

Irish Water Self Lay Quality Assurance

Toolbox Talk 4 of 8: Foul Sewer Pipe Laying

Step 1 – Before You Start

- Ensure safety is considered during the planning and execution of the works. If working on behalf of Irish Water, adhere to Irish Water's HSQE requirements.
- Materials are to be in accordance with the Irish Water Codes of Practice (CoP) and have CE marking.
- All equipment should be in good working order and, where applicable, have a relevant calibration certificate and CE marking.
- All workers should be familiar with and adhere to the approved Sewer Layout and Long Section Drawings. If any changes are required, consult with Irish Water before doing so.
- Before installation of any water or wastewater infrastructure works refer to Irish Water's Codes of Practice (CoP) and Standard Details which are available, along with the full library of Quality Assurance Toolbox Talks, on the Irish Water website water.ie/connections/

Step 2 – General

- Maintain required separation distances in all directions from all services.
- Gravity sewers can be either:
 - Concrete.
 - uPVC.
 - Thermoplastic structured wall pipes.
- Plastic pipes must be SN8.
- Sewer rising mains can be either Ductile Iron (DI) or Polyethylene (PE).



Step 3 – Pipe Laying

- The minimum trench width is dependent on the pipe diameter. Refer to STD-WW-07 for minimum trench width dimensions.
- Use a pipe laser to ensure correct alignment and gradient.
- Place pipe bedding below & surround above the crown of the pipe. Refer to STD-WW-07 for minimum depths of pipe bedding.
- Refer to STD-WW-07 Note 5 for pipe bedding material.
- Lay pipe marker tape with trace wire on top of pipe bedding.
- Refer to STD-WW-07 Note 2 for minimum cover for pipelines.
- Refer to STD-WW-07 Note 3 for trench backfill materials requirements.



Step 4 – Rocker Pipes

- Rocker pipes are required at the entry to and exit from manholes to form a flexible joint upstream and downstream of the manhole structure. Refer to wastewater CoP Section 3.12.8.
- The length of rigid pipe stub that is built into the manhole wall shall extend no further than 600mm from the inner face of the manhole wall.
- The length of the next pipe, the rocker pipe, shall be varied in relation to the pipe diameter with lengths of 600mm for pipes of 150mm to 600mm diameter.
- Flexible pipes used with Precast Concrete (PCC) manholes bases incorporating flexible couplings do not require a rocker pipe.

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Step 5 – Pipe Protection Measures

- If the pipe is installed without the adequate depth of cover, pipe protection measures are required. In order of precedence: a concrete support slab or a concrete surround are to be used. Refer to STD-WW-08.
- Use secure and appropriate formwork to support placement of concrete.
- When encasing PE pipes in concrete due to reduced cover, wrap the pipes in polythene
- When encasing pipes in concrete, provide expansion joints at all pipe joints.



Step 7 – Root Protection

- Adhere to STD-WW-06 and 06A and maintain a sufficient distance from existing trees.
- Where there is a risk of root infiltration, use root protection measures such as appropriate barriers, high performance joints or PE pipes with welded joints.

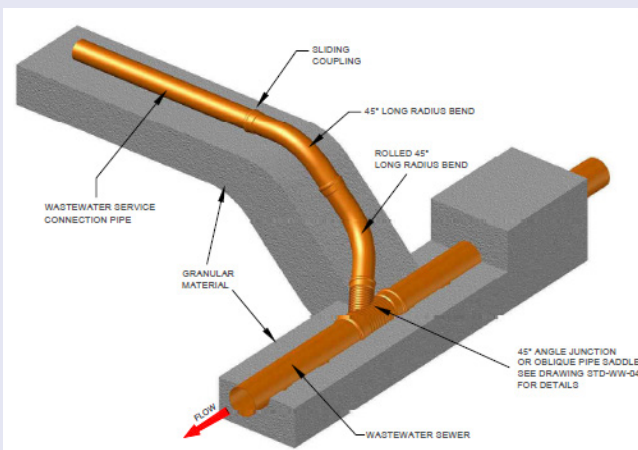
Step 8 – Testing

- Each sewer line is to be tested from manhole to manhole. Refer to wastewater CoP Section 4.10.
- The LA air test is generally applied. This involves raising the pressure until 100mm of water is indicated on the U-tube. A drop of less than 25mm in 5-7 minutes is generally a positive test result.
- In situations where there is a high water table, the LC test will be applied. This involves raising the pressure until a pressure of 1000mm of water is applied. A drop of less than 150mm in 3 to 4 minutes is generally a positive test result.
- Water tests may also be required in accordance with I.S. EN 1610.
- CCTV surveys of each line are required.



Step 6 – Service Connections

- The minimum size for a service connection is 100mm.
- Locate Inspection Chambers for each service connection on the private side of the property boundary within 1 metre of the boundary.
- Install service connections perpendicular to the foul main at a gradient between 1:40-1:80 from inspection chamber.
- Use a 45° Y-branch connection from service connections to foul main.
- Use long radius 45° bends to turn down and direct service connection towards the Y-branch. Refer to STD-WW-03.



Step 9 – As-Constructed Records

- Record and maintain:
 - as-constructed Irish National Grid (ING) co-ordinates, invert levels and cover levels of each pipe at manhole locations.
 - as-constructed ING co-ordinates of private side inspection chamber location for each service connection.
- As-constructed records are to be included in the final documents which are submitted to Irish Water prior to connection.