

LIMERICK CITY COUNCIL WATER DEPT
SPECIFICATION FOR THE LAYING OF DISTRIBUTION
WATERMANS

SEPTEMBER 2009

1. PLANS.

Submission of Plans to Water Dept for Approval

Before any work is put in hand, the following information shall be submitted to the Water Dept:

- 3 no. site location maps to a scale of 1:1000 showing the proposed development layout, layout of roads and proposed watermains.
- 3 no. plans of a scale not less than 1:500 showing the layout of roads, buildings, proposed watermains and other services.
- 2 no. sections through proposed roads and footpaths showing location of all services including watermains.
- A covering letter:-

A. Stating whether the scheme is going to remain private or requested to be taken in charge.

B. Quoting the Planning Permission Reference and Approval numbers.

C. Stating the time at which the connection(s) to LCC mains are required.

2. REGULATIONS / BYE-LAWS

All internal and external plumbing shall comply with good Engineering Practices and is leak free prior to operation.

3. TIME OF COMMENCEMENT

Applications for watermains connections must be made at least 1 month in advance of commencement of works on site. The Contractor shall notify Limerick City Council Water Department one week prior to the date on which it is proposed to commence work.

4. INSPECTION

A Limerick City Council representative may inspect the work from time to time. The connection to the City Council main will only be given when the City Council is satisfied that: -

- (a) The watermains have been laid in accordance with this Specification.
- (b) All internal plumbing complies with good Engineering practices and is leak free prior to operation.
- (c) Pressure, Chlorination and Bacteriological Tests have been carried out and approved.
- (d) A copy of the Bacteriological Test report has been submitted and approved by Limerick City Council, Water Dept, Mainlaying Section.

5. MATERIALS

No materials shall be used without the prior approval of Limerick City Council, Water Dept. It is the responsibility of the Contractor to ensure that all materials/fittings to be used on the site have been approved for use by the Limerick City Council Water Dept in advance of work commencing. A copy of the LCC Water Dept Standard Details is available on request.

6. PIPES & SPECIAL CASTINGS

Pipes shall be only Ductile Iron or HDPE. All HDPE pipes shall be blue in colour.

HDPE pipes should have an SDR rating of 11. They shall conform to the UK Water Industry Specification

No. 4-32-03 for pipe sizes greater than 63mm OD.

No. 4-32-04 for fusion joints and fittings.

Ductile iron pipes shall conform to Class K9 of EN 545. Ductile iron fittings shall be either Class K9 or K12. Ductile Iron pipes and fittings shall be cement mortar lined with sulphate resistant cement and shall be sealed with an approved bitumen or epoxy resin sealcoat.

6.1 Service Pipes & Fittings

As a general rule, service pipes should be HDPE. In certain circumstances and, **subject to prior written approval from the City Council Water Dept**, malleable copper pipes and/or copper alloy fittings may be used.

HDPE pipe and fittings should have an SDR rating of 11. They shall conform to the UK Water Industry Specification:

No. 4-32-02 and/or BS 6572 for pipe sizes up to 63mm OD.

No. 4-32-04 for fusion joints and fittings.

The diameter of the service pipe must be approved in advance by the Water Dept.

All pipes & fittings must be of a type submitted and approved by Limerick City Council.

6.2 Boundary Box

All service pipes shall include the installation of a boundary box with integral stopcock (note that the use of the traditional stopcock has been discontinued). Contractors shall consult with the LCC Water Dept in relation to approved types of boundary box.

6.3 Sluice Valves

Sluice valves shall comply with the Limerick City Council Specification for sluice valves. They shall be double flanged; ductile iron resilient seal gate valves for Water Dept purposes and shall comply with the relevant requirements of BS 5163: 1986 Type B and have the BS Kitemark. The number of turns to open/close the valve must be $n=2N + 1$ where N = the equivalent diameter in inches. All flanges shall be drilled to P.N. 16. The spindle shall be fitted with a cast iron oval false cap (complete with grub screw) of standard Limerick City Council pattern.

All sluice valves shall be ANTI-CLOCKWISE CLOSING. The depth of the SV spindle below ground level shall not exceed 300mm.

6.4 Hydrants

Hydrants shall be manufactured in accordance with BS 750: 1984, Type 2 and shall incorporate a screw-down valve, underground, “guide in head” type, and false spindle cap of standard Limerick City Council pattern. **A contractor may not use hydrants (which are provided for emergency supply) without the written permission of Limerick City Council.**

The hydrant valve shall be **ANTI-CLOCKWISE OPENING** i.e. the opposite of a sluice valve.

