagram 2.7

Direct feed system

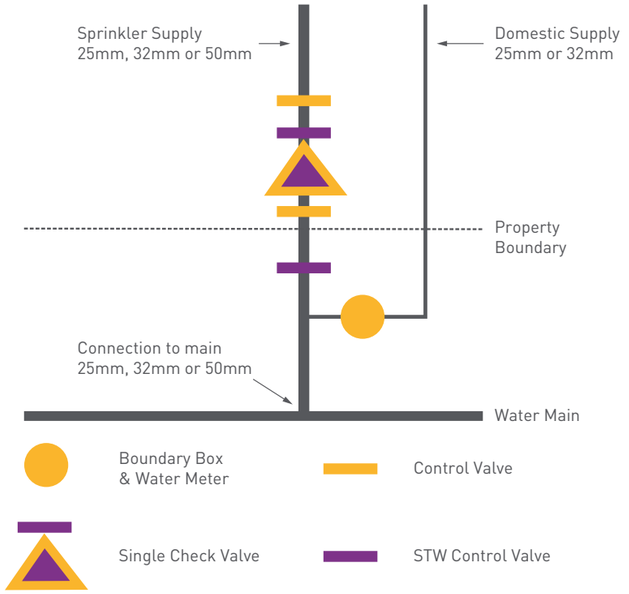
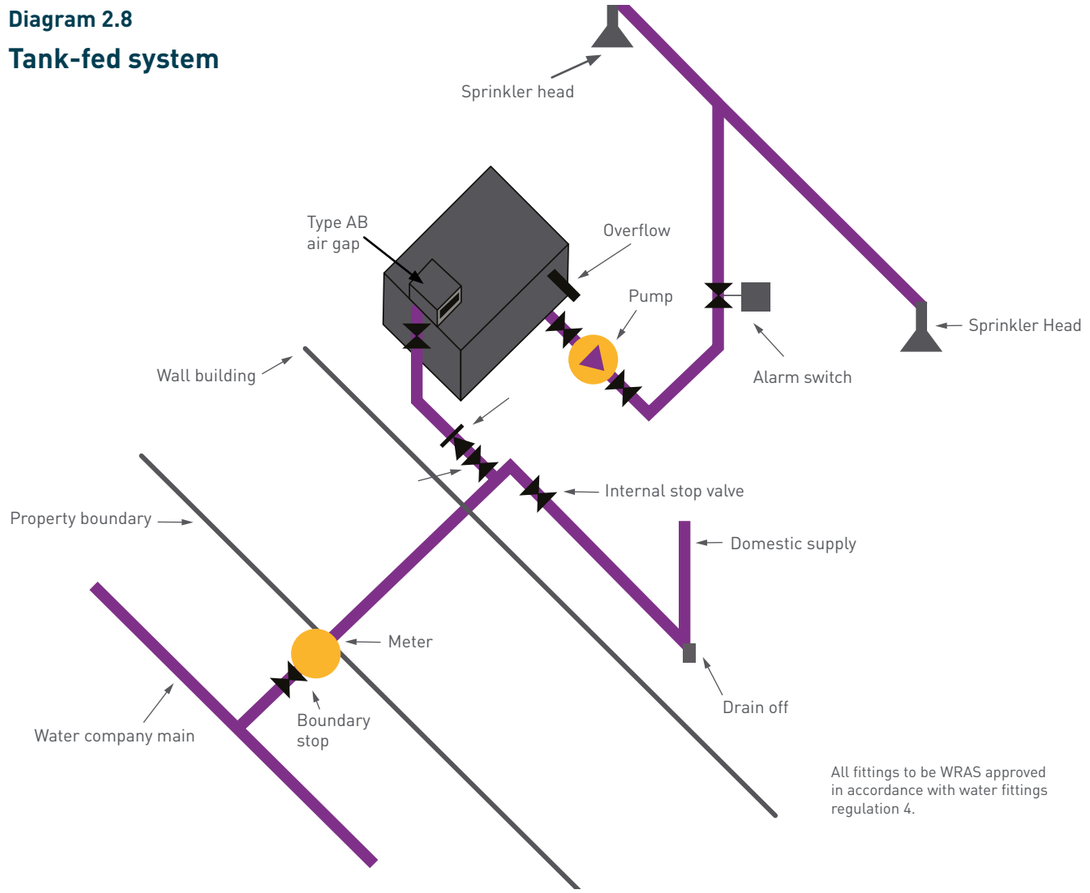


