

LAYING OF WATER SUPPLY PIPES PRIOR TO CONNECTION

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Guidance for the laying of water supply pipes, prior to connection.

Introduction

All materials and fittings used **must** comply with Water Supply (Water Fittings) Regulations 1999. The following information is taken from the Water Regulations Advisory Scheme, Water Regulations Guide Book (2000), and is only intended as guidance when laying new water supply pipes. Images provided by kind permission by the Water Regulations Advisory Scheme. For details of the scheme please visit their website www.wras.co.uk.

Pipes

Polyethylene pipes

BS 6572: Blue polyethylene pipes up to nominal size 63mm for below ground use for potable water.

This pipe is specially developed for services laid in the ground. It is pigmented blue and there is one class designed for a working pressure of 12 bar at 20°C in sizes up to nominal size 63mm.

Selection of pipe size

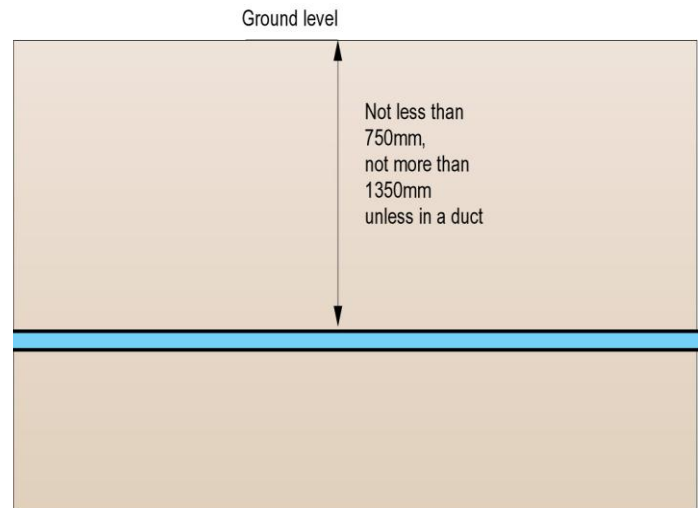
The table below shows recommended sizes for selection, dependant on length of supply pipe. *Assuming typical single domestic requirement of 24 litre per minute (0.4l/s) with a head loss reduction of not more than 3mh/100 (0.3 bar) through MDPE pipe.*

Supply pipe length in metres			
Up to 40m	40m to 100m	100m to 800m	800m to 2000m
Recommended pipe size in millimetres			
25mm	32mm	50mm	63mm

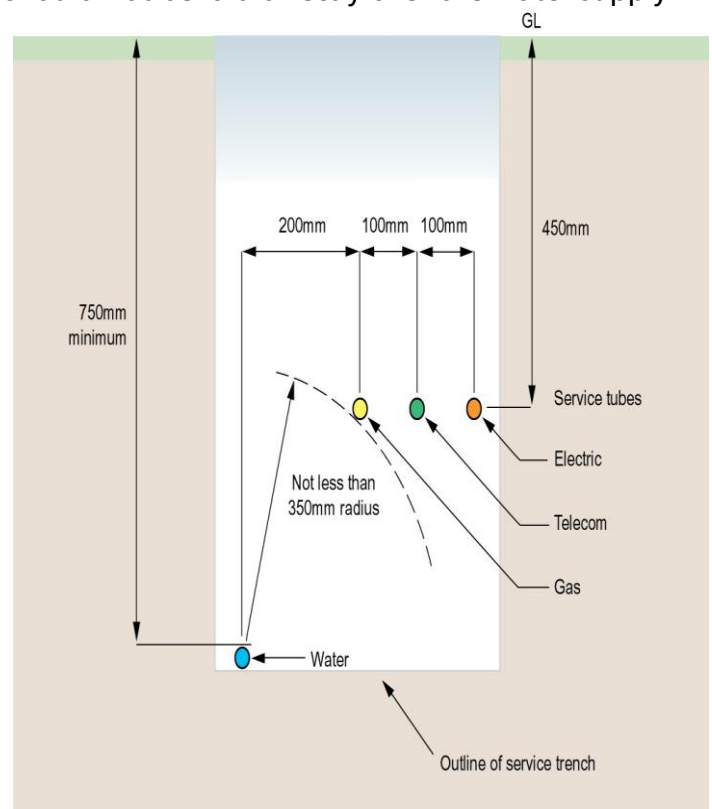
Pipe position

All underground pipework except for pipes laid under a building should be laid at a depth of no less than 750mm from the finished ground level and no more than 1,350mm. If this requirement cannot be made, then Anglian Water **must** be notified.