Note: Both sluice valves and hydrants shall be coated with an electrostatic epoxy powder spray, or bitumen – trichloroethylene solution to U.K. National Water Council and Limerick City Council approval.

The depth of the hydrant outlet below finished ground level shall not exceed 200mm.

6.5 Surface Covers

Valves and hydrants when installed shall be covered with approved heavy-duty metal surface covers to I.S EN 124: 1994. These approved metal covers shall conform to the Limerick City Council Specification for valve and hydrant covers.

6.6 Hydrant and Valve Indicator Plates

Hydrant indicator plates and baseboards shall comply with B.S. 3251. They shall be mounted at the boundary of the public thoroughfare nearest to the hydrant Or valve. SV & AV should be in cast iron measuring 200mm x 200mm, they should have the letters SV or Av as appropriate cast in relief. The plates should have a background in black bitumastic paint with the letters in white enamel.

7. DEPTH AND POSITION OF PIPES.

All pipes shall have a minimum depth of cover of 750mm and maximum depth of 900mm measured from the top of the pipe to the finished ground surface. There shall be a minimum clear horizontal distance of 300mm between the distribution watermain and other utilities, cabinets, poles, junction boxes or chambers. No other service shall be laid above along the line of the watermain. There shall be a minimum vertical clearance of 100mm where other services cross over the watermain. Pipes/ducts, cabinets, poles, junction boxes or chambers shall not be constructed on top of a watermain.

See Appendix 1 for clearances from arterial watermains.

8. PROTECTION OF PIPES.

All ductile iron pipework shall be coated internally with centrifugally applied cement mortar lining containing a sulphate resistant cement and shall be sealed with an approved bitumen or epoxy resin sealcoat in accordance with BS 4722: 1988. External protection shall include a zinc coating to EN 545 under bitumen based coating to BS 3416: 1991.

9. WARNING MESH

All pipework shall have a 400mm wide water warning mesh, - Plyage HR 40D blue polyethylene warning mesh or similar – laid directly over the enterline of the pipeline and tied to valves, at a depth of 350mm below the finished ground surface. Supply pipes shall have a mesh 200mm wide laid at the same depth.

PIPE JOINTS.

Pipe joints shall be one of the following three types:

- Push-in rubber ring joint.
- Bolted flanged joints.
- Flexible couplings, e.g. Viking Johnson couplings with Rilsan coating, or similar approved types.

All joints shall be made strictly in accordance with the manufacturer's instructions.

10. CLEANING PIPES.

All pipes shall be examined internally for dirt, stones, or any foreign matter and shall be thoroughly cleaned before laying in final position. To prevent foreign matter or vermin entering the main as it is being laid, all open ends of laid pipes shall be plugged until the next pipe is ready for insertion.

11. BEDDING MATERIAL.

All pipes shall be laid on a 150mm bed of rounded single sized pebble of 10mm nominal diameter and haunched and covered to a depth of 150mm with similar material. Pipes shall not be supported by stone or rock at any point. Rock shall be excavated to a depth of 150mm below the actual depth of trench required and backfilled with DOE Clause 805 prior to laying the pebble bed.

In ground that contains ashes or chemicals or material that could accelerate corrosion or deterioration of the pipe, the material to be used and method of laying shall be agreed in writing with the City Council Water Dept prior to laying.

12. BACKFILLING MATERIAL IN OR ADJACENT TO ROADWAYS.

All trenches in or near roadways shall be backfilled with DOE Clause 804, which shall be compacted to City Council requirements in layers of 225mm.

13. DESIGN CRITERIA.

- All mains must terminate in a ring or loop of sufficient size to accommodate at least one hydrant. (See Standard Details if necessary)
- The watermain shall be located a minimum of 1m from the boundary of private property.
- Watermains shall not be laid under walls or areas designated for trees/shrubs/flowers.
- No domestic property shall be more than 45m from a hydrant. Hydrants serving non-domestic properties shall be subject to the approval of the Limerick City Council Fire Officer.
- The location of hydrants should be such that they can be accessed in an emergency. Hydrants should not be located in roads or parking areas where possible.

- The minimum size of watermain shall be 100mm nominal internal diameter.
- An isolating valve shall be positioned just inside the private property boundary.