Diagram 2.8

Tank-fed system



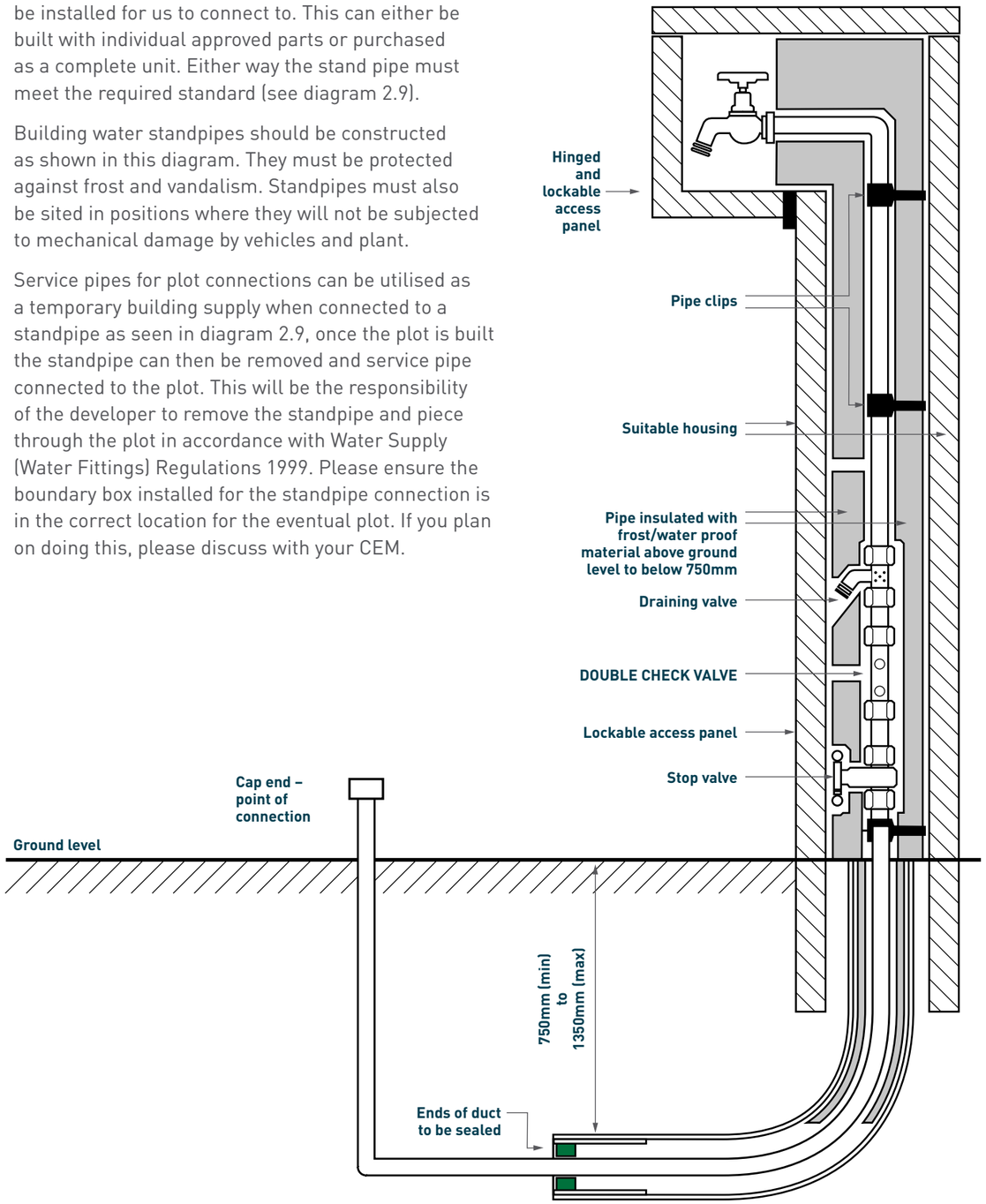
Temporary building supply connections

For any temporary connections for building supplies and on-site compounds, an approved standpipe must be installed for us to connect to. This can either be built with individual approved parts or purchased as a complete unit. Either way the stand pipe must meet the required standard (see diagram 2.9).

Building water standpipes should be constructed as shown in this diagram. They must be protected against frost and vandalism. Standpipes must also be sited in positions where they will not be subjected to mechanical damage by vehicles and plant.

Service pipes for plot connections can be utilised as a temporary building supply when connected to a standpipe as seen in diagram 2.9, once the plot is built the standpipe can then be removed and service pipe connected to the plot. This will be the responsibility of the developer to remove the standpipe and piece through the plot in accordance with Water Supply (Water Fittings) Regulations 1999. Please ensure the boundary box installed for the standpipe connection is in the correct location for the eventual plot. If you plan on doing this, please discuss with your CEM.

Diagram 2.9



Water Supply (Water Fittings) Regulations 1999 Information Guidance Sheet - 4

Standpipes for temporary building supplies

You could also make use of a metered standpipe as a source of water for temporary building supplies, these can be obtained via Aquam Water Services Ltd and can be connected to suitably placed live wash outs on our network.

Standpipes supplied by Aquam Water are legal to use on our network, please note that any other standpipes or apparatus used to extract water from our mains are illegal. Those found to be extracting water illegally may face prosecution.

For more information please contact Aquam Water Services on **0844 984 0103** or visit: **aquamcorp.co.uk/water-services/partners/severn-trent**

VERY IMPORTANT

Final site sign off

- Your CEM will need to do a final check of the site before signing off the scheme.
- Before the footways and carriageways are topped off with surface course please ensure all boundary box chambers are installed correctly and not damaged or modified in anyway. We can not accept boundary box chambers extended or repaired with ducting or any other products.
- Please ensure all chamber sections around sluice valves, wash outs and fire hydrants meet the required standards mentioned in this guide.
- It is best practice to request your CEM to check the site with you before final reinstatement is made to identify any defects and arrange possible remedial works where required.
- If any defects are found following a developer leaving a site, you will be notified of the required remedial works and timescales in which the remedial works will need completing by. If these timescales are not met Severn Trent will carry out the remedial works and recharge the costs in full to the developer.

Thanks for helping us to supply our customers with wonderful water.

References

Severn Trent Water Design Manual, DM0503-01, V 2.2, January 2017.

National Joint Utilities Group, NJUG Publication: Volume 2 Issue 4 (2007)

More information can be found on Water Regulations from the Water Regulations Advisory Scheme, Water Regulations Guide, Second Edition 2001 or on their website wras.co.uk

Contact us:

0800 707 6600

new.connections@severntrent.co.uk

stwater.co.uk

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