The pipe must be bedded and covered in sand to protect it from being penetrated by sharp objects.



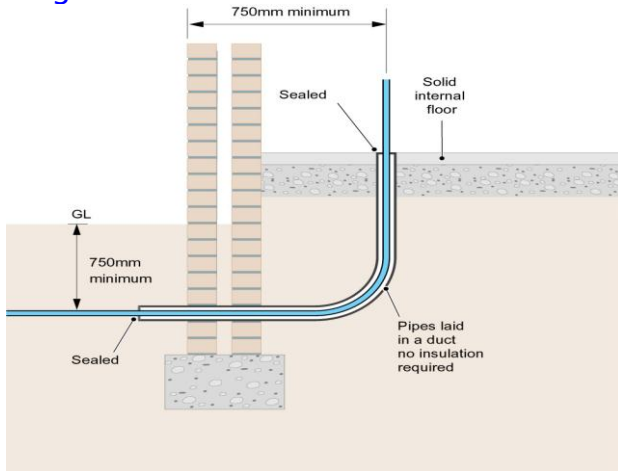
Some fluids, such as natural gas, may permeate plastic pipes. Care should be taken regarding the circumstances in which they are used. The diagram below shows details of relative positions of other utility services. Accessibility to the supply also needs to be made for future repair and maintenance and other utilities should not be laid directly over the water supply.



Ducting

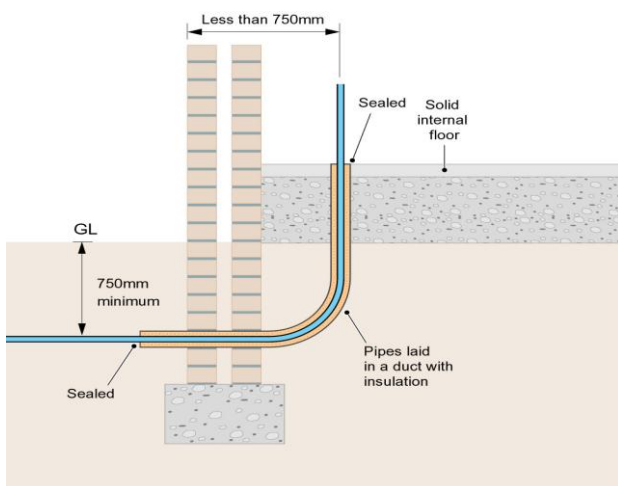
Pipes entering buildings at the approved depth should be passed through a duct and each end of the duct must be sealed. It is important the ends are sealed to prevent against entry of fluids, vermin and insects. (See diagram 1 below).

Diagram 1



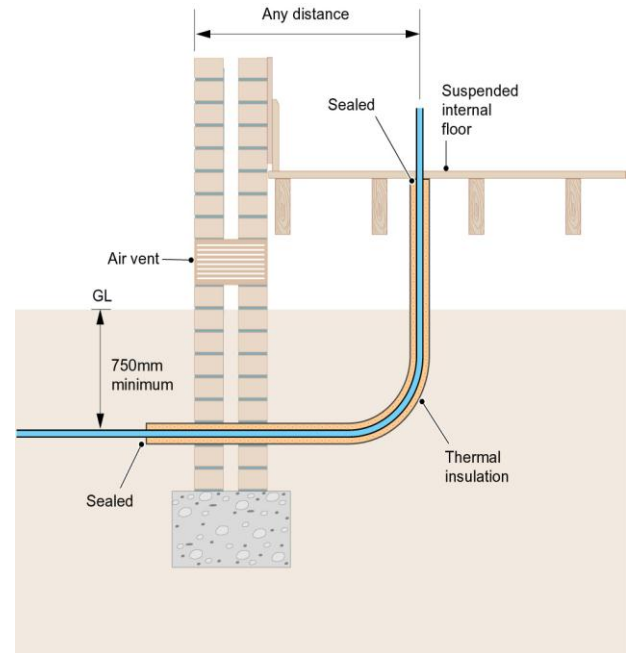
Where the incoming pipe enters the building at a distance of less than 750mm from the external face of the wall, the pipe should be insulated within the duct. (See diagram 2 below).