14. TESTS.

After the pipes have been laid and jointed, the main shall be tested as outlined.

15.1 Pressure Test.

Mains shall be subjected to 5 bar for 24 hours and shall be increased to 9 bar for 3 hours in the presence of a representative of the City Council. Testing shall be carried out between suitably supported blank end pieces. Testing between “live” shut valves will not be accepted.

15.2 Chlorination Test.

All mains shall be swabbed and disinfected before being put in to supply. The pipelines shall be disinfected with water having a minimum concentration of 20mg/l of free available chlorine. This can be achieved using a sodium hypochlorite solution. Many hypochlorite solutions are available on the market, such as Chloros, Eirochlor, Chemchor, Sodium Hypochlorite etc. and these contain 10 – 14 % of available chlorine by weight. These may be purchased in any good chemical supply company.

The recommended dosage of sodium hypochlorite solution is as follows:

Main Diameter	Vol. of sodium hypochlorite per 100m of main.	
	10%	14%
100mm	150ml	110ml
150mm	350ml	250ml

Other dosage figures can be extrapolated from the above figures.

The chlorinated water shall be left in the main for a period of at least 24 hours. Chlorine residual tests shall be taken at the end of the main furthest from the point of injection. The sterilisation process shall be repeated if the chlorine residual is less than 10mg/l. The chlorinated water shall be discharged into a foul sewer and never into a surface water sewer or water-course and shall be subject to the prior approval of the LCC Water Pollution Engineer.

15.3 Bacteriological Test.

The main shall then be refilled and a sample of the water shall be taken for Bacteriological Analysis. Great care shall be taken when obtaining samples for testing and only sterile containers shall be used. This sampling shall be carried out in the presence of the Engineer and/or his/her representative. Samples shall be tested within 6 hours of collection. Water samples may be tested in the following centres or in any approved or accredited laboratory.

Note: The Water Dept will not connect the new main to the existing network until a copy of a satisfactory bacteriological test report has been submitted to the LCC Water Dept for approval.

16. CONNECTION TO CITY COUNCIL MAINS.

Connections to mains, which are the property of the Limerick City Council, may be made by the City Council, or under the direct supervision of Limerick City Council Water Services Staff only. No other person shall interfere in any way with these mains. Such connections will be made by the City Council at the expense of the Applicant. The estimated cost of such connections shall be lodged with the City Council before the work is undertaken. The lodgment should be made at the Engineering Dept, City Hall, Limerick City.

17. FLUSHING.

When mains have been satisfactorily tested and connected to the City Council main, they shall be flushed out with potable water through a standpipe placed on the end hydrant before the main is brought into use.

Appendix 1.

LIMERICK CITY COUNCIL WATER DEPARTMENT. CLEARANCES BETWEEN ARTERIAL WATERMAINS AND OTHER UTILITIES.

September 09.

1. Where pipes/ducts are to be laid in close proximity to existing watermains, the Waterworks Dept must be notified in writing a minimum of one week in advance of the works. In case of large diameter or strategically important pipes, ducts or watermains, the Waterworks Dept must be notified in writing at least one month in advance of the works. These notification requirements are in addition to any necessary formal procedures, wayleave application etc.
2. Care to be taken while laying pipes/ducts so as not to damage any watermain or fittings. Any damage to be immediately reported to Limerick City Council. Anybody attempting to repair watermains or fittings will be liable to prosecution under Section 60 of the Waterworks, Clauses Act, 1847.
3. Cables, Pipes/ducts, cabinets, poles, junction boxes or chambers must not be laid on top of watermains or fittings.
4. The following horizontal clearance from arterial watermains must be maintained between pipes/ducts, cabinets, poles, junction boxes or chambers:
 - 500mm to watermains greater than 300mm diameter and less than 450mm diameter,
 - 3m to watermains 450mm or greater except for a foul sewer where the minimum horizontal clearance shall be 5m.
5. Where pipes/ducts cross over watermains, a minimum vertical clearance of 500mm should be maintained for watermains of 300mm diameter or greater. In addition, all such intersections shall be positioned such that they are at least 500mm from any watermain joint.
6. Where a foul sewer crosses over an arterial watermain, the foul sewer shall be constructed in an approved type of unjointed pipe between manholes. The distance between the manholes and the watermain shall be agreed with the Water Dept in advance of the works.
7. A watermain location map must be obtained from Water services office before any excavation begins.