Diagram 2



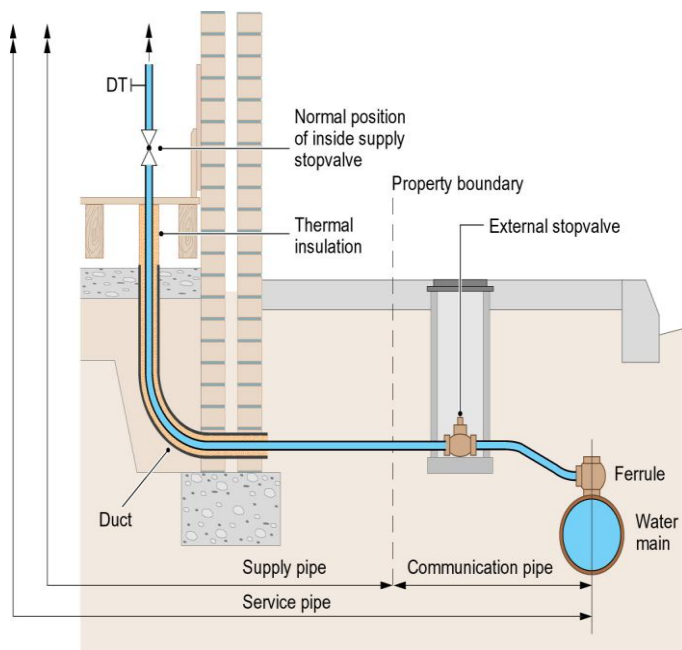
Where the incoming pipe passes through a vented or unvented airspace, such as below an internal suspended lower floor, the pipe should be fully insulated in that air space. (See diagram 3 below).

Diagram 3



Stop Valves

A stop valve shall be installed by the developer inside the property above floor level as close as practicable to the point of entry of every supply pipe. This stop valve on closure should prevent the supply of water to all points of use. Anglian Water will fit an external stop valve (normally at the boundary) when the connection is made.



It is important that all service pipes are clearly marked or labelled as to which plot they serve before the connections are requested. Failure to label the service pipes may lead to delays or service connections being aborted.

Meter boxes

Position of boundary boxes

Highway Authorities will not allow boundary meter boxes in driveways or vehicle cross over, where vehicles are likely to drive over them. If boundary boxes are installed in such locations this can result in the Highway Authority refusing to adopt the road until the boundary meter boxes are repositioned. Where this is the case and we have installed the boundary boxes as instructed, any repositioning will be carried out at the developer's cost.

Installation of wall boxes

If a wall box is the preferred method of connection, it is the developer's responsibility to purchase and install the wall box. The wall box must be installed to the manufacturer's specification prior to requesting the service connection.

The preferred location is a front or side elevation. It is important that they are not positioned at the rear of properties or where access for reading may be restricted, for example by locked gates.

Trickle flow plugs (for standard domestic connections)

All new boundary box, manifold and wall box connections will be installed with a trickle flow plug at the time of connection. The trickle flow plug will give adequate flow and pressure for the testing of the internal plumbing system, but will not be adequate to supply an occupied property.

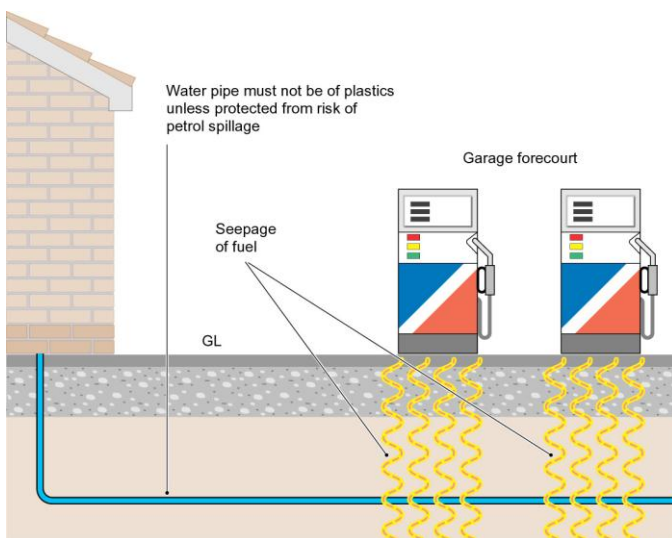
The water meter will be installed at the same time as the internal water regulations inspection takes place to ensure compliance with the Water Supply (Water Fittings) Regulations 1999. Therefore it is important that the property is fully plumbed when requesting the meter installation.

IT IS A CRIMINAL OFFENCE FOR DEVELOPERS OR THEIR CONTRACTORS TO TAMPER WITH THE TRICKLE FLOW PLUG IN ANY WAY.

For information on non-standard domestic connections, please contact the Water Regulations Team, reg5@anglianwater.co.uk.

Contaminated land

Plastic pipes must not be laid in ground that may be subject to spillage of hydrocarbons such as oil, petrol or creosote, which will cause deterioration of the pipe, consequent contamination or a waste of water. In such circumstances non-plastic or barrier pipe systems should be used. Where ground conditions have been tested positive for contaminants, correct pipe selection is critical. For further advice see WRAS Information & Guidance Note No 9-04-03 'Pipe Materials Selection Manual' published by WRAS. www.wras.co.uk.



If the site has been deemed as contaminated, the service pipes installed by the developer must be in either 'Protectaline' barrier pipe (preferred option) or plastic coated underground copper to BS EN 1057/1996.

Further detailed information on contaminated land can be found on our website <http://www.anglianwater.co.uk/developers/installation/contaminated-land.aspx>

Insulation

The common understanding that insulation to prevent freezing of water in pipes is provided to 'keep the cold out' is incorrect. Insulation is provided to retain the 'heat energy', thus delaying the onset of freezing until conditions change or heat energy can be applied in the water in the pipe. Thermal insulating materials should be of the closed cell type complying with BS 5422 and be installed in accordance with BS 5970.

Insulation must be able to prevent water from freezing for between 12 to 18 hours, depending on local conditions.

Some of the types of insulation materials relating to the thermal conductivities are as follows:

- Less than 0.020 W/(m.K) Rigid phenolic foam.
- 0.020 to 0.025 W/(m.K) Polyisocyanurate foam and rigid polyurethane foam.
- 0.025 to 0.030 W/(m.K) PVC foam.
- 0.030 to 0.035 W/(m.K) Expanded polystyrene, extruded polystyrene, cross-linked polyethylene foam, expanded nitrile rubber and improved polyethylene foam.
- 0.035 to 0.040 W/(m.K) Standard polyethylene foam, expanded synthetic rubber and cellular glass.

For a given thermal conductivity of insulation material, the smaller the diameter of the pipe, the greater thickness of insulation will be required; likewise for a larger diameter pipe thinner insulation is needed.

For more precise information, a thermal calculator is provided on the Water Regulations Advisory Scheme's website - please visit www.wras.co.uk.

Multiple plots

Where there are multiple plots, each pipe should be clearly marked to show which plot it will be serving. If any of the service connections on site are to be made using 2, 4 or 6 way manifolds the service connections for all of the properties served by each manifold must be requested at the same time and they must all be ready to be connected in one visit.

Chlorination

All pipes must be flushed and tested before they are first used. As a general rule a supply pipe will also need to be pressure tested, disinfected and sampled if:

- The pipe length is between 32mm and 63mm in diameter and greater than 100m in length.
- Is greater than 63mm diameter.
- Contamination has entered the pipework during installation.
- It has become contaminated during storage.

For more detailed information see Anglian Water's guide for disinfection, pressure testing and commissioning of private supply pipes and mains on our website: http://www.anglianwater.co.uk/assets/media/Disinfection_Pressure_Testing.pdf

Temporary building supplies

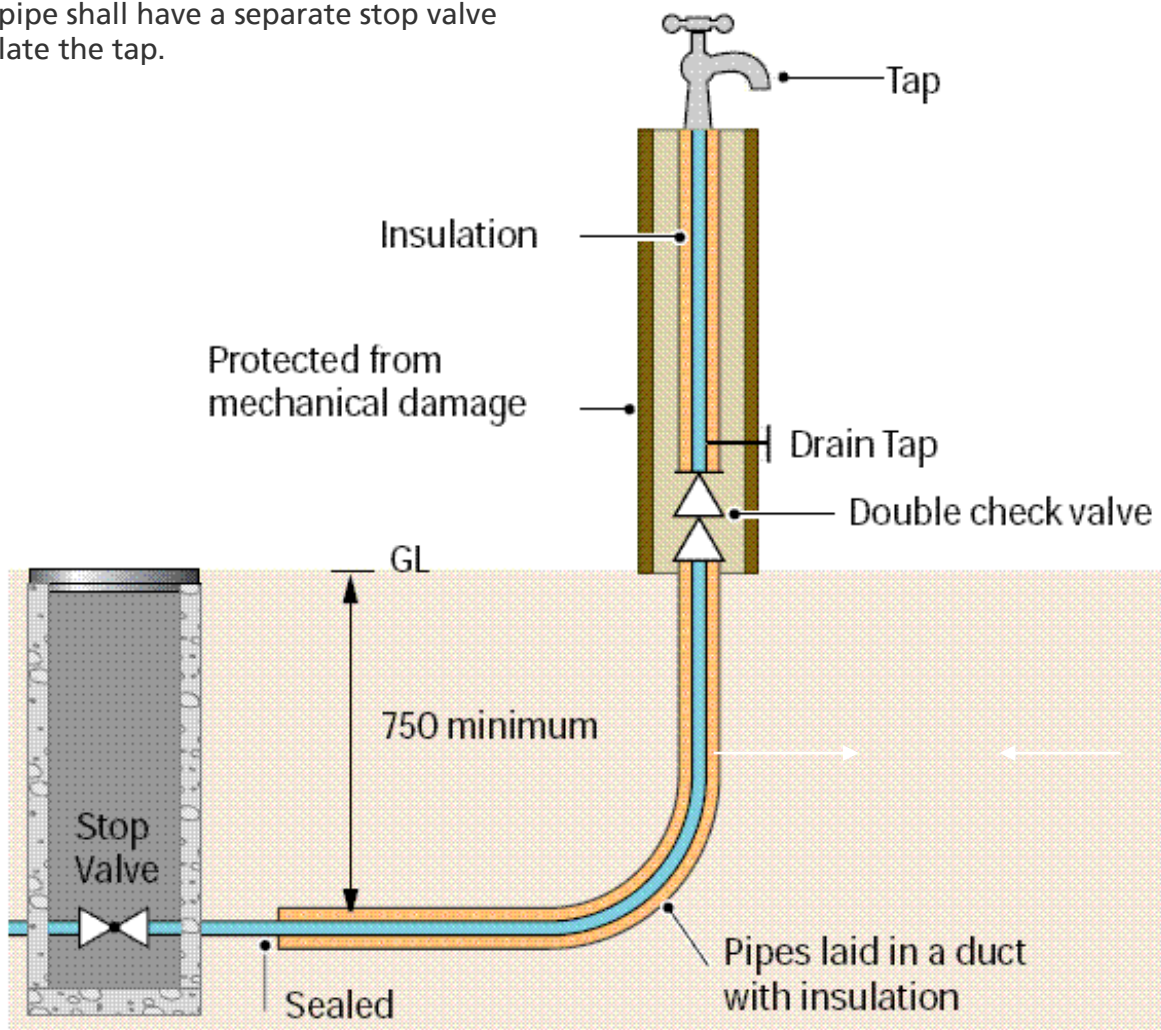
For temporary supplies for construction purposes a minimum standard of standpipe is required.

The minimum requirements are:

- On each pipe serving a hose union tap, a double check valve shall be fitted on the pipework.
- A drain-cock shall be fitted immediately downstream of the double check valve.
- The pipework should be of a material which will reduce the damaging effects of freezing eg MDPE.
- The pipework shall be suitably protected to prevent frost damage occurring (eg depth of cover or insulation) and be situated • and/or protected to prevent damage from any other cause such as vandalism or site damage etc.
- The standpipe shall be securely attached to a fixed post or structure.
- Where multiple standpipes are fitted each standpipe shall have a separate stop valve to isolate the tap.

If the supply is to be used for domestic purposes such as site cabins canteens etc, this must be protected from potential contamination from water used for construction. This can be best achieved by running the supply to the site cabins and canteens at which point install the backflow protection (such as a double check valve) before continuing to serve the rest of the construction use.

Note: The minimum requirements for backflow protection above will suit most construction applications. However in some cases this minimum standard may not be sufficient and Anglian Water reserves the right to require a greater level of backflow protection.





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Registered Office
Anglian Water Services Limited
Anglian House, Ambury Road
Huntingdon, Cambridgeshire PE29 3NZ
Tel 01480 323000 Fax 01480 323115

Registered in England No. 2366